154 Inclusive Apps

Inclusive Information and Communication Technology (iICT)

2018

Join the Facebook group: inclusiveICT
This booklet was developed by students for the topic DSRS4102/DSRS9064 Technological Applications and Disability – Flinders University 2018, Semester 1.

It is presented as is and represents undergraduate and post-graduate student work.

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inclusive Information and Communication Technology (iICT)

The voyage to discovery is not seeking new landscapes, but in having new eyes.

(Marcel Proust)

Teaching is but an illusion --- only Learning is real

(Carey, 2007)

The topic looks at inclusive Information and Communication Technology (iICT). In it we look at new and emerging technologies that may be useful to people with a disability. It is not about learning how to use a technology (this is covered in other areas) but how to look at technology with new eyes to see a new use or potential.

"...if not used effectively ICT becomes little more than a glorified typewriter...and an expensive one at that!" (McKinsey, 2009, 17)

IT's about Innovation NOT Duplication
Introduction:

This is the final project for students in this topic in Semester 1 2018. 
The reviews are presented with minimal editing.
Some apps are considered from different functional groups and may appear in several sections.
The groupings are based on the World Health Organization’s (WHO) Disability Assessment Scale 2.0 (WHO-DAS 2.0) revised in 2018 and covers 6 areas:
1. Cognition – understanding and communicating
2. Mobility– moving and getting around
3. Self-care– hygiene, dressing, eating and staying alone
4. Getting along– interacting with other people
5. Life activities– domestic responsibilities, leisure, work and school
6. Participation– joining in community activities

Each app in this collection are evaluated by students under specific headings
- Universal Design for Learning (UDL)
- Curriculum area
- Australian National Disability Standards
- SAMR
- Person centred planning
- 21st Century approach to learning and technology (the 5Cs)

Universal Design for Learning (UDL)

Universal design for learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. Watch the video below to get an overview of UDL. (http://www.cast.org/our-work/about-udl.html#.WUDQmGiGNhE)
Curriculum area

The area of learning that the app addresses.

National Disability Standards


There are six revised National Standards that apply to disability service providers. They are:

Rights - The service promotes individual rights to freedom of expression, self-determination and decision-making and actively prevents abuse, harm, neglect and violence.

Participation and Inclusion - The service works with individuals and families, friends and carers to promote opportunities for meaningful participation and active inclusion in society.

Individual Outcomes - Services and supports are assessed, planned, delivered and reviewed to build on individual strengths and enable individuals to reach their goals.

Feedback and Complaints - Regular feedback is sought and used to inform individual and organisation-wide service reviews and improvement.

Service Access - The service manages access, commencement and leaving a service in a transparent, fair and equal and responsive way.

Service Management - The service has effective and accountable service management and leadership to maximise outcomes for individuals.

SAMR

Developed by Dr. Ruben Puentedura, SAMR is a model that supports and enables teachers to design, develop, and infuse digital learning experiences into their lessons. It stands for Substitution, Augmentation, Modification and Redefinition. Each word can be applied to a lesson or activity that incorporates technology, moving from a use that simply replaces existing classroom resources (Substitution) to activities that create new tasks, not possible without technology. (Redefinition)

(From Adam Foster https://www.showbie.com/using-showbie-with-the-samr-model/)
Person centred planning

‘Person centred planning’ may be defined as a way of discovering:

1. How a person wants to live their life and
2. What is required to make that possible.

The overall aim of person centred planning is “good planning leading to positive changes in people’s lives and services” (Ritchie et al, 2003).

21st Century approach to learning and technology (the 5Cs)

The 5Cs

Provide learners with

• the CONNECTIVITY

• to develop a COMMUNITY of learners

• so they can COLLABORATE

• to CREATE new things and ideas and

• provide a place where the resources and products can be CURATED for retrieval at a later date.

http://www.slideshare.net/gjpcarey/redefining-education-5cs-copy
The 154 Apps for 2018

Some apps are considered from different functional groups and may appear in several sections

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Cognition
Understanding and Communicating

Leanne Coveney
Jiamin Xu
Ghislaine Chabi China
Sharon Katuke
Najwa Safar
Stephanie Pletiak
Apps for functional group: Cognition

Reviewer

Leanne Coveney
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Jiamin Xu
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Ghislaine Chabi China
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Stephanie Pletiak
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Introduction

The World Health Organisation’s Disability Assessment Schedule (WHODAS 2.0) aims to measure functioning and disability in line with the International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2017).

Cognition is one of the 6 life domains captured. The major points covered in the WHODAS 2.0 related to Cognition include –

1. Concentrating on something for 10 minutes
2. Remembering to do important things
3. Finding solutions to problems day to day
4. Learning a new task or skill
5. Generally understanding what people say
6. Starting and Maintaining a conversation

Additionally, there are related categories in the ICF. These include considering an individual’s need to focus attention, sensory experiences, memory problems, solving problems, basic learning and acquiring complex skills. (World Health Organisation, 2018)

Hedman, Kottorp, and Nygard (2018) explain that people with mild cognitive impairment encounter difficulties when undertaking complex everyday tasks. Tasks take additional time, are less efficient and contain more errors. Borg, Lantz, and Gulliksen (2015) describe cognitive disabilities as including attention deficit disorder, Autism, Dyslexia, Dementia, intellectual impairment and mental illness. People with cognitive disabilities may experience difficulties in electronic communication due to reduced orientation, attention, memory, organisation and planning, problem solving, language and calculation skills (Borg et al., 2015).

Each of the apps included below focus on developing or assisting to support one (or more) of these areas. The reviews provide a practical, structured approach to assess how selected apps can improve skills and to enable improved access to the community for people with a range of cognitive disabilities.

Underpinning some considerations for individuals with a cognitive disability were broader issues related to disability and technology. These included ideas regarding privacy, privacy policies and informed consent that has been investigated in Segura Anaya, Alsadoon, Costadopoulos, and Prasad (2018). We also considered Universal Design. Feingold (2017) explains that best practice is to make accessibility part of the fabric of technology and present from the beginning. This is in line with the principles of Universal Design. The selection of apps was therefore based on considering apps that allow people with a cognitive disability to access technology on an equal basis to others in the community.

The apps considered are reviewed in light of their ability to assist individuals with cognitive disability to learn, communicate, solve problems, remember tasks, and enhance independence and individual fulfillment.
First Then Visual schedule

Operating System: IOS
Location: Apple App store
Cost: $22.99

Description: The First Then visual schedule app is designed to be portable and create frameworks for the child to understand their day or complete tasks. The activities of the day can be displayed on the app so that an image assists the child. There are five ways of accessing images – take a picture, access the camera roll, search the Internet, use stock images in the app or access symbols. There is the opportunity to add a choice board or video to steps further supporting the child to understand components of a task. You can create, customize and share schedules within the app and edit, move, delete or hide steps once the schedule is created.

The First Then Visual Schedule app is targeted towards pre-readers. The picture provided for each task is designed to lower anxiety and support memory. The schedules can be printed or emailed and photos can be easily updated.

Alignment with the UDL guideline: This app matches the UDL Principle 3 – Guideline 9 Provide options for self-regulation. This app has options of inserting a picture that is personalised and meaningful to the child. This may result in reduced anxiety by providing a familiar structure allowing students to moderate emotional reactions to be more effective in coping and engaging with the environment. The app inherently gives children and educators further opportunity for structure and predictability which can be advantageous for situations such as transitions or when the child is having difficulty remembering the steps of planning and organisation. Therefore, it additionally aligns with Principle 1 Guideline 3 – activate of supply background knowledge. Comprehension and understanding of the task required is supported by this app.

Curriculum area: This app is stated as useful for pre-readers, however, it would also be useful to help structure transitions between all subject areas. Whilst this app could be utilized as part of the English curriculum – ‘a day in the life of’ or ‘visual ‘story’ it has overall application to classroom flows and structure. I would see this as particularly useful for specialist teachers or situations where there is likely to be a change in the expectations/structure eg excursions.

How does the app meet the National Disability Standards? The app meets National Disability Standards by supporting rights of the individual, as they can more effectively communicate their preferences. Their participation and inclusion is supported by providing a structure and plan for activities. This increases predictability and allows for conversation between home and school (or service). It meets individual outcomes by considering strengths which exist and building on increasing students tolerance of wait times by using the ‘first’ ‘then’ structure. This app enables the child/student to communicate their needs and enhance opportunities for feedback by using
visual cues related to preferred activities. Access is increased as the child/student is able to participate with less support from the educator thereby facilitating inclusion with peers.

How the app changes pedagogy (SAMR)? This app is an example of Transformation. It allows for the redefinition of visual cards that have been used by educators in classrooms for many years. There are still many examples of these being used on lanyards and in educational environments. The reason this is a transformation is that it allows for the embedding of videos, sharing of schedules and modifications to suit different learners. For those with cognition difficulties it allows for support with remembering, learning and communicating.

How the app encourages person centred planning? This app encourages a person-centred approach, as it tailors the support to the person. It encourages support workers to meet someone at their current level and build on existing skills. There is however, a certain structure inherently embedded in a scheduling app such as this that may be viewed as prescriptive. However, there are many situations where learning is supported, inclusion is increased and reliance on direct teacher instruction is reduced allowing for the student to have additional autonomy.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app is an example of curation as it is a 'location' where an individual’s journey or activities are collected, stored, categorized and collated to be used by the individual. Equally, it is an example of creativity as it allows for the manipulation of images and videos to present information in new ways.

Evidence from the literature that the app is capable of the claims made: This app is an example of a visual schedule. Spriggs, Mims, van Dijk, and Knight (2017) state that there is evidence supporting the use of visual schedules to teach individuals with intellectual disability. They suggest visual schedules may be useful in areas such as daily living, navigation, vocational, recreational and academic skills. Some additional benefits may include increased independence and time on task. Additionally, Barlott, Adams, and Cook (2016) suggest that communities may use low-tech assistive technology to gain participation in reading, writing, community and education activities. However, they suggest that greater participation in information society is needed, similar to what is offered through this app. The First Then app suggests that use of the app may support memory and lower anxiety. Mills and Chapparo (2017) suggest that successful impulse control and appropriate responses can be challenging for some people with a disability and can be impacted on by their ability to gain and process information. The First Then app allows for a structured, non-threatening and visually appealing way to receive this information.

General Comments: This app would be an excellent substitute for visual ‘flash card’ style reminders for students. Using flash cards can highlight difference and has the potential to restrict students to sitting in one location. The app is a visual way of supporting a schedule that the teacher may display in the room and personalises it, potentially alleviating frustration from the student regarding wait times for preferred activities or being uncertain about upcoming activities.
Reviewer: Leanne Coveney

Meal Planner Lite

Operating System: IOS
Location: Apple App store
Cost: Free

Description: The intended purpose is to make grocery shopping and meal planning easier to support people with disabilities to plan healthy meals as independently as possible. The app allows for people to check for ingredients and develop a shopping list. The meals are created in a database by the user (or support person) and categorised into meal types. The app also incorporates a text to speech feature to allow users to access regardless of their level of literacy.

Alignment with the UDL guideline: This app aligns with Principle 1 – Guideline 1 – Offer ways of customising the display of information and Guideline 3 – Guide Information processing, visualisation and manipulation. The app allows for the storage of familiar information about meal options to be accessed by individuals to support independence. It provides a step-by-step process for the collection of information to utilise and support remembering required tasks in meal planning.

Curriculum area: This app would be well suited to younger students in Mathematics if the topic was about developing a ‘shopping list budget’. It could be incorporated into a broader cross curriculum study involving the writing of recipes (English) and cooking (Humanities) including an excursion. This may be replicated with older students; however, is likely to be more Health/Life skills based with comparisons to appropriate eating and the preparation of a meal.

How does the app meet the National Disability Standards? This app relates to emphasising the ideas of rights of choice and control in the long term, as it builds life skills to function independently. However, in the short term there is limited choice and control as there is not a link to access or import recipes from the Internet, instead it relies on pre-inputted data. Presuming being able to shop and cook independently is the goal of the participant and not the goal of family and carers or workers (as they value these skills). This app would need careful consideration as to the goals of person-centred planning as whilst it may allow for greater independence and reduce the need for a worker/carer to be involved it is likely to be linked to a broader goal.

How the app changes pedagogy (SAMR)? This app is an example of Enhancement (Augmentation) as it is a functional improvement to a ‘recipe book’ and shopping list. It would be a transformation if the app included videos to demonstrate the recipes, linked to an online shopping platform and had the ability to price items/sit within a budget. Further than this if it used a hologram to demonstrate the cooking steps involved in producing the recipes. As it currently stands the app requires further features to be appropriate for a wider audience.

How the app encourages person centred planning? This app encourages person-centred planning by focussing on the use of a planning tool to assist with a task. This would only be person centred
planning if the individual themselves had a stated goal of independent living or the ability to shop and cook for themselves and was utilising this app to support that progression.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)** This app is an example of curation – especially in the current format of having to place relevant recipes into it. There are alternative apps such as RecipeBook where you can source recipes from Internet sources or add them manually and link them with friends and family. This may be a progression if the ‘ease of use and functionality’ claims are not upheld. La La Lunchbox would be an alternative if you were looking to focus on one aspect at a time and Mealtime if the family was able to support the use. However, Meal planner lite would be a good introduction to individuals’ beginning to learn some meal preparation independence.

**Evidence from the literature that the app is capable of the claims made:** When considering the use of this app it is critical to ensure the use is a goal of the individual at the centre of the plan. Thill (2015) suggests that the National Disability Insurance Scheme (NDIS) is including the voices of people with a disability but this is still limited. This could be improved by ensuring people with a disability are central to the implementation and evaluation. This is a concern of the NDIS, however the same concern relates on a smaller scale with the use of this app. Ensuring that the person with a disability is committed to and interested in the skills of cooking and shopping is vital, as choice and control needs to be at the forefront of life skills implementation. De Lima and Zorrilla (2017) state that social learning platforms with peer-based interactions are a key aspect of teaching and learning in education today. This is where Meal Planner Lite lacks impact – there is no inbuilt connectivity with others. On the positive side, Borg, Lantz, and Gulliksen (2015) suggests that the most critical factor in website design for those with cognitive disabilities is use of pictures, icons and symbols along with text, which this app does.

**General Comments:** This app could support an individual with gaps in concentrating, remembering and communicating. There would be the opportunity to show individuals at the shop a picture of the item or recipe being made if it was difficult to find the ingredients. The inputting of familiar recipes has the potential to be limiting however, it may enable scaffolding to the use of alternative apps in the future. Disability Educators and support workers could use this to support an individual with cognitive disability to remember the task from home to the shops to maximise their independence in the community.
Reviewers: Leanne Coveney

My Safety Companion

Operating System: IOS

Location: Apple App store

Cost: Free but can In-App purchase a torch ($1.49)

Description: This app is designed to assist people with feeling safe. It has 3 differing safety features that are colour coded. Your emergency contact person is selected and entered in advance. When there is real or perceived danger you choose between the three safety features. You can SMS (automatically sends co-ordinates and a link to a map with your location), phone (call in one step your nominated contact) or alarm (activated so people nearby can assist). The in app purchase is able to be added. It works as a flashlight and costs $1.49.

Alignment with the UDL guideline: This app aligns with Principle 2 – Guideline 4 Optimize access to tools and assistive technologies. This is a relatively simple app designed to assist with functions of safety calls. The end goal is to allow assistance from trusted contacts and increase opportunities to operate independently. Given it is a relatively simple format with large coloured buttons it allows for access to a broad range of people.

Curriculum area: This app would be suitable for those in high school where it may be connected to some life skills, health and sexuality or personal safety curriculum. This app could be incorporated into teaching about support networks and safe people within the community while maintaining the dignity of risk.

How does the app meet the National Disability Standards? This app meets the Disability standards by allowing for minimal restriction or intervention. The app may need to be explained to the person with a cognitive disability and practiced, so they understand the function. This app can be connected to allowing additional freedom and opportunity to attempt independent activities. The app also provides some protection from exploitation and harm as the individual can access assistance quickly from a trusted person.

How the app changes pedagogy (SAMR)? This app is an example of an Enhancement. It sits within the augmentation section whereby the tech has functional improvement. In this case the improvement is, somewhat paradoxically, simplification. The improvement will allow for reduced complexity with accessing assistance. This function exists within a combination of other apps and functions however this app brings these features together.

How the app encourages person centred planning? Fundamentally, person-centred planning aims to situate power and control with the person and aims for community participation. This app provides peace of mind for supporters/family/carers and removes a potential barrier to participation. Whilst there may be many users who can navigate the functionality of a smart phone there may be some that become overwhelmed or are anxious in new situations.
What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app is an example of Connectivity. It connects to other significant people to allow for control and independence in activities. This app is a way to ensure access to people is easily accessible but available on a similar device to that which others are using.

Evidence from the literature that the app is capable of the claims made: This app is relatively simple in design and the desired function - calling individuals in an emergency. My reservations with this type of app, and other more comprehensive versions where peoples’ whereabouts can be tracked, is in regard to individual agency. Darcy, Maxwell, and Green (2016) examine the social model of disability where the focus is on identifying the barriers to participation that are environmental or attitudinal. In considering this app, care would need to be taken that it was not another layer of ‘protection’ or aversion to risk that was unnecessary. Treanor (2017) describes this well by suggesting that to develop as a person requires a path of self-development that allows a person to contribute to friendships, having a meaningful life and having a valued role. This app does have the potential to make a cognitively demanding or multi step task more simplified.

General Comments: This app could be useful to Developmental Educators by enhancing choice and control with navigating the community. It may assist parents to feel more comfortable with things such as transport training or developing times when they are away from the support worker. This could be an introduction to personal safety and internet/people danger conversations whilst providing an action or solution of what to do.
Reviewer: Leanne Coveney

Equip Myself

Operating System: iOS
Location: Apple App store
Cost: Free

Description: The Independent Living Centre (ILC) WA developed an app that supports people with a disability to identify assistive equipment and technology options to help them. It aims to provide access to information about options that could assist with safety, wellbeing and independence. It is sectionalised into different rooms of the house and has ‘case’ studies. If you are interested in a particular piece of Assistive technology, it will link you to an ILC website.

Alignment with the UDL guideline: This app aligns with UDL as it supports Principle 2 – Guideline 6 – Options for executive functions. The ability for the information to be organised as it is in the app supports people with a cognitive disability who may have reduced executive function. This app supports more long-term planning. It additionally fits with Principle 1 – Guideline 3 – Options for comprehension. The ability to supply background knowledge and a guide to visualising information is used within the app to assist with people’s decision making about what will help them.

Curriculum area: Students of any age would benefit from this as a planning tool; however, if considering independent use, this would apply to post school age students. This would be particularly relevant for those thinking of moving out of home or potentially supporting students to contribute to discussions re: space redesign or technology that may assist them. In an education context this could be used for design and technology subjects or as part of an English study on persuasive texts regarding the need to be more inclusive in building design.

How does the app meet the National Disability Standards? This is both a significant strength and a significant weakness of this app. The app would be a useful tool within the planning process – especially for families who may be overwhelmed or have challenges with literacy to provide a visual guide for the conversation. It may also allow individuals and families to consider possibilities not previously thought of within the structure of school. However, as the app relates to a particular organisation it may predispose a carer, family or participant to consider the options available from this provider only, this would need to be carefully considered when recommending or using this app.

How the app changes pedagogy (SAMR)? This app is an example of an Enhancement - Substitution as it is a direct substitute for a catalogue of available options. The functionality or advantage lies in the application of the information contained within and the electronic format for portability.

How the app encourages person centred planning? This apps strength lies in its ability to encourage person centred planning, as it is essentially a planning tool. It allows the person with a disability to see in a visual format some of the options that are available, in Australia, for assistive technology.
equipment and technology. Prior to a planning meeting for the National Disability Insurance scheme (NDIS) this app may assist families to think ahead and plan for additional elements that need to be included in the process.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?**

Collaboration – this app allows for one way (and therefore biased) sharing of ideas regarding the available equipment and technology. However, if used as a planning tool it can be used to collaborate by accessing ideas. Curation – while this has been done by the ILC this app is designed to curate information and encourage people to retrieve it later.

**Evidence from the literature that the app is capable of the claims made:** This app has some significant advantages in that it visually highlights options that are available. This may help individuals with planning. Individualised funding is explained by Reddihough, Meehan, Stott, and Delacy (2016) as transferring choice and control from funding bodies or organisations to the individual, carer or family resulting in increased self-determination. The app may be helpful in terms of information provided to increase self-determination however, may restrict investigation into options outside the one organisation. Mosito, Warnick, and Esambe (2017) suggest that technological resources can be used to support learning of someone with a disability. They suggest that students who use a combination of educators and technology outperform those who have access to only educators. Therefore, if this app is used as a tool to support conversations then it could prove useful.

**General Comments:** I see this app being useful for Developmental Educators and Teachers to have conversations with students and parents. I would see the format and linking as user friendly for someone looking to begin conversations with an individual developing an NDIS plan who is unsure of the types of products available to increase ease and safety of tasks. The link with cognitive disabilities is seen in the need to refer to information and have the options explained. The process of developing a plan when you are not sure what to request may be a difficult starting point therefore the visuals provided could assist.
Reviewer: Leanne Coveney

Everyday skills

Operating System: IOS, Android

Location: Apple App store, Google Play

Cost: $46.99 (IOS) or $38.99 Android

Description: This app has slightly different information if it is searched as Android or IOS. It features 40 self-directed learning sessions. It claims to be a cognitively accessible learning tool to support learners who have difficulty learning skills for accessing the community, personal skills and transition and transportation skills. The app specifically states that it uses Universal design principles and uses multiple modes of instruction – visual and auditory. The app is designed to be useful for anyone needing support for learning and maintaining skills. Skills include social, everyday living and community access. Some upgrades which have been applied to the app include personal customisation and changes to replay and restart functions, implying greater ease of repetition.

Alignment with the UDL guideline: This app attempts to align with UDL Guidelines by the way the app is designed. The app provides multiple means of representation - Principle 1 as it is presented in visual and auditory format; it also encourages repetition and allows for connections between concepts. Checkpoint 1 focuses on ’Provide options for perception’. The app considers some elements of this eg speed of video and volume adjustability. However, there are some gaps with the app lacking written transcripts for videos, sign language and tactile learning options. The UDL guidelines and checkpoints regarding ’options for language, mathematical expressions and symbols’ are not fulfilled as the app is only available in English. One way this app does not appear well aligned to UDL principles is that it could be used to view the same material repeatedly, watching videos and assuming knowledge had been gained; however, within Principle 2, Guideline 6 UDL suggests that options should be provided for developing executive functions such as supporting planning and strategy. It suggests embedding prompts to show and explain your work and mentors modelling the ‘think aloud process’ eg ‘I would need to think about what I would do if the bus did not come’. The nature of the app could allow for ‘watching and viewing’ rather than as a tool to scaffold further learning.

Curriculum area: There are several areas that this app focuses on Community Skills, Personal Skills and Transition and Transportation skills. The primary focus age would be high school with a focus on Transition planning. There is some progression through the ‘topics’. The curriculum area would be focused on ADL’s – activities of daily living or ‘Life Skills’ depending on the titling of the topics. As an example, the Transport section would appear to fit within the HUME curriculum on stage 8 and 9.

How does the app meet the National Disability Standards? The Everyday skills app meets the National Disability Standards specifically in standard two – Participation and Inclusion and standard three Individual Outcomes. Standard two emphasises the importance of economic and community
participation based on an individuals’ interests. The limitation of this app therefore is the narrow focus of ‘Community skills’ it does not provide a session on playing sports, going swimming or driving a car, instead it emphasises a baseline of skills and activities. It does however attempt to build some functional skills around increased understanding of community access. Standard three regarding individual outcomes primarily focuses on options and implementation of support in line with life goals. This app will assist to build foundation skills; however, is somewhat limited to ‘traditional’ options. An example of this is in the job skills it highlights – working in an office and working in a warehouse.

**How the app changes pedagogy (SAMR)?** This app is an example of enhancement by way of augmentation. There are options for revisiting and watching it again. The app could be used to start a blog, Moodle or more interactive way if the students individually caught bus with families or carers and uploaded it with an opportunity for interactivity. Teachers could guide questions and video a scenario eg getting off at the wrong stop or leaving something behind on the bus.

**How the app encourages person centred planning?** The primary way this app would assist with a person-centred approach was if the topics contained were someone’s stated goal. This would need to be following planning where the service did not decide based on their existing suite of options. This could include - I want to be able to catch the bus to an after-school job and meet friends after my shift in a local restaurant. When this idea is translated to individual elements the ‘learning sessions’ could be used by an educator to work towards individual steps or goals. This app, if used as a standalone concept given to someone without applying it to their life context and putting it into practice, is not an example of person centred planning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The app uses the approach of creativity – presenting information in new ways; however, the app has the goal of improving people's ability to make use of community. If people with a cognitive impairment were to use the app to develop their skills, then they would be potentially more able to navigate the community.

**Evidence from the literature that the app is capable of the claims made:** Hedman, Kottorp, and Nygard (2018) explain that mild cognitive impairment suggests that people will encounter difficulties when performing complex everyday tasks. It takes additional time and their performance takes more effort. This app can assist with this by providing visual reminders and opportunities for repetition. One of the key objectives of the National Disability Insurance scheme as explained by Thill (2015) is that people with a disability have choice and control when pursuing goals and planning supports. I see this app as having the opportunity to form part of this choice and control by providing a framework for building on goals. It could additionally support an individual or family to think more broadly about potential future goals.

**General Comments:** This app could be particularly useful for parents, teachers and developmental Educators attempting to familiarise those with cognitive delays with familiar, predictable events. It has limitations with diverse scenarios and there are gaps with how to generalise or apply that knowledge to other situations. It could be used well for transport training along with an individualised social story/photographic representation of the person or family on the actual route.
Reviewer: Jiamin Xu

Ereader Prestigio
Operating System: iOS, Android

Location: Apple App Store, Google Play

Cost: Free, Online purchase

Description: Ereader Prestigio is an Android application of a book store and personal library that provides users with online access to books in 25 languages, over 50,000 multi-format texts and audio publications. It includes resources for both adults and children. The Text-To-Speech function is included with choice of languages for text book files. Users can download books from the Ereader Prestigio library and upload eBooks from other devices.

The drop-down manual contains functional sections for user-personalised management. The visual output offers choices of font styles, sizes, screen orientations and themes. Users can personalise the themes and book background, choose the reading mode between day or night, create reading lists and wish lists. The book shelf would show the books that have been recently opened. The auditory output has options for language, pitch and voices and it can be activated with a single click on the "Voice" icon. The app also provides the information on the actual book and the recommendations of books based on the current book. The eBooks can be synapsed with other linked devices. Users can search specific contents in the eBook and book-mark the sessions. This app also supports off-line reading, therefore, the users' reading would not be limited by internet accessibility.

Alignment with the UDL guideline: Ereader Prestigio aligns with the UDL, as it provides multiple means of representation including both visual and auditory options, as well as choice of languages. It also provides multiple means of engagement, as it provides efficient access to books that engage users’ interests and learning; it offers options for sustaining effort and persistence. It provides choices for executive functions which includes goal setting, planning, managing information and resources and monitoring progress. It also provides options for self-regulation, as the users have control of the time and duration of readings, the selections of reading materials and topics.

Curriculum area: Ereader Prestigio is rated for 3 years and older. It contains a collection of children and adult books and texts. It is most closely aligned with the English curriculum as it supports the development of reading, language and comprehension skills.

How does the app meet the National Disability Standards? Ereader Prestigio meets the NDS by providing fair and inclusive access to online literacy resources. It also delivers the materials in both visual and audio forms. It builds on individual strengths to achieve personal outcomes.

How does the app change pedagogy (SAMR)? This app enhances the teacher’s pedagogy by providing an alternative method delivering and promoting reading and learning for students with visual or language difficulties. It offers a multilingual and multi-visual presentation of book resources for readers of different ages, abilities and interests. It also allows students to choose reading
time and duration, and it prevents students misplacing books by substituting paper books with
digital form.

**How does the app encourage person-centred planning?** This app allows teachers and students to
individualise the reading list, choosing methods (visual, auditory and language) and the amount
of reading based on each student’s individual ability and progression.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Ereader
Prestigio is a cognitive and linguistic-oriented application which provides learners with
connectivity and curation in literature resources. It supports individuals to read and learn
through visual or audio or both methods. It provides options that maximize learning strength of
the individual reader, which encourages cognitive development in individuals with highly
personalized solutions.

**Evidence from the literature that the app is capable of the claims made:** Reading is an important
contributor to the development of many cognitive skills (Paris 2016). Young readers, in the
acclimation stage of learning, are likely struggle with all aspects of reading including decoding,
vocabulary, and comprehension (Connor and Weston, 2016). The combination of lack of
practice, deficient coding skills and difficult materials results in unrewarding early reading
experiences that lead to less involvement in reading-related activities (Stanovich 2017). When
capacity-draining word recognition processes require cognitive recourses that should be
allocated to higher-level process of text integration and comprehension (Paris 2016), reading
for meaning would be disadvantaged; thus, unrewarding experiences advanced, and reading
practice will be further avoided with decreased cognitive involvement. Increase in reading
exposure and practice on the part of less skilled reader promotes the development of
growth would be also benefit through the learning of word meanings from context during
reading (Sranovich, 2017). Furthermore, listening and multimedia illustration would be
alternative methods for learners with reading deficiency to achieve greater learning goals
(Leopold and Mayer 2015).

Ereader Prestigio provides options of reading methods and languages, which engages readers’
interests, builds on individual’s word recognition, vocabulary and comprehension, and it
promotes a rewarding reading experience. With a positive reading experience, further reading
and learning will likely be enhanced, and so many other cognitive growths will be facilitated.

**General Comments:** Ereader Prestigio offers a multimedia, pleasant and user-friendly platform for
users to read and learn from a bank of literatures and knowledge. It has been shared by millions
of readers. With guidance from teachers and educators, it could become of a personal library
for students to access anytime and anywhere.
Name of app: Easy Talk Lite
Operating System: Android
Location: Google Play
Cost: Free

Description: Easy Talk Lite transcribes a verbal conversation into text by voice recognition technology on mobile devices for people with hearing difficulties. This speech to text application can recognize more than 70 languages. The interface of the app is simple. Users can change the fonts and size of the text contents on a simple click on the functional button. A single icon on the screen allows users to activate / deactivate the translation. The text translation can be copied to the clipboard and shared via Bluetooth, Email, Message, Facebook and other external drives through the dropdown manual on the right corner. The application also offers the option of connecting to a second mobile device through Wi-Fi connection, so that the inputs of conversation can be collected and displayed on both devices spontaneously. The availability of devices is automatically detected and shown. An easy to follow instruction is present at the start of application, which shows the step of connecting two devices, deleting part of the text transcription, and replacing text. The text transcriptions can be shared. The application is free, and it is also free of commercial advertisements.

Alignment with the UDL guideline: Easy Talk Lite aligns with the UDL guidelines on multiple means of representation, expression and engagement. By transcribing verbal information to written text, it provides an option for people with hearing impairments to communicate and to understand verbal information. It provides options of alternatives for auditory information, as well as it supports individual choice and autonomy.

Curriculum area: This app is suitable for students who can read text but have difficulties in hearing. By using this app, a mobile device can translate verbal information into text, and the transcripts can be saved and used in other software. With the specific connection to a second phone, the app further assists listener by direct translating verbal information between two input sources. This function is particularly useful for people with hearing difficulties in a noisy environment.

How does the app meet the National Disability Standards? Easy Talk Lite on mobile devices meets the NDS, as it supports participation and inclusion in classroom and other communication settings. It also helps anyone with auditory difficulties and note-taking difficulties to improve individual communication abilities and achieve educational goals. It provides an assistive tool not only for students with significant hearing impairment to participate in general education settings, it also can be a note-taking tool for all students in learning.

How does the app change pedagogy (SAMR)? Easy Talk Lite transforms and enhances the teacher’s pedagogy, as it assists the teachers to more correctly and efficiently deliver the information among students who have auditory difficulties, who are learning English as a second language and who have note-taking difficulties. Easy Talk Lite enhances users’ communication abilities
and it promotes learning outcomes in individual learners, as it turns verbal information into written text which can be used in immediate conversation and be stored for future uses.

**How does the app encourage person centred planning?** Easy Talk Lite is a personal application, which supports individuals' with/without auditory difficulties to communicate with others, to receive and learn text information from verbal input which would otherwise be difficult to obtain.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Easy Talk Lite provides users with connectivity, by supporting conversation and communication; collaboration between students and teachers and information curation for future use.

**Evidence from the literature that the app is capable of the claims made:** The goal of school education is to see that children learn and understand the information presented (Stanovich, 2017). The presence of noise and reverberation in classrooms significantly increases the listening complexity in inexperienced listeners, including elementary students, children learning English as a second language and children with auditory difficulties (Nelson and Soli, 2000). Literature (Bellis 2011; Stinson, Elliot, Kelly and Liu, 2008; Nelson and Soli, 2000) has shown that even a low degree of auditory difficulties is likely to link with delays of vocabulary acquisition, incidental learning, and reading ability.

Children with Central Auditory Processing Disorder (CAPD) and language difficulties are mostly disadvantaged by the division of attention from attempting to listen to verbal messages, transcribe the message in a coherent manner, and return attention to the speaker (Stinson, Elliot, Kelly and Liu, 2008). The writing often trails behind the spoken message, with the result that the next piece of information would be missed. In addition, the inability to direct one’s full attention toward the spoken message and inadequate listening strategies virtually resulting much of the verbal message will be lost (Bellis, 2011). As the result the student will not learn the information presented as expected. Beginning in the later elementary school year and continuing through college, information begins to be presented via lecture format, and note taking often becomes a requirement. Tests are often developed from lecture notes (Stinson, Elliot, Kelly and Liu, 2008). Accommodations need to be made for students with CAPD and other hearing difficulties to receive the information in the classroom (Bellis, 2011). A speech to text application can serve as a note-taking tool. The teachers can hold the second connected mobile device that delivers direct verbal input, while the student receives the transcription with enhance accuracy in a noisy classroom.

**General Comments:** This app is a valuable tool for teachers and educators to deliver teaching contents to children with auditory difficulties and notetaking problems. It free for anyone to use and it is advertisement free. Users can enjoy the conversation without the interference of commercial advertisements on the screen. The app is simply operated with only four functional keys on the screen. It also works offline. It has received overall positive feedback from hearing impaired users.
**Reviewer:** Jiamin Xu  

**Cognition - App 8**

**Curiosity**

**Operating System:** IOS, Android  
**Location:** Apple App Store, Google Play  
**Cost:** Free, Online purchase

**Description:** Curiosity is an educational application on mobile devices with an interactive graphical interface. It categorizes content from vast internet resources into subjects and topics and delivers it to users. The users can choose and change the research profile based on personal interests from hundreds of subjects, including general topics like history, art, business, design, food, health, language, maths, medicine, sport, technology and sciences, as well as more specific topics, like bacteria, coffee, dinosaurs etc. Short articles, videos and relevant external links are generally included in the interest topics. The "Explore" section integrates a wide range of background information, such as landmarks, art exhibitions, famous people etc., into Google Maps. It offers daily updates of new information on 5 topics of individual interest, as well as recommendations of upcoming events in user’s geographic area or personal interest subjects. Users can like, save and share the acquired information with family and friends. A list of related topics is shown at the end of one topic, which is designed to spark curiosity. It also supports family sharing with up to 6 members. It has an overall rating of 4.7 out of 5 and more than 1 million downloads from Google Play Store.

**Alignment with the UDL guideline:** Curiosity app aligns with the UDL guideline in engagement and representation. With a bank of informative topics and connection to widening resources, it provides a convenient media for users to learn. It encourages users in learning, applying self-regulation, sustaining effort and persistence, as well as building on individual interests, optimizing individual strengths and motivation. It also provides multiple means of representation by multi-media formats, which supplies background knowledge, highlights critical features and provides options for visual and auditory perception. It further meets the UDL guideline, offering multiple means for engagement with options for facilitating interest and sustaining persistence.

**Curriculum area:** This app is suitable for students of all ages and abilities. It would appeal to individuals who are seeking knowledge and enjoy learning new things. It nourishes users’ cognitive learning through delivering information in multi-media format to meet individual interests and strengths. The continually expanding information resource provides a rich background knowledge bank that encourages its users to learn and contribute.

**How does the app meet the National Disability Standards?** Curiosity app meets the NDS in promoting individual rights and participation in learning and providing access to knowledge through a multi-media platform. It also offers a learning opportunity that is not restricted by time or place. It builds on individuals’ knowledge, strengths and self-determination to motivate, explore and achieve personal goals.
**How does the app change pedagogy (SAMR)?** Curiosity offers enhancement to teacher’s pedagogy with its interactive knowledge bank for self-regulated and self-motivating learning in students of all levels and abilities. With short text summaries, videos and graphic illustrations, Curiosity is a substitute educational tool which promotes learning and cognitive development in students.

**How does the app encourage person centred planning?** This app is an educational application with a focus on personal interest and learning. It sends new topic reminders daily to the users, which are selected based on individual interest profiles. It invites users to view and to explore the subjects and other related information. Teachers or educators may suggest learning subjects to students who will conduct personal reading and research through the application, and then share the learnt knowledge within the class or group.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Curiosity, as a web-based educational application, provides learners with connectivity and curation for knowledge in multi-media collections. The family sharing feature also supports collaboration in groups.

**Evidence from the literature that the app is capable of the claims made:** Curiosity is developed on the model of self-regulated learning, which engages learners to transform their interest and mental abilities into a task-related learning process (Zimmerman and Schunk 2013). Self-regulated learning is a proactive process of the student with personal initiative, adaptive and perseverance skills. It involves discovery learning, self-education through reading, using computer-assisted instructions, modelling, guidance from peers and teachers (Zimmerman and Schunk 2013).

Evidence shows that students who are motivated and believe that their school work is interesting and important are more cognitively engaged and self-regulated to learn and comprehend using cognitive strategies (Pintrich, Groot and Elisabeth, 1990). Research (Dabbagh and Kitsantas 2012) indicated that motivation and enjoyment is the drive in self-regulated learning, which supports students to persist in the face of difficult tasks, to employ problem-solving strategies and group collaborations. Well-designed multimedia information technology applications can promote motivation, enjoyment and active cognitive processing in learners (Mayer 2005).

Dabbagh and Kitsantas (2012) suggested that informal learning in social resources via the Internet has become an integral part of formal school experience, where learners become active contributors of the content, rather than passive information consumers. Curiosity is a network tool with information technology supporting a learner-centred pedagogy. It sustains the users’ interests with its multi-media information presentation. It can also serve as a platform for incorporating formal and informal learning and cultivating self-regulated learning in school education.

**General Comments:** Curiosity can be a supplementary educational tool for students, that facilitates and supports self-regulated learning. Teachers and educators can also use the group interactive function on Curiosity to facilitate, monitor and direct students’ learning process.
Headspace

**Operating System:** IOS, Android

**Location:** Apple App Store, Google Play

**Cost:** Free in the first 10 days, online subscription

**Description:** Headspace is an application on mobile devices, which provides mindfulness activities and meditations to help people in different age brackets to learn and to apply meditation skills which facilitates healthy and happy mind sets. The application includes activities and videos for people including toddlers, school children, preteen and adults.

The app includes five series: foundation, health, relationship, performance and headspace pro. The foundation series must be completed to unlock the rest of the series, which presents daily mindfulness exercises for a duration of 10 to 20 minutes. In the health series, activities are divided based on different needs and interests, including self-esteem, pregnancy, stress, anxiety, and sleep. A timeline of progress is shown on the chosen sessions including the total duration of meditation and the progress towards the personal goals. It also offers single tasks, which contain SOS, mini 3-minute exercises for meltdown or needs in a hurry; ON-THE-GO, mindfulness activities during the day; and CLASSIC, a collection of personal guided mindfulness exercises in durations of 10 to 60 minutes.

Headspace for Kids offers activities and videos on children from toddlers to preteens, and all ages in between, with themes like calmness, kindness and sleep. These sessions are created for not only children and parents enjoying together, but also, they can be used in a classroom or a group setting.

**Alignment with the UDL guideline:** Headspace aligns with the UDL guideline in providing multiple means of representation, action, expression and engagement. The application provides a comfortable approach to people who may be new or a regular user of meditation. Most activities are videos guided by a calming voice and music, which provides users visual/audio guidance. It also supports executive function, this includes setting personal goals, managing resources and monitoring progress. It provides options for self-regulation that nurtures beliefs and develops personal coping abilities.

**Curriculum area:** This application is designed to meet the needs of both children and adults, with divisions of each age groups. It offers a wide range of meditation exercises for emotional regulation, as well as specified guided experiences for personal stress management. This would support a school curriculum in Health/Physical activity and more broadly life skills of stress and anxiety management.

**How does the app meet the National Disability Standards?** Headspace is an application that is designed to promote mental health for people of all abilities. It not only provides an option of guided experiences to release stress and anxiety for people suffering mental health issues, but
also encourages individuals to actively learn the mindfulness skills and knowledge to manage stress and emotions based on individual needs and interests at any chosen times.

**How does the app change pedagogy (SAMR)?** Headspace enables teachers to infuse mindfulness learning into general academic curriculum which redefines the pedagogy with a new learning component. It could be used as a tool in stress and anxiety management; moreover, it provides meaningful education in psychological well-being on a personal base.

**How does the app encourage person centred planning?** The application is a personal-centred meditation exercise application. It provides meditation plans of guided sessions and messages based on personal needs and goals. It also includes a personal progress record for self-monitoring and reflection.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Headspace encourages individuals to actively manage stress and anxiety by using mindfulness skills and guided meditation exercises. It supports the development of a community with skills of mindfulness and awareness in mental health. It also provides resources for teachers to promote emotional well-being in the class.

**Evidence from the literature that the app is capable of the claims made:** Studies (Meiklejohn et al., 2012; Weare 2014) collectively showed a range of cognitive, social, and psychological benefits to both elementary and secondary students after the adoption of mindfulness education programs. The improvements were presented in working memory, attention, academic performance, social interactions, emotional regulation and self-esteem. Self-reported improvements were also documented in mood and decreases in anxiety, stress, and fatigue. They also positively impact on the vital skill of metacognition, emotional self-regulation and flexibility in teachers and students (Meiklejohn 2012). Researches show that mindfulness training can directly affect attention and mind-wandering among youth with evidence in the decrease of self-reported mind-wandering and the objective “gibberish detection” index of mind-wandering, and improvements in working memory capacity and reading comprehension (Karremans and Papiès 2017). Mindfulness exercises display benefits to students to maintain attention and to manage their academic and psychosocial challenges.

Based on the feedback from some users (Maxted 2016, Answers 2017, and The New York Times 2015) Headspace is simple to use and easy to follow. It brings the users’ attention to their body, thoughts and emotions, which inducts mindfulness into the thought stream in a reflective manner. The brief but regular sessions of mindfulness trainings through Headspace would benefit academic, physical and emotional well-being in students and teachers.

**General Comments:** Headspace offers series of mindfulness trainings for teachers as well as students to cultivate a healthy learning environment. It supports more effective academic learning, self-regulation, impulse control, and reduces the negative effects of stress and anxiety. It is a valuable tool of mental health education and psychological well-being for people of all ages and abilities.
TinyCards

Operating System: IOS, Android

Location: Apple App Store, Google Play

Cost: Free, Online purchase

Description: TinyCards is an educational application developed by Duolingo. It is designed to support learning and knowledge memory in any selected topic of interest. It is built with game-like interactive flashcards, animation quizzes with the spaced-repetition technique. The app also employs the smart-learning algorithm in the frequency of presentations to adapt to the users’ level and learning progress. Each game usually requires a few minutes to complete, so it is suitable for children with short attention spans in learning. The app includes hundreds of illustrated desks covering history, geography, chemistry, maths, languages, art, anatomy, etc. Knowledge and information of the selected topic will be presented as animated flashcards, and then a quiz will test how much information the user has taken in. Users can make their own flashcards based on individual interests. The users can choose if the custom flashcard deck will be shared with the public or just for private use. The flashcard decks can be exported to Quizlet, text/CSV, and Excel by using Notepad++ in Chrome, thus the content can be used in other programs.

Alignment with the UDL guideline: TinyCards app aligns with the UDL guideline which provides multiple means of engagement. It offers options for self-regulation and sustaining effort and persistence by animated flashcards in a game-like interactive style. It also supports efficient learning in students by providing multiple means of representation with options for comprehension and perception. It includes features of visual and auditory information, highlighting patterns and key information, as well as options of customising the display of information.

Curriculum area: TinyCards app addresses the memory in learning, and it is suitable for both children and adults. Users can choose flashcard decks from the library or create new flashcards based on personal interests or selected topics.

How does the app meet the National Disability Standards? TinyCards meets the NDS with its features that promote opportunities for meaningful participation in learning and support individual outcomes. The app uses animated flashcards to provide short lessons and quizzes for individual users. Students with learning difficulties, such as attention deficit, memory difficulties, and autism spectrum disorders, would benefit from flashcard presentation and spaced repetitive practice. Each app user is able to plan, create, review and achieve personal learning goals.

How does the app change pedagogy (SAMR)? TinyCards changes pedagogy by providing transformations with redefinition and modification in the teaching content and the delivery method. For example, on the topic of planets of solar system, teacher can set up a flashcard deck with pictures, short paragraphs and quizzes related to the characteristics of each planet of
solar system to illustrate and teach and test students. The flashcard set of solar system can also join with other card sets to form a larger knowledge set, such as Space.

**How does the app encourage person centred planning?** TinyCards is a person-centred application focused on personal goals and learning progress. Its presentation, frequency and number of repetitions can adapt to the users’ level, strengths and learning progress by the smart-learning algorithm.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** TinyCards provides learners with a way to create new learning goals and topics. It also can develop a community of learners who share the same learning goals. Moreover, it provides an online space where the resources and knowledge in flashcard form can be curated for retrieval in the future.

**Evidence from the literature that the app is capable of the claims made:** A significant body of evidence (Ruwe, McLaughlin, Derby and Johnson, 2011) indicate that the systematic-instructive information and spaced repetition technique delivers comprehensive and consistent results in literacy learning among students of all intellectual abilities. The information on flashcards can be systemised in categories and groups (Thayer et al. 1993). By presenting systemic and instructive information in a spaced repetitive manner, flashcard method can positively impact on students’ learning across many academic areas, including sight word knowledge, passage reading performance and mathematics fluency, as well as cultivating confidence and rewarding experiences in learning (Ruwe et al. 2011 and Rhymer et al., 2000).

Evidence in Ruwe et al (2011) shows that spaced repetition has positive effects on learning, as spaced practice enhances memory, problem solving and transfer of learning to new contexts. Flashcards, as a tool of mnemonics, ensures that information is not only learned but also remembered using this method (Thayer et al. 1993).

A further advantage of user-created flashcards is that the creation process itself promotes the users to concentrate on the topics and information. It has been long documented that learning and reinforcing memory in flashcard users would be more efficient through the whole process of selection, arrangement and practises (Thayer et al. 1993). By using animated flashcards, TinyCards provides an interactive form of learning method which repetitively delivers systematic instructions in a spaced time frame. It also offers users options of creating personal card sets from a vast information bank. The feedback from Tinycards’ users has rated positively 4.4 out of 5 in iTune app store and 4.1 out of 5 in Google Play with more than 1 million user-downloads. Tinycards has been regarded as easy, fun and efficient among its users.

**General Comments:** TinyCards can be used by teachers and educators in facilitating and consolidating learning for students of all abilities, in selected topics. It is an efficient educational tool in memory enhancing practise and it integrates learning through quiz-like flashcard games.
MyTalkTools Mobile Lite

Operating System: IOS

Location: Apple iTunes app store

Cost: Free

Description: MyTalkTools Mobile Lite is one of the three versions of MyTalkTools Mobile (Lite, Mobile and Mobile + Speech) designed for people with communication difficulties such as Down Syndrome, Cerebral Palsy, hearing or visual impairments, Autism etc. It facilitates user expressive communication allowing them to convey their needs and wants. Two modes are available user mode and author mode. The latter is for a communication partner who may be a parent, a teacher or a professional. This app can be used alone or combined with other paid apps such as those mentioned above. Workspace is a second product of MyTalkTools with more personalised functions. MyTalkTools Mobile works well with Workspace and Workspace Family (one of the two versions of Workspace) is free for teachers and all professionals in special needs sector. It does not require Internet access to operate and includes a free text-to-speech voice. More different voices can be accessed upon purchase.

Alignment with the UDL guideline: MyTalkTools Mobile Lite application aligns with the second UDL Principle through multiple means for action and expression that “provides options for expression and communication”. This App can be used by people with communication difficulties to express their needs (Guideline 5) by using multiple medias such as videos, text, speech, images etc. (Checkpoint 5.1) (CAST, 2011).

Curriculum area: MyTalkTools Mobile Lite assists learners in expressive communication. In Australian context, English is fundamental in skills acquisition in literacy and reading (Australian Curriculum, Assessment and Reporting Authority ACARA, ND) and would assist in skills development in many other areas (Mathematics, Sciences, Technology and social skills). People of all ages with temporary, permanent or acquired speech impairment can learn with MyTalkTools Mobile Lite.

How does the app meet the National Disability Standards? MyTalkTools Mobile Lite allows students with disability, particularly with communication difficulties, to participate in learning activities with their peers reducing barriers to education. Therefore, the app promotes not only their inclusion in the educational system but also their rights to education.

How the app changes pedagogy (SAMR)? MyTalkTools Mobile Lite is an aided Augmentative and Alternative Communication system supporting students in communication, thus transforming the way typical students communicate that is through oral expression. It also enhances learning with the redefinition of tasks or activities to meet the needs of all students.

How the app encourages person centred planning? With MyTalkTools Mobile Lite, teachers are able to deliver the curriculum using individualised support or methods that enable learners to attain...
their unique goals. This can be achieved with each learner based on his/her strengths, interests and preferences in collaboration with parents, carers or other professionals to sustain engagement.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?**

MyTalkTools Mobile Lite encourages, community and creativity. Students accessing MyTalkTools Mobile Lite form a community of learners with others with and without communication difficulty. The app creates new methods and supports in teaching, it therefore facilitates participation and social inclusion.

**Evidence from the literature that the app is capable of the claims made:** Oral expression is the common means of communication; however, people with communication difficulties (with no or limited speech) face challenges fulfilling this function. They rely on augmentative and alternative communication (AAC) to express their wants, needs and thoughts. Research shows that high tech AAC interventions enhance communication skills. In Autism, the provisions of AAC devices to children affected enable them to improve their communication functions and, in some cases, can result in speech development. In addition, in their study Logan, Lacono and Trembath (2017) found that interventions with both speech-generating devices (SGDs) and the Picture Exchange Communication System (PECS) have significant effects. Similarly, Kasari et al. 2014 suggest that interventions using combined methods such as behavioural and SGD are the most effective for children with minimal verbal expression. Children with Autism have strong visual memory and these devices could be an effective support for academic success (Bannon et al., 2015).

**General Comments:** The app could be a great resource for parents, educators and therapists. There are several types of disabilities that impede social communication to some extent with the wide community. Teachers and developmental educators would rely on Speech generated apps such as MyTalkTools Mobile Lite to develop students’ communication and interaction skills. This would make it possible to children, young people and adults affected to participate in activities like their peers and have a meaningful life.
Reviewer: Ghislaine Chabi China  
Cognition - App 12

Articulation Station

Operating System: iOS, Android
Location: Apple iTunes app store
Cost: Free

Description: Articulation Station is an app designed to assist a range of users of all ages (children to adults) in developing and improving sound production from single sound to a full conversation (word to story levels). These sounds focus on consonants; thus 22 sounds programs are offered with 60 words for each of the common sounds namely b, d, f, g, j, k, m, n, p, t, v, z, th, ch, sh. In addition, each of the levels (word, sentence and story) are shown with 2 different activities including performed Flashcards, Matching Game, Rotating Sentences, Unique Sentences, Level 1 Stories, and Level 2 Stories. Articulation station apps words are paired with attractive images making learning more engaging and fun. Students have the option to create a profile, work in group session, record their work (including audio recording), backup for later retrieval with the support of teachers, parents or speech pathologist.

Alignment with the UDL guideline: This app contributes in speech development through pronunciation improvement with the use of materials presented to everyone regarding his/her specific needs (Principle 1, Guideline 2). It aligns with Guideline 2 checkpoint 2.1: provide option for language, maths, expressions and symbols and clarify vocabulary and symbols.

Curriculum area: Language and Maths: Articulation Station is designed to improve pronunciation using symbols, vocabulary and can lead to language development and skills in maths and many more areas. Individuals with communication difficulties like speech impairment can use it in special schools or special classroom in mainstreams schools. It requires limited effort for use and is fun and engaging.

How does the app meet the National Disability Standards? Articulation Station app enables individuals with spoken language difficulty to verbally express themselves more clearly. This increases their participation in academic programs and social skills development such as social interactions and relationships building. The app promotes social inclusion and the rights of people with communication difficulties.

How the app changes pedagogy (SAMR)? Articulation Station is an augmentative tool/resource in speech development. It substitutes the classic way of learning sounds and language. The app transforms and enhances teachers’ pedagogy.

How the app encourages person centred planning? Person centred planning refers to planning considering the specific needs of the individual, focussing on strengths, interests and preferences. This app can be modified and adapted to the learners needs by personalising word lists using specific features that best respond to the individual’s needs. The app focuses on
specific goals or targets a specific skill. For example, it allows the teacher or educator to consider the learning styles of students regardless their disability and adapt it their specific needs.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?**
Articulation Station app encompasses most of the areas. It encourages a community of learners in a classroom environment with peers in group sessions and enables collaboration between educators and learners in different settings (school, home, community). Additionally, the app encourages and stimulates creativity using new techniques to deliver the curriculum. Articulation Station is also a tool to curate learners productions since they can record and store their work which could be accessed at the later time either by their communication partners (teacher, for example) or themselves.

**Evidence from the literature that the app is capable of the claims made:** According to Smith (2012), students with learning difficulties in secondary school have academic poor performance due to inadequate support in primary school. Their challenges in numeracy and literacy (poor vocabulary, syntax, grammar), are due to inappropriate curriculum that did not consider their specific needs (Rose and Meyer 2002 cite in Edyburn (2011). Early interventions with the provision of additional support such as Articulation Station app when commencing school would greatly improve the oral expression skills of those with speech impairment. They would have better outcomes and stable social and emotional wellbeing (Smith, 2010; Westwood, 2003; Bannon, McGlynn, McKenzie and Quayle, 2015)

**General Comments:** Articulation Station could be useful to teachers and developmental educators for improving student oral expression skills. They would use the activities levels to gradually build those skills by monitoring student’s progress. Collaboration with parents and other professionals would have positive effects since skills acquisition can be generalized to different settings.
DAF Assistant

Operating System: IOS, Android

Location: Apple iTunes app Store

Cost: $19.71

Description: DAF Assistant app is designed for people with stuttering to improve speech fluency and regulate speech rate to communicate more adequately. Individuals with stuttering disorder repeat sounds, syllables, words, stretch sounds and this causes speech disruption (Ritto et al., 2016; National Institute of Deafness and other Communication Disorders, 2016). The app includes two features: Delayed Auditory Feedback (DAF) and Frequency-shifting Auditory Feedback (FAF) systems to help adjust the speech flow.

The DAF Assistant app delays user’s voice to his/her ears. The delay may be short or long ranging from 50-320 milliseconds. The short delay aims to immediately minimize stuttering whereas the long delay would extend vowels and slow the speech making the app suitable even in severe stuttering. Regarding the FAF techniques, they influence the pitch of the voice when used simultaneously with DAF. The FAF enhances the effectiveness of the application. Apple headphones with Remote and Mic can be used to operate the app but Bluetooth headsets are recommended on iPhone. All settings can be restored once the app resumes.

Alignment with the UDL guideline: DAF Assistant application aligns with the second UDL Principle through multiple means for action and expression which “provides options for expression and communication”. This App can be used by people who stutter to control their speech fluency which aligns with Guideline 5 by building “fluencies with graduated levels of support for practice and performance” (Checkpoint 5.3) (CAST, 2011).

Curriculum area: language, speech: DAF Assistant app can assist in language skills development and speech improvement. Individuals with speech impairment regardless their age can use it. Improved language and communication skills most closely align with English and Creative arts, particularly when there is an oral presentation component.

How does the app meet the National Disability Standards? DAF Assistant enables the participation of people with stuttering in language learning as well as other curriculum areas. Since students have varying levels of communication support needs their participation is best assisted by designing tailored learning plans that enable them to achieve best outcomes and promote their inclusion.

How the app changes pedagogy (SAMR)? DAF Assistant application enhances and transforms classic teaching methods. Student with stuttering would improve their oral expression by regulating speech fluency and rate.
How the app encourages person centred planning? The app is design to address people with stuttering or students with learning difficulties in regard to speech. DAF Assistant allows teachers to use resources in ways that support students with stuttering to achieve their present and future goals. Teachers would help build students strengths enabling effective communication.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? DAF Assistant application encourages the creation of innovative teaching methods that contribute to students with disability (stuttering) participation in the curriculum activities and bring them together with their peers in schools setting.

Evidence from the literature that the app is capable of the claims made: Stuttering disorder has an early onset between the age of 2 and 6 years and for up to 25% of children affected, it can potentially become a lifelong disorder (Ritto et al., 2016). While different treatments methods exist, behavioural and drug therapy to improve fluency (National Institutes of Health, 2016), the use of electronic devices (auditory feedback systems) such as DAF, FAF and SpeachEasy has demonstrated rapid and significant stuttering reduction.

General Comments: Teachers and developmental educators can use DAF Assistant to reduce individuals with stuttering communication barriers. This enables them to improve speech fluency and rate and participate in activities in schools, home or within the community.
**Reviewer:** Ghislaine Chabi China   **Cognition - App 14**

**SmartEdApp**

**Operating System:** IOS, Android

**Location:** Apple iTunes app store

**Cost:** Free

**Description:** SmartEd App is collaborative platform for special education. It is suitable for multidisciplinary and trans-disciplinary teams in interventions including teachers, therapists and parents. It helps to personalised learning material and environments for special education students. SmartEd App is designed to improve speech, and language abilities, improve outcomes in speech development and assist with English language acquisition.

The app comprises hundreds of activities that aim to meet the needs of students with Autism spectrum, speech and articulation disorders and learning disabilities in special schools. The activities are created taking into consideration learners age and skills levels. Students’ performance can be monitored, and the team can share activities plans and student progress which is stored in the system.

The SmartEd Tech platform can incorporate other educational apps according to preferences and interests to create an individualised mobile learning content library. This will create standards-based, personalized learning plans to achieve intervention goals and centralize performance reporting.

**Alignment with the UDL guideline:** SmartEd App application aligns with the third UDL Principle Provide Multiple Means of engagement which “provides options for sustaining effort and persistence”. This App is a simple, dedicated and collaborative platform for special education on tablets. It additionally aligns with Guideline 8 by fostering “collaboration and communication” (Checkpoint 8.3) (CAST, 2011).

**Curriculum area:** SmartEd App application can help to develop and improve skills in various areas:

- English Language: Reading, Speaking, Listening, Writing, and Grammar
- Mathematics
- Social skills, Behavioural intervention, functional skills

**How does the app meet the National Disability Standards?** With the resources provided, SmartEd App reduces barriers and enable students with learning difficulties to engage in the learning process. It encourages participation and inclusion and student’s outcomes and are tracked, and feedback provided accordingly.

**How the app changes pedagogy (SAMR)?** SmartEd App application transforms and enhances students with disability learning through augmentation and modification. Students can develop and improve speech and adjustments can occur where required.
**How the app encourages person centred planning?** With SmartEd App application, students can have their lessons plans designed. Their age and skill level can be considered, and they can work at their own pace and track their progress. Thus, they have control and power about their learning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The SmartEd app encourages community, collaboration, creativity and curation. Students, therapists, parents form a community in special education context, collaborate and share crucial information regarding students learning to enable effective interventions. This is achieved through student progress and performance data stored in the system.

**Evidence from the literature that the app is capable of the claims made:** According to Basye (2018), students can have better outcomes if they can utilize the learning style that best works for them and participate in the design of individualised learning plans. This gives opportunity for teachers or educators to seek and put in place the required resources adapted to address the specific needs of diverse learners. Individualised plans are developed through effective collaboration between teachers and professionals to ensure that the goals stated would allow acquisition of essential skills (Da Fonte and Barton-Arwood, 2017). Therefore, the team should build positive relationships and find strategies that could assist learners with special needs to reach their best performance.

**General Comments:** The SmartEd Tech would be effective in teachers and Developmental Educators’ interventions to address the needs of students with learning difficulties. It can assist them in creating these interventions with constant collaboration with students, parents and other professionals involved. Being able to monitor their achievement and share this with a team would produce best outcomes.
Voice of Daisy (VOD)

Operating System: IOS

Location: Apple iTunes app store

Cost: $52.19

Description: Voice of DAISY (VOD) is a digital talking book player program for individuals who are blind or have low vision. It functions as an electronic book reader for books with voice output. Two different formats are available to be played with the app that are DAISY 2.02 compliant audio and NCC only, and DAISY 2.02 compliant audio and full text. Talking books that are on copyright protection (encrypted) cannot be played. To transfer a book to the mobile device, the selected DAISY digital talking books should be compiled into a single file in the zip format and transferred to VOD via iTunes USB transfer function. The user can increase play speed and play pitch, set time between play and navigate through the book. The table of contents (TOC) and the page list can help to achieve this. VOD will also display TOC and allow the user to navigate the book using the TOC levels. The app enables users to create bookmarks and to go back to the previous position when they return to the task. Users do not need to stress about the display, all the playing occurs in the centre. The app is only available in English and Japanese.

Alignment with the UDL guideline: VOD-Voice of Daisy application aligns with the first UDL Principle through multiple means representation which “provides options for perception”. This App is a DAISY digital talking book player that can handle the multimedia DAISY. It additionally aligns with Guideline 1 by offering “alternatives for visual information” (Checkpoint 1.2) (CAST, 2011).

Curriculum area: VOD-Voice of Daisy application is suitable to teach language and can meet the needs of school age children, young people and adults.

How does the app meet the National Disability Standards? VOD-Voice of Daisy application enables people with low vision and who are blind to have access to activities by listening to the content. VOD-Voice of Daisy allows teachers and educators to achieve academic goals using different methods to enable access to resources by learners. Thus, students with low vision participate in learning using material and environment that best responds to their specific needs. The use of the app considers the individual strengths and ability to reach academic goals.

How the app changes pedagogy (SAMR)? VOD-Voice of Daisy application allows moving from the classic print books to the use of digital books with voice output in the classroom. It enhances and transforms teaching processes.

How the app encourages person centred planning? The person planning approach focuses on the individual specific needs and strengths and support is provided accordingly. With VOD-Voice of Daisy application, opportunity is given to people with low vision and who are blind to participate
in activities within the actual environment, using the same material but presented in different formats.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** VOD-Voice of Daisy application encourages the creation of a community of learners and new methods of teaching and learning.

**Evidence from the literature that the app is capable of the claims made:** Assistive technology is used to facilitate learning activities and participation of individuals with impairment (Borg, Larsson and Östergren, 2011). VOD-Voice of Daisy allows users of all ages to achieve their goals by accessing audiobooks. There is evidence that these digital books assist students in comprehension and text-to-speech material reducing communication barriers (Boutot, 2017). In addition, it promotes autonomy, confidence since students can keep up with the rest of the class (Fichten et al., 2010).

**General Comments:** The use of VOD-Voice of Daisy application would be beneficial to people with low vision, teachers and Development Educators. Skills in language can be taught with the app within the classroom environment or in other settings. Reading tasks can be performed by all students regardless their functional abilities.
Elevate-Brain Training

Operating System: IOS
Location: Apple Store
Cost: Free

Description: Elevate - Brain Training app contains a brain training program which is designed to improve cognitive skills focusing on memory, information processing, comprehension, speaking abilities, and maths skills. This application aims to improve users’ productivity through self-confidence, earning power and increase confidence when used regularly. The features of this application is made up of 40+ different games for cognitive skills, information on performance tracking, daily workouts and shows the users progressive report.

Alignment with the UDL guideline: This app aligns with the UDL guideline: Principle III - Provide multiple means of engagement that allows the user to engage with the program and can be motivated in learning. It gives the user individual choice to attempt the training that will improve their speaking ability and memory processing by engaging with the app programs. This training will support people with learning difficulties to generate their knowledge to adaptive difficulties’ progression that they may encounter (Smith, 2012). The app allows opportunity for users to explore different games by expressing their understanding in learning which aligns with Principle II, Action and Expression.

Curriculum area: Elevate- brain training app can assist students across all curriculum areas in their academic skills in literacy and numeracy to achieve satisfaction. This app will enable children in primary schools with learning difficulties to develop their memory strategies and understanding following the program instructions and procedures when participating in different games (Smith, 2012). It will further develop their skills around organisation, numeracy and literacy skills.

How does the app meet the National Disability Standards? This app meets Standard One (National Disability Standard) promoting the rights of users to know their cognitive functions which includes memory, processing, and comprehension of information. Independent cognitive training helps improve memory and cognitive performance to perform day to day tasks (Jones, 2018). The continuous cognitive training for children with brain difficulties, will improve memory and limits the implications that affects the brain. This app gives frequent feedback for the activities to the users which drives their own learning processes in engaging with the environment. The users, use the app independently at their own pace without being controlled or restricted.

How the app changes pedagogy (SAMR)? Teachers would have offered free choices activities for students to express their critical thinking through print handouts, videos, media clips and books. This app tool has empowered teachers to identify student’s weakness and strength areas to consider when preparing activities. Elevate app has changed the teacher’s pedagogy
by modifying the program in providing daily brain training activities. This app tool will support children with learning difficulties building on the strengths and connections which are already established and further advance their learning. Children with learning difficulties will have the opportunity to track their performance which can motivate their interest.

**How the app encourages person centred planning?** This app will become beneficial for teacher’s teaching young children with an intellectual disability. The teacher can provide activities for students to work independently. The free choice activities will help students with learning difficulties with critical thinking, information processing, comprehension and analysing information. The teacher and student interaction and communication is a perfect example of a person centred approach where the student will be given instruction on the activity.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs).** The 5C’s of a 21st Century teaching is encouraged with this app where teachers cultivate students’ curiosity and interest in learning. This app encourages and motivates children to have free choices and work independently on their own. The children connect to the app and explore different brain training programs which build their interests. The app can help children with learning difficulties to increase their knowledge, skills, attitudes and experiences encouraging them to perform tasks in context.

**Evidence from the literature that the app is capable of the claims made:** Studies have suggested that brain training technology applications with manipulating brain activities provides the possibility to undertake everyday tasks and learning activities (Stiaram et al., 2017). Another study further explained brain training app could help with attention, memory and even mood, especially with those participants who have interests in the effectiveness of the app (Torous et al., 2016).

**General Comments:** Elevate application is beneficial for students with cognitive difficulties in improving their cognitive skills. It allows the user to personalise a training program that can be adjusted and changed over time to maximize results. The more the user engages with the brain-training program, the better the results.
MindMate

Operating System: iOS
Location: Apple Store
Cost: Free

Description: MindMate app was developed with the idea of helping people with dementia to live more independent lives and stay connected with the environment that they live in. It is a brain training game that uses tools to take notes, make lists and reminders. It has entertainment which includes music, videos, photos and physical health activities to support users activate their brain. MindMate is used to store and access user’s personal information and stay connect with friends, family and care facilities to stay healthy and happy.

Alignment with the UDL guideline: MindMate aligns with the UDL Principle III by providing multiple means of engagement. It helps learner’s self-regulate use of activities that are considered beneficial for healthy living and being connected to their social environment. This app supports people not only with dementia but others with cognitive impairments to stay connected to their social environment and engage in their preferred activities. The app aligns with the UDL Principle I, Provide multiple means of representation. One of the Guidelines is provide options for language, expressions and symbols. This app also aligns with UDL Guideline 2: Providing options to which information is presented.

Curriculum area: This app improves student’s independent learning by performing a variety of skills. This includes accessing and analysing information, problem-solving, critical thinking and develop interpersonal skills to meet their goals. It can be used by children for basic mathematics skills by using words, pictures and symbols in differentiating, relating and organising mathematical activities. Students with learning difficulties in primary schools can use the app as the icon furthers are comprehensive enough to build and instruct them to work independently in their learning.

How does the app meet the National Disability Standards? This app meets the National Disability Standards through participation and inclusion, individual outcomes and service access. The app allows people with disabilities to connect with the surrounding environment which include families, friends and service providers that encourage them to participate and feel included. People with cognitive difficulties build on their individual strengths by using various pathways to improve the accuracy of their comprehension.

How the app changes pedagogy (SAMR)? The MindMate app enhances the teacher’s pedagogy from the levels of substitution and modification. This app is used to perform the same task where the teacher used to instruct and guide students in all aspect of a lesson such as taking notes, making lists and using reminders. This technology has some functional benefits where students can do these activities using the app. Students learn to work in groups and receive
feedback from peers and the teacher. However, with this app, it allows students to communicate online to support their learning, even after school hours.

**How the app encourages person centred planning?** Person centred planning is a widely used approach known to develop collaboration supports for individuals focusing on community participation, building relationship and social inclusion (Claes et al. 2010). This app has utilised it in a way that individuals can connect with people around them such as families, friends and practitioners to assist individuals to access services and supports they may need.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs).** The app encourages connectivity and creativity to work independently and connectivity in creating new things (Carey, 2013). The learner uses creative thinking with imaginary ideas to develop ideas using icons or upload photos to share with friends. It encourages the user to have control of their own work and how it is done.

**Evidence from the literature that the app is capable of the claims made:** MindMate is an application recently developed for people with dementia to support their memory difficulties (McGoldrick, 2017). It helps them to improve their self-management skills and their quality of life through improving social connection and perform on everyday task (McGoldrick, 2017). In the field of rehabilitation, apps such as MindMate are said to improve learning, physical and psychological recovery for people with disabilities based on exercise and games (Barbosa, Castro and Carrapatoso, 2018).

**General Comments:** This application is good for teachers who teach students with learning difficulties where it can develop their academic skills. It teaches students to work independently by using their cognitive strategies to process information or following procedural skills to understand more easily.
Pocketbook Easy Budget Planner

**Operating System:** IOS
**Location:** Apple Store
**Cost:** Free

**Description:** This app keeps your personal finance control up to date. It tracks your spending and income and advises you with alerts for bills or overdue payments. The app helps users to keep all their accounts in one place using multiple accounts. This app is used and loved by more than 400,000 Australians to plan their budget and track their expenses and income. Pocketbook is supported by Australian banks which include ANZ, Commonwealth, National Australian Bank (NAB) and West Bank. There is an option that your bank fees can be unloaded to Pocketbook.

**Alignment with the UDL guideline:** Personal budget planning aligns with the third UDL guideline: multiple means of options for comprehension. This application allows users to control their budget and track their expenses. For instance, all the bills are automatically detected from the users account where no bills are missing. It helps put individuals in control of their spending and know where and how they spend their money. It also helps users have informed access to their budget that can be useful in their future money management and budgeting.

**Curriculum area:** The budget planning can be used in curriculum areas in goal setting where teachers can use strategies within the UDL framework to teach students personal budgeting and money management skills. Teachers will teach real life basic personal budgeting concepts and important fundamental money skills in math lessons. This also sets them to higher expectations in various pathways that they may take in their future goals. This digital tool is beneficial for teachers to teach students with cognitive difficulties the procedures to use the tool to have access to track their personal finances (Smith, 2012).

**How does the app meet the National Disability Standards?** Pocketbook Easy Budget Planner meets the National Disability Standards One: Rights to choice and control. This application assists people with a disability by promoting their right to take control of their budget and be aware of their expenses and income in their own lives. The app allows users to have accessible information to know their bills payments and medical payments to organise their personal finance, which meets standard five: Service access (National Disability Standard Five). It also supports user’s social connection increasing their participation and inclusion.

**How the app changes pedagogy (SAMR)?** This app would be a redefinition for teachers in teaching students the money management and budgeting skills. Teachers may have used printed papers to teach about personal budgeting and keeping receipts to track spending. However, Pocketbook app has changed the old way of having personal financial control. It has become much easier to keep track of all the expenses and income with the help of this tool.
How the app encourages person centred planning? The use of Pocketbook easy budget planner enables teachers to teach money management skills as part of the student’s life skills which will be valuable to stay in control of their income as they progress into independence. The users will have the control over their personal financial situation with the support into understanding how this application works.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs). Pocketbook easy budget planner encourages the teaching of creativity (Carey, 2013), especially in making personal budgeting and money management. Considering real life situations this stops people needing to manually enter their spending (receipts) and keeping track on spreadsheets, instead they can use this application.

Evidence from the literature that the app is capable of the claims made: Independent living enables people to make their choice and have control of their lives as full citizens. People with disability have their individualised funding packages which their personal budget can be administrated, self- managed and self-directed (Anand, 2012). However, budgeting and money management can be difficult for people with cognitive problems due to their intellectual difficulties (Anand, 2012). Pocketbook easy budget planner simplifies these tasks.

General Comments: This app is a great tool for teachers to help students take control of their personal finance when living an independent life.
Leelou-Aussie personal safety

Operating System: IOS, Android
Location: Apple Store/Google Play
Cost: Free

Description: Leelou personal safety app is designed to connect all linked users in the event of personal crisis by receiving information and be able to respond accordingly. It allows users to create a profile linking to a mobile number. The application stores the contact numbers of nominated people who can be contacted when in a crisis event. Users can be nominated by their friends on ‘Leelou’ as it creates connections, this makes the neighbourhood safer by providing accurate information to respond to.

Alignment with the UDL guideline: This app aligns with UDL guideline: Provide multiple means of engagement for users. It connects users which includes family members, loved ones, carers and friends, building social networks which they can engage with and self-regulate their individual skills. This app further aligns with UDL the guideline of Checkpoint 8.3 Foster collaboration and communication. It allows users to communicate and collaborate effectively within a community of learners by social networking using this app.

Curriculum area: This app is suitable for teachers teaching personal safety skills to children. Challenging situations are faced every day at home and in school. The users can be taught how to be confident, aware, take charge, get help and how to protect themselves. It develops a student’s English skills through learning and expressing themselves. They also have the opportunity to extend their social network using this app.

How does the app meet the National Disability Standards? The National Disability Standard Two: Participation and Inclusion meets with this application, encouraging individuals with disability to connect with family, friends and neighbourhood to promote active inclusion in the community. The users have opportunity to access the right service through his/her nominees in times of personal crisis once the button is clicked.

How the app changes pedagogy (SAMR)? This app is the Redefinition of teacher’s pedagogy, teachers would have used emergency signs and personal safety signs to teach students by taking them outdoor or in the classroom settings. For instance, teaching students the pedestrian road crossing signs, emergency exit signs, alarm switches and when and how to respond to emergency cases. Students with learning difficulties can forget or find it difficult to process information. This app is effective and helpful for the students with and without disabilities to be taught how they can access the app both within the school and elsewhere in times of personal crisis.

How the app encourages person centred planning? This app allows the user to stay connected through social interaction with family, friends and nominated individuals. Having the selected
people or guardians on the link will help support the user to get quick and accurate information delivered for positive feedback when faced with personal crisis.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs).** This app encourages all five C's of the 21st Century approach to Teaching. Students with learning difficulties using this app are connected, not only with their social network, they also form a close group for emergency cases. They create a community where they speak to and share information, working collaboratively to support each other in times of personal emergency.

**Evidence from the literature that the app is capable of the claims made:** In emergency situations, people with cognitive difficulties can face issues when they have not been prepared to cope with the situation (Pressman, Pietrzyk and Schneider, 2011). They can have communication breakdowns, comprehension difficulties or language barriers resulting in becoming frustrated and overall loss of control (Pressman, Pietrzyk and Schneider, 2011). However, access to Information and Communication Technology (ICT) has improved the development of programs and services for individuals to access information and uphold freedom of expression (Raja, 2016).

**General Comments:** Emergency and personal safety is an important area which needs to be considered by the teacher. The teacher should teach students how and when to use the app in emergency situations. It will be very beneficial for students with cognitive difficulties to use the app in their future life.
**Reviewer:** Sharon Kutuke  
**Cognition - App 20**

**Skool Loop**

**Operating System:** Android

**Location:** Apple Store

**Cost:** Free

**Description:** Skool Loop has been designed as a school tool creating a direct line of communication between parents and school with all the updated information. This includes newsletters, contacts, calendars, absentee, notices and permissions. This app enables users (parents) to connect with the school through emails, contacts and help engage the whole community to communicate more effectively and is free of charge.

**Alignment with the UDL guideline:** This app aligns with UDL guideline III: Provide multiple means of engagements through communication between school and parents. Some children are said to forget passing important information to their parents. This could be due to memory difficulties or load of information that can cause them to forget. School-aged children with memory difficulties often experience cognitive deficits and can easily be forgetful (Mioni et al., 2017). The Skool Loop app makes communication and parents’ engagement more effective to support their children’s learning.

**Curriculum area:** This app is suitable for teachers when preparing extra home work for children in early school stage. The teacher will provide homework for the children and have access to the app, sending messages informing parents of the task. Upon receiving the message, the parents can assist the child to do the task. The app can be useful for teachers and parents if a form is needed to be signed by parents which can be done instantly through the app. This app will support the teacher and the parents towards the child’s learning.

**How does the app meet the National Disability Standards?** The Standard Five: Service Access (National Disability Standards) meets with this app by allowing parents to access up to date formation and communicate directly with the teacher, making sure the child’s learning is being supported.

**How the app changes pedagogy (SAMR)?** Traditionally, the school’s important news, events and information were delivered through school newsletters, calendars’ and printed papers for everyone to access. Teachers used pupil’s dairy books, notes books or verbal messages to interact with the parents concerning the child’s learning. Sometimes parents can miss out on important information or the child forgets to deliver a message to parents. Children with learning difficulties may not complete homework because of memory difficulty in recalling things. This app tool provides easy access for the school to have effective communication with the parents thereby supporting the child’s learning.

**How the app encourages person centred planning?** The focus of this app is for parents to be kept informed or know the up to date information in the child’s school. Teachers can assess this
app to connect with parents relating to the child’s learning such as extra work, reports, meetings, absentees or other important information. Person centred planning is a good example in this app for between parents, teachers, school and the child.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs).** This app encourages the 5C’s in the 21st Century approach to teaching by allowing the user to connect within the school environment and parents to support the student’s learning. Creating a community with like-minded people to work together empowers and facilitate students continued learning.

**Evidence from the literature that the app is capable of the claims made:** Educational practices begins with the fact that schools and social groups must cooperate with each other and work together to achieve certain goals (Wilson, Kauffman and Purdy, 2011). The communication and trust levels between teachers and parents in elementary levels and middle high schools is significantly high throughout the child’s academic career (Kennedy, Quinn and Lyons, 2018). Skool Loop application has created a connection between teachers, parents and keeps parents updated with the school community events. Parents need to know about their child’s learning both in the school environment and outside to support their child’s learning.

**General Comments:** Parents sometimes missed out on accessing important information from their child’s school which can be hard to keep up with. Skool Loop app is an effective communication tool created for parents to interact with their child’s school. It can assist parents to know their child’s academic performance through making direct contact with the teacher using this app.
**Reviewer:** Najwa Safar

**Cognition - App 21**

**Avaz Australia - AAC App**

**Operating System:** iOS 9.0 or later. Compatible with iPad. Android

**Location:** App Store and Google Play

**Cost:** $15 (per month) or $170 for a one-time purchase

**Description:** Avaz Australia-AAC App is a communication app for autistic children. It is a version of Avaz, adapted for the Australian environment. The App helps in enhancing interactive communication through its three research-based, graded, picture vocabularies. The app follows the way vocabularies are learnt by verbal children except that it uses pictures in place of verbal words. Users see the pictures and their corresponding texts naming and describing. This improves the mindfulness and cognition of the users by enhancing focus, attention, perceptual reasoning, concentration, and minimization of impairment effects. The App offers a lot of picture and text-based vocabularies for users to acquaint with, for them to improve their academic performance. The app has over 15,000 high-quality symbols, custom photos and four voices to provide everything children with speech disabilities need to start communicating effectively. Trainers can use these high-quality text-based pictures to teach and communicate with students. The students can use the App to increase their vocabularies and familiarise themselves with various words required to improve their communication. It is a flexible App with users able to take or import their own photos and add their voices to the messages via the record feature.

**Alignment with the UDL guideline:** Avaz Australia- AAC App offers the users with multiple means of representation by providing options for perception, language, mathematical expressions and symbols. The App also provides options for comprehension through guided information processing, visualisation and manipulation. It provides options for expression and communication for children with speech disabilities (CAST, 2011). The App offers options for physical activity by serving as an alternative means for learning, and teaching. The App is developed to assist children with speech impairments who are four years and above.

**Curriculum area:** Avaz Australia - AAC App is a picture and text-based communication App. The App can be used for both reading and literacy programs. The App can be integrated into psycho-education, personal training programs, and independent living skills tutorial programs. The App is useful in the development of daily living skills, and cognitive and perceptual skills.

**How does the app meet the National Disability Standards?** By providing a platform to facilitate the communication of children with Autism, Avaz Australia - AAC App fosters individual rights to freedom of expression and communication, allowing children with speech disabilities to build on their strengths and communicate more effectively (National Standards for Disability Services, 2014). The feedback mechanism also allows individual progress to be analysed. The App makes it possible for teachers, therapists, or parents to work with their children to enhance full participation.
How the app changes pedagogy (SAMR)? Avaz Australia - AAC App offers an augmented and substitutive method for communication, teaching, learning and monitoring of progress. It enhances teacher’s pedagogy. Avaz Australia - AAC App makes the users more engaged in communication because of its ability to stimulate learners.

How the app encourages person centred planning? Children with Autism are faced with communication challenges. Avaz Australia - AAC App focuses on minimising speech disabilities and improving communication. It effectively assists the trainers in helping children with speech impairments. Avaz Australia - AAC App is an App that increases the involvement of users in family and community activities through effective communication.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The area of a 21st Century approach to teaching and training that Avaz Australia - AAC App encourages is communication. The App reduces the communication barriers between teachers and children with speech disabilities. It facilitates better connectivity and improved feedback between the trainers and the users. It provides insights in assisting students to communicate.

Evidence from the literature that the app is capable of the claims made: In research to evaluate the role of augmentative and alternative communication (AAC) for children with Autism, it was concluded that AAC is highly effective (Lacono, Trembath and Erickson, 2016). It also strengthens visual material processing because pictures offer a more tangible representation that children may refer to (Hart and Banda, 2010; Ganz et al., 2012). According to Ganz (2015), children with Autism who have difficulty in developing functional speech skills for everyday communication would benefit from AAC.

General Comments: Avaz Australia - AAC App is used both in the classroom and therapy. It is a viable App for facilitating communication in children with Autism. It helps professionals and teachers to facilitate communication and interaction between them and their students. The App is an innovative way of communication through pictures and texts without verbal words.
123TokenMe

**Operating System:** IOS, Android iOS 7.0 or later.

**Location:** App Store

**Cost:** $9.90

**Description:** 123TokenMe serves as a replacement for token boards. Its design was based on an inside-the-classroom viewpoint to aid trainers, parents, teachers, behaviorists, and therapists in teaching skills and behavioral improvement. The use of 123TokenMe motivates children with or without Attention Deficit-Hyperactivity Disorder (ADHD) to remain focused on their assignments. The App is a behaviour modification tool allowing students to earn rewards for showing positive behaviours over time. It motivates the users by giving positive feedback for students’ success. The App is highly encouraging, stimulating, and can be easily personalised. It collects data and works with unrestricted numbers of students and behaviours. It can be customised due to its various settings. Various sounds can be chosen for highlighting a token when the user achieves a token, uses a timer or when all tokens have been earned. The App also has features of a calendar where events and notes for each student could be added. The lite version of 123TokenMe provides the specified tokens: stars, soccer balls, smiley faces, superheroes, or cookies. However, the full version provides additional options.

**Alignment with the UDL guideline:** 123TokenMe fits in to the concept of universal design for learning. It provides the users with multiple means of representation by providing options for perception and comprehension. It also offers multiple means of engagement by rendering options for self-regulation and sustaining efforts and persistence (David and Anne, 2000). The App assists trainers in teaching skills and improving behaviors of both children with or without ADHD. The App encourages focus and attention on learning to increase knowledge and motivate learners.

**Curriculum area:** 123TokenMe can be integrated into classroom literacy programs, learning of new skills or when the teacher is attempting to redirect challenging behaviors. It is developed for behavioral training programs. It provides therapists, teachers, and parents with a powerful token system tool to impact knowledge, improve behavior and decision-making. It is rated for children with ADHD and Autism from four years and above.

**How does the app meet the National Disability Standards?** Children with Autism Spectrum Disorder and ADHD are the most likely to benefit from this app as it can assist in improving behaviors. The App aids active decision-making, differentiation, and individuality via timely provision of a powerful token system tool to assist therapists, teachers and children to make informed decisions and comprehend their responsibilities. 123TokenMe promotes concentration and connection of children with ADHD with their teachers, therapists and parents through genuine participation.

**How the app changes pedagogy (SAMR)?** The App offers a transformation method of how computer technology could be used in teaching, learning, motivating, and enhancing behaviors. The App...
changes pedagogy using technology to impact knowledge, improve behaviour and decision-making. More importantly, it helps children who have concentration difficulties to stay focused and improve their behaviours. It provides teachers, therapists and trainers a powerful token system tool to teach new skills, improve literacy programs, and reduce challenging behaviours. It serves an augmented and substitutive system tool for older style token board.

**How the app encourages person centred planning?** The design of 123TokenMe encourages person-centred planning in which children with Autism and ADHD are at the heart of its functions and approaches. The App attempts to maximise the ability to stay focused and take charge of one’s life. It is designed to suit children’s strength, goals and needs with the support of the teachers, trainers and therapists. It assists children with or without ADHD to develop the skills required to solve problems.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** The area of a 21st Century approach to teaching and training that 123TokenMe encourages is curation and collaboration. The App helps in improving attention, and it enables teachers, trainers and therapists to collaboratively assist children with challenging behaviours.

**Evidence from the literature that the app is capable of the claims made:** In a study to examine the different technologies being used for children diagnosed with ADHD, it was concluded that technology can improve the learning of children with attention difficulties but the evidence supporting this is still limited (Powell et al., 2017).

**General Comments:** 123TokenMe is an App that would assist teachers, parents, trainers and therapists who want to achieve positive reinforcement where they observe improved behaviours. It has also been found to be effective for children with attention difficulties. This App will be valuable to a wide audience and many children with or without attention difficulties will find this App useful for reinforcement of consistency, skill development, motivation and for impacting knowledge. The app is convenient to use and can track more than one child. behaviours can be changed without having to create a new reward board. The setting up is made easy and quick. Lastly, you can adjust the rewards to satisfy the child’s specific interest.
Reviewers: Najwa Safar

News-2-You

Operating System: iOS 9.3 or later. Compatible with iPad

Location: Apple Store

Cost: $1.99 per newspaper; $54.99 per year

Description: News-2-You is a weekly newspaper designed to inform students with special needs about current events happening around the world. By promoting communication, it serves as an additional tool for learning. It uses symbols and voice narration to attract children’s interest in weekly news. It is very useful for media literacy, instructional design, special needs, differentiation, and evaluating media. News-2-You is a perfect App for argumentative and alternative communication (AAC) users. Its provision of new information aims to increase speech initiation and interactions. The incorporation of picture symbols and voice, games and puzzles into the App helps students to hear and understand text and visuals to improve academic performance. The reading speed of users is improved through the various ways of text presentation, comprehension questions on text previously read, and various kinds of news. The App offers students the opportunity to converse both in and out of the classroom regarding current issues of the day. Features to assist students create their own newspapers are integrated into the App, and the App also serves as a powerful school-to-home connection via Class News.

Alignment with the UDL guideline: The design of News-2-You aligned with the universal design for learning. It offers the users with multiple means of representation by providing options for perception, language expression, symbols, and comprehension (CAST, 2011). It also provides multiple means of action and expression by providing options for expression and communication (David and Anne, 2000). News-2-You is also a symbol-based newspaper. It uses symbol system and voices like AAC App to benefit children who have challenges in reading and written word.

Curriculum area: News-2-You is very relevant in literacy programs and language instructions. It exposes students to information regarding current events via age-specific content. It is a cross-curricular App presented in an easily reached format, improving digital and media literacy, and skill-building interest. It improves students’ engagement, understanding, vocabulary, communication, geography, writing, and so forth. The App is available in different levels of curriculum area: simplified and text only, regular, higher, and advanced. The App is flexible and can be adjusted to match learners’ reading support needs. The App also provides games and learning activities that are among the key items for each weekly edition. These may include articles about places and people with game, puzzle, recipes, Sudoku and more displayed alongside. It is designed for students from age 8 and above.

How does the app meet the National Disability Standards? News-2-You is designed to promote rights of individuals to freedom of expression, decision-making and self-determination by providing
an effective communication and informative platform for students. It helps students with special needs to feel a sense of belonging and allows them to meaningfully participate in the community. The App is designed to aid students having difficulty in reading effectively. The App aids active decision-making, differentiation, and individuality via the use of symbol system and voices to make students get informed, communicate, read, and comprehend better (National Standards for Disability Services, 2014). The App also promotes connectivity, communication and genuine participation.

**How the app changes pedagogy (SAMR)?** News-2-You offers an augmented and substitutive method of how computer technology could be used in media literacy, instructional design, special needs, differentiation, and evaluating media. The App uses symbols and voice options to maximise accessibility, and the use of the App empowers students to expand literacy skills, learn new things about the world, and engage with discussion questions and activities. It provides varied instructional tools for teachers to teach new skills and effect literacy programs.

**How the app encourages person centred planning?** News-2-You encourages person-centred planning in which students with reading and comprehension challenges are at the core of its design. The App with symbols and voices improves reading and written words of its users. It is designed to fit into different educational levels to meet the needs of various categories of students.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The areas of a 21st Century approach to teaching and training that News-2-You encourages are communication, connectivity and community. The App is a multi-function App providing the teachers and the trainers a huge body of knowledge and resources to achieve improved literacy skills, collaborative activities, improved communication and interactions, and effective reading ability. It helps trainers and teachers in making students with reading difficulty read more effectively.

**Evidence from the literature that the app is capable of the claims made:** A study reveals that students who use newspapers in class perform better on standardised reading tests than those who don’t (Johnson-Oliss, 2018). The study investigated programs in 22 cities across the United States and concluded that the use of newspapers in the classroom improved the reading ability of students.

**General Comments:** News-2-You is a resourceful App for students with special needs who have challenges with reading. The App serves as a bridge between the real world and the classroom by assisting the students to become motivated learners. It assists students to learn new skills, communicate and read effectively, make career decision, and improve comprehension.
AutismXpress Pro

Operating System: Apple iOS 3.0 or later, Android 2.2 or later

Location: Apple Store and Google Play

Cost: $1.99

Description: AutismXpress Pro is an App designed for behavioural training, self-supporting and improving learning skills. It facilitates trainers, teachers, or parents working with children with Autism to use mobile devices to encourage children to recognise and communicate their emotions via the use of basic facial expressions. Autism is a lifetime disability that affects cognitive abilities, and it is characterised by difficulties in emotion interpretation and inability to understand various facial expressions. Invariably, AutismXpress Pro assists children with Autism in minimising challenges associated with interpretation of emotions and understanding various facial expressions. The users can choose from a wide range of animated graphics using a fun and easy interface to express how they feel. AutismXpress Pro is an upgraded version featuring two new games to help children with cognitive disabilities clarify feelings and comprehend facial expressions.

Alignment with the UDL guideline: AutismXpress Pro offers the users multiple means of representation by providing options for perception, facial expressions and symbols. The App also provides options for expression and communication using a wide range of animated graphics that can be used to express emotions. AutismXpress Pro provides options for expression and communication for children with cognitive disabilities (CAST, 2011). It assists the users to express their emotions and understand facial expressions through selection of one of the available games: Expression Question, Feeling Finder, and Emotion Matching. By touching on the game icon, it enables the user to choose an emotion icon that will appear and display sounds expressing that emotion. The App is specifically designed to assist children with Autism.

Curriculum area: AutismXpress Pro is a behavioural training programme, self-supporting and personal skill learning programme App. The App can be integrated into a psycho-education, behavioural training programme, personal training programme, and independent living skills tutorial programme. The App is useful in the development of daily living skills, and cognitive and perception skills. Using a wide range of animated graphics, the users can express how they feel. The App is developed to assist children with Autism who are four years and above.

How does the app meet the National Disability Standards? AutismXpress Pro fosters differentiation and individuality by making children with Autism build on their strengths and empower themselves. This minimizes their difficulties with expressing themselves and communicating their emotions effectively (National Standards for Disability Services, 2014). The App makes it possible for teachers, therapists, or parents to work with their children to enhance full participation.
How the app changes pedagogy (SAMR)? AutismXpress Pro offers an augmented and substitutive method of how computer technology could be used in communication, development of living skills, teaching and learning. It enhances teacher’s pedagogy through its uses in the development of daily living skills, cognitive and perception skills. This App provides an effective method of expressing and understanding emotions for the users and offers an improved tool for expression and communication. AutismXpress Pro makes the users more engaged in communication because of its ability to stimulate learners.

How the app encourages person centred planning? The App encourages person-centred planning using a fun and easy interface to assist children with Autism to express how they feel. AutismXpress Pro uses three different games to help users express their emotions and understand facial expressions. It focuses on the cognitive disabilities and effectively assists the trainers in helping children to minimise their cognitive challenges. It also provides an avenue for children with cognitive disabilities to increase their involvement in family, school and community activities through effective communication.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The area of a 21st Century approach to teaching and training that AutismXpress Pro App encourages is connectivity. The App decreases the communication barriers between trainers and children with cognitive disabilities. It facilitates better connectivity and improved feedback between the trainers and the users. It offers educators and trainers insights on how they can assist their students to express their emotions effectively.

Evidence from the literature that the app is capable of the claims made: According to David and Anne (2000), digital technology offers one significant benefit comparable to traditional methods in that the level of difficulty in teaching and learning can be changed automatically based on the learner’s response in achieving a pre-determined goal. A study also reveals that across 17 studies of people with Autism, 93% of participants enhanced their capacity to communicate using ACC interventions or speech generating devices (Allen, Hartley and Cain, 2016).

General Comments: AutismXpress Pro is an App that helps children with Autism to improve in these three major areas: communication, social interaction and behaviour. The App significantly helps in both repetitive behaviours and restricted interests. Through different facial expressions incorporated into the App, children with Autism can conveniently express and understand emotions.
Reviewer: Najwa Safar

Reminder, Reminders with Voice

Operating System: IOS, Compatible with iPhone, iPad, and iPod touch

Location: Apple Store

Cost: $1.99

Description: Reminder, Reminders with Voice is designed to serve as voice reminders and reminder with calendar. It is an innovative reminder App that can be organized to set up reminders. The reminder sound can be chosen by selecting a song from the music library or your own voice recordings. The song chosen will play when the reminder is due. The reminders can be easily configured to pre-alarms, custom sounds, auto-snooze, custom images, reschedule, snooze, custom messages, notes, and so forth. Reminders can be set to repeat yearly, monthly, weekly, daily, or throughout the day. Reminders can also be set to repeat in cycle, one-time, or wake-up alarm. The App is designed for everyone to use. The App has full voice over accessibility support. It doesn’t require internet connection to work. It can easily be used by people with disabilities. Reminder, Reminders with Voice possesses more than 80 built-in images and 30 built-in alarm sounds.

Alignment with the UDL guideline: Reminder, Reminders with Voice is an App primarily designed to serve as voice reminders and reminder with calendar. It aligns with the UDL guidelines because of its multiple means of representations (CAST, 2011). The App comes with different ways of expressing voice reminders and reminder with calendar. The App because of the flexibility of its design, can be used by people with or without disabilities.

Curriculum area: Reminder, Reminders with Voice is not an instructional App, neither does it fit into any of the curriculum area. However, it helps in organising activities, events and notes. It can be used by students to organise their time, study, and events. Unlike other Apps which can be used in psycho-education, behavioural training program, personal training program, and independent living skills tutorial program, this app is only good for scheduling. Arguably, this app assists with all aspects of the curriculum as it supports the student to be organized and ready for learning. It may assist with preparation for class and reduce stress within the family prior to school arrival thereby assisting the student to be able to learn more readily.

How does the app meet the National Disability Standards? Reminder, Reminders with Voice encourages differentiation and individuality because it can be used by everyone (National Standards for Disability Services, 2014). It is designed in such a way to enable people with or without disabilities use it for reminders. Integration of visual scheduling and checklists apps has shown to be useful for people with autism or cognitive disabilities.

How the app changes pedagogy (SAMR)? Reminder, Reminders with Voice cannot be said to really enhance teacher’s pedagogy because it is not an instructional App. The App is just a transformed tool of old clock reminders. However, it can help trainers and teachers in scheduling their times and activities to enhance their productivity and performance. The App cannot be said to
enhance teacher’s pedagogy in helping students in developing daily living skills, and cognitive and perceptual skills. It doesn’t fall into any of the SAMR categories because the App is only good for time and activity scheduling and reminder.

**How the app encourages person centred planning?** Reminder, Reminders with Voice encourages person-centred planning because it is flexible to use by everyone with or without a disability. However, it is not an instructional App. It is only served as a reminder. It is very useful for individuals with Autism, cognitive disabilities or any related disability when visual scheduling and checklists apps are integrated into the Reminders. It improves independence in the student as that is ultimately the goal of person centered planning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The 5Cs of the 21st Century approach to teaching and training are connectivity, community, and curation. Reminder, Reminders with Voice cannot be categorised into any of these 5Cs because it is not an instructional App. It only encourages the ability of trainers and learners to be well prepared for their routine activities using reminders.

**Evidence from the literature that the app is capable of the claims made:** There is no evidence from the literature that the App can benefit pedagogy or educational programs of any form. However, it is very useful for trainers and teachers in scheduling and organising their time and activities for improved productivity and independence.

**General Comments:** Reminder, Reminders with Voice is a reminder App that serves as voice reminders and reminder with calendar. It helps trainers, parents, and learners to put their schedules, activities and events on a platform that will remind them when the time is due. The App is unique in that it is easy to backup and restore reminders on same device or different devices. It is also very useful for individuals with cognitive disabilities. It helps people with Autism to be sensitive and active to their school or daily schedules and programs.
**Reviewer:** Stephanie Pletiak

**Cognition - App 26**

**Choiceworks**

**Operating System:** IOS

**Location:** Apple App Store

**Cost:** $10.99

**Description:** Choiceworks assists individuals with a disability in managing their time, understanding their feelings and developing independence through schedules, timed activities, feeling scale and flow charts to support their management and self-regulation. Choiceworks can be customised to meet the needs of the user and includes 180 visuals and audio. In addition to the visuals and audio provided, it also allows for videos to be made to support the user. Choiceworks provides multiple modes to represent and communicate information to support individuals being successful in building independence.

**Alignment with the UDL guideline:** Choiceworks contains multiple means of representation which provides optimal support for the user. The app allows the user to customise information to meet the users’ needs such as timers (1.1). Furthermore, it provides alternative methods to present information in the form of audio and visual media (1.2 1.3). By providing a variety of methods to represent information, the information for the user can be tailored to their unique needs and provide significant skills to develop resilience and understanding to develop independent skills. The customisable schedules support the user in concentrating on the task at hand and reduce distractions (7.3).

**Curriculum area:** Choiceworks can be used in the curriculum area of Health and Physical Education, and through the Personal and Social capabilities in the Australian Curriculum. This app supports individuals in identifying behaviours and actions that support safety. Choiceworks also supports the user’s self-awareness by supporting users in identifying emotions, and self-management using schedules and timers for personal organisation. These skills would be beneficial to foster during the early years of schooling, which will support the students in reaching goals and being able to regulate and complete tasks independently.

**How does the app meet the National Disability Standards?** Choiceworks fits in the National Disability Standards as it supports the independence and individual goals of the user. This app provides a method for the user to communicate their emotions and support them in determining choices to regulate that emotion. Through the customisable media, Choiceworks provides a person-centred approach focused on individual outcomes.

**How the app changes pedagogy (SAMR)?** Choiceworks enhances the use of a schedule through augmentation. Through functional improvements, such as the use of customisable visuals, audio and video, information can be adapted to meet the individual needs of the user. The information is conveyed through different media making it more accessible to a variety of users.
How the app encourages person centred planning? Choiceworks provides person centred planning by providing visuals and audio that can be customised to meet the goals and needs of the user. It also provides choice to the user, in the emotion strategies it provides allowing them to select a course of action to take when feeling a specific emotion. This provides the user with tools to assist in self-regulation which would increase their social and emotional well-being. Using the feelings scale, users will also be able to communicate their emotions and therefore seek additional support.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Choiceworks encourages communication and collaboration. It supports users in communicating their feelings, thus providing parents, teachers and carers a better understanding of the individual’s emotional well-being. It also encourages collaboration by all the stakeholders of the user to discuss and develop individualised goals and choice boards to support self-regulation. Through this collaboration, all stakeholders will have a clear and consistent means to support independence and foster positive emotional well-being.

Evidence from the literature that the app is capable of the claims made: In a meta-analysis, Van Dijk and Gage (2018) acknowledged that the use of visual activity schedules yields positive effects and are an effective tool in supporting individuals with intellectual disabilities in learning skills and completing tasks with minimal to no assistance. Choiceworks provides schedules that can be customised to meet the individual needs of the user. Using visual and auditory supports, the application is more accessible. In a study by Zimmerman, Ledford and Barton (2017), the use of visual activity schedules increased the engagement of the user and identified that its use would be beneficial for young children regardless of whether they had a disability or not. It is from the literary evidence that the use of the app Choiceworks would be beneficial for individuals both with and without a disability in supporting time management, independence, engagement and emotional regulation.

General Comments: Choiceworks would be beneficial for anyone who supports a child with a disability. It supports the user in understanding what activities and events are occurring and what order. It also assists them in preparing for transitions using both the visuals and timer. Choiceworks provides visuals to support self-regulation and the feeling scale is a valuable communication tool to support the child, parents and teacher.
**Reviewer:** Stephanie Pletiak

**Pictello**

**Operating System:** iOS

**Location:** Apple App Store

**Cost:** $30.99

**Description:** Pictello, is an application that facilitates the creation of customisable stories that can be shared. Users can use their own photos, video and text to create their own unique story. It can be used to create social stories specific to the social needs or interests of an individual using images and audio that is familiar to them. Users can develop their literacy skills as the programme supports reading through word by word highlighting and text to speech. It also has word prediction, supporting users to independently create their own stories. There are different customisations available to support accessibility, including different methods to turn pages, adjustments to speech rate and pronunciations. This application also comes in different languages supporting bilingual users.

**Alignment with the UDL guideline:** Pictello aligns with the UDL guidelines by providing multiple means of representation, as it allows users to use their own pictures and audio to create a story (1.1, 1.2, 1.3). As the app allows users to customise and create their own stories using visuals and audio, it also meets the UDL principal by providing options for expression and communication (5.1).

**Curriculum area:** Pictello supports users in creating their own stories. This app aligns with the subject English in the Australian Curriculum with the area of creating literature and texts. The app also meets the learning area in the Literacy learning continuum of the General Capabilities in the Australian Curriculum on composing texts through speaking, writing and creating element. Pictello is an app that will support students from being successful in these learning areas.

**How does the app meet the National Disability Standards?** Pictello meets the National Disability Standards, by providing choice and control on the composition of their stories, as well as an opportunity to express their interests and share them with others allowing collaboration and dialogue with the individuals that they share their stories with.

**How the app changes pedagogy (SAMR)?** Pictello is an application that facilitates users in creating their own unique and customisable stories that can be shared with others. It transforms the way people creating their own stories and redefines how stories can be created and shared. It provides an alternative means of communication and enables users to express themselves using different media. Stories can also be created to support the user in understanding social situations or gain new knowledge through social stories. This would support teachers in differentiating their lessons to support individual learning needs.

**How the app encourages person centred planning?** Pictello supports person centred planning in two ways. The first way, is by supporting the user in creating stories that are meaningful for them
by supporting the use of visuals and audio that can be added by the user. The second way Pictello supports person centred planning, is by providing an engaging way for teachers and parents to create social stories to support the user in developing their social and emotional learning, along with new knowledge to support the user in being more independent in their life and assist them in achieving personal goals.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)** Pictello supports users in creating and expressing their interests and experiences through the creation of stories which can include visuals and audio from the creator. This meets the 21st century approach of creativity. Additionally, the app also supports users in sharing the stories they create which also meets the collaboration area in the 5Cs.

**Evidence from the literature that the app is capable of the claims made:** Pictello supports the creation of social stories and provides different customisations to make them effective for each unique learner. Research conducted by Barry and Burlew (2004) concluded that social story interventions are effective for students with autism including those with communication difficulties. Pictello supports users in developing their literacy skills. Stone-MacDonald (2015) indicates that the use of interactive stories on electronic devices are more engaging and support in developing the literacy skills of young children. Furthermore, Stone-MacDonald (2015) indicates that the customisation of apps, would support individuals who use AAC to communicate and be more independent. Pictello supports individuals in developing their literacy skills by having multiple modes to create a story and learn social skills through the creation and access of social stories created for them using visuals and audio.

**General Comments:** Pictello provides writing modes that support individuals in creating their own stories and support their reading skills. Its easy interface supports individuals with a disability in creating their own books independently and sharing them with family and friends. This app facilitates the user in expressing themselves and communicating with others. Furthermore, teachers and parents can utilise its accessible features to create books to support the learning or social skills and class content which is tailored to the ability and needs of the user.
PODD with Compass

Operating System: IOS
Location: Apple App Store
Cost: $399.99

Description: PODD with Compass, is an augmentative and alternative communication device that supports users in communication. It provides a variety of methods to support communication and can be customised to suit the needs and ability of the user. There is a voiceover to support communication and pages can be customised to the interests and needs of the user. Users will be able to update and manage their pages and back up your settings using the Cloud. This app supports non-verbal individuals, as well as those who have speech and language difficulties.

Alignment with the UDL guideline: PODD with Compass aligns with the UDL guidelines, as it supports its users in communicating their needs and wants (5.1). It also provides multiple means of representation, as the app is customisable and uses visuals and audio to support users with their communication (1.1., 1.2, 1.3).

Curriculum area: Communication is a vital tool to have to access learning. PODD with Compass is supported through the Australian Curriculum’s General Capabilities, which includes the learning area of communication through the Literacy Continuum which focused on comprehending texts through listening, reading and viewing element.

How does the app meet the National Disability Standards? Communication is an essential skill for every individual to possess. With the use of PODD with Compass, users will be able to conduct their lives with more control and independence. Users will be able to express their opinions and gain better accessibility to their community and be included. The ability to communicate, will support users in engaging with others and develop their social skills which will benefit their social and emotional well-being. Furthermore, the ability to customise the pages, supports the individual in being able to discuss things that are of importance to them.

How the app changes pedagogy (SAMR)? This app transforms the spoken word and makes it accessible to individuals who are either non-verbal or have language difficulties. It supports the user to communicate through visuals and audio. PODD with Compass, is an augmentation which further supports users through its customisations, visuals and audio.

How the app encourages person centred planning? PODD with Compass encourages person centred planning, by providing the user the means to be more in control and independent in their lives through their communication. By providing a means to communicate, PODD with Compass, facilitates the ability to achieve personal goals and support self-determination. Furthermore, it supports the individual in developing connections with other people.
What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? As communication is an essential towards learning, PODD with Compass encourages many of the SC’s. It encourages connectivity, community and collaboration, as it supports the user in communicating with others to indicate preferences and needs. Furthermore, it supports the user to share and create new ideas. This supports the user’s independence and sense of identity as well as enhances their personal and social well-being.

Evidence from the literature that the app is capable of the claims made: Research conducted by Millar, Light and Shlosser (2006) identify that the use of Augmentative and Alternative Communication (AAC) support the development of communication and with the use of AAC interventions, can encourage natural speech production. In a study by Tamakloe and Agbenyega (2017), which involved teachers, identifying the use of AAC as critical in producing inclusive learning, which resulted in developmental achievements of their students. Furthermore, Tamakloe and Agbenyega (2017) indicated that the use of AAC supported children with a disability in gaining independence and supported them in developing independent skills. The use of AAC was acknowledged as a critical component in supporting children with a disability in understanding their learning environment. The use of an app such as PODD with Compass provides a critical tool to support a child with communication difficulties.

General Comments: PODD with Compass, is an app that would be of great benefit for individuals with speech difficulty or parents and teachers who support a child with speech difficulties. The use of this app provides opportunities to support choice and self-determination which would support the independence of the user. This app supports the development of language and speech, and can be customised to the individual’s interests, needs and ability, so that the individual is successful in their communication goals. In addition to supporting individuals with a speech difficulty, this app would be beneficial for educators and care workers who support individuals with a disability. Using AAC, educators can support individuals in accessing their learning and understanding of social skills. There are many AAC apps available, so if you are considering this app for your child, it would be recommended that you consult a professional to find the right AAC device.
Time Timer

**Operating System:** IOS, Android

**Location:** Apple App Store, Google Play Store

**Cost:** IOS $4.99, Android $3.99

**Description:** Time Timer, is an app which allows users to customise timers including the names and colours to manage productivity. It can be used with Apple TV and interactive whiteboards. Time Timer, can be used to support individuals with a disability with transitions, routines and encourage independence. The time can be adjusted to represent seconds or hours and visually depicts how time is passing to support the user in time management and concentration. The app notifies the user as time passes and can adjust to a vertical and horizontal display.

**Alignment with the UDL guideline:** Time Timer aligns with the UDL guidelines, as it provides multiple means of engagement. The app provides users choice in the setup of the timers, as well as the customisation of colour (7.1). This app also supports the user in concentration, as it provides visuals that minimise distractions (7.3).

**Curriculum area:** Time Timer, can be used to support students in developing their skills found in the Personal and Social learning area of the General Capabilities found in the Australian Curriculum. The element of self-management in this learning area, focusses on the skill of developing self-discipline as well as independence.

**How does the app meet the National Disability Standards?** Time Timer meets the National Disability Standards, as it supports individual outcomes and participation. Using the app, users will be able to develop the ability to better manage their time so that they can self-regulate and cope with different transitions and day-to-day activities.

**How the app changes pedagogy (SAMR)?** Time Timer, has enhanced the way timers can be used and provided functional change through augmentation. This can be seen through the customisation of the timer set up allowing for seconds or hours, choice of colour and different notification options and viewing modes. This app has changed the way a timer can be used and made it more accessible for users.

**How the app encourages person centred planning?** Time Timer encourages person centred planning, by reducing distractions and supporting the user to achieve their personal goals. Furthermore, it encourages independence through the visual representation of the timer and provides self-determination and control with the different customisations available.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Time Timer supports the users when they complete leisure and work activities. It supports the user in managing their time on different activities more effectively and provides independence in
their actions. Users can ensure that they do not spend too much or too little time on a certain task and ensure that they are being productive.

**Evidence from the literature that the app is capable of the claims made:** The use of the app Time Timer, supports both individuals with and without a disability. According to Lee, Lee and Fox (2009), students can measure and recognise time more successfully when they can see it. Using Time Timer, individuals can see time passing and therefore develop a better understanding on how to manage their time. The Time Timer app was used in a study conducted by Huls (2017), where it was concluded, that the use of the timer, supports memory with individuals with an intellectual disability. Furthermore, the use of visual cues on the app encouraged desired behaviours and reduced transition times. Through this research it was clear that the use of Time Timer would be beneficial for individuals with an intellectual disability throughout the day and in transitioning from one task to another. This app is a tool that both teachers and parents could use to support an individual with an intellectual disability in achieving their goals and gaining more independence.

**General Comments:** The app Time Timer, provides customisable timers that would support individuals with time management and understanding the concept of time. It can support the user in ensuring that they do not get distracted when completing tasks and does not become so focused that they forget to take a break. This would benefit parents who have children that struggle to transition and struggle to understand the concept of time. It would also support teachers in managing students and preventing distractions.
Bitsboard

Operating System: IOS

Location: Apple App Store

Cost: Free (In app purchases)

Description: Bitsboard is an education app that supports users in developing their literacy skills such as language, vocabulary, speech and reading. It uses visuals to support the learning of new information and provides mini games to make learning enjoyable. Bitsboard supports multiple users and tracks their progress. It provides a variety of accessibility options including switch control to support individuals with multiple disabilities, and the font and contrast can also be adjusted. The app uses a learning algorithm to adapt to the user’s ability and personalise games. Teachers can use this app to create customised lessons to meet the different learning needs of their students.

Alignment with the UDL guideline: Bitsboard aligns with the UDL guidelines, by offering multiple means of representation and by providing multiple means of engagement. The app supports users in their learning by providing both visual and audio supports as well as the ability to customise your own lessons (1.1, 1.2, 1.3). Bitsboard supports users with their independence and autonomy by being accessible and adapting games to support their ability (7.1). It also provides a variety of resources to optimise learning and challenge the user through the different mini games available (8.2).

Curriculum area: Bitsboard meets a large area of the Australian Curriculum through the subject of English. It supports the development of language, vocabulary and reading. These are areas of focus throughout the English curriculum which becomes more challenging as the years progress. It is also part of the Literacy continuum in the General Capabilities, where it meets many of the elements.

How does the app meet the National Disability Standards? Bitboard meets the National Disability Standards, as it supports the user in developing their self-determination and participation based on interests and goals. The app provides users a variety of mini games of engage with, such as memory games, cross words, and sorting and matching activities. Using mini games, a range of methods are presented to support participation. Bitsboard also supports a variety of accessibility options, including the use of a switch to support users with multiple disabilities and customisation of contrast and font size.

How the app changes pedagogy (SAMR)? Bitsboard has transformed the way we engage learners in literacy. The app has transformed worksheets and modified them to be more engaging and customisable activities for the user. Teachers can use this app to create their own activities to support the needs and abilities of their students.
How the app encourages person centred planning? Bitsboard encourages person centred planning, as the lessons can be customised to meet the needs and goals of the user as well as provide a variety of mini games to support their learning. This app provides a variety of customisations that support accessibility and inclusion to a wide range of potential users through switch control, font size and contrast customisations.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Bitsboard supports users with connectivity as it encourages control and independence in accessing technology for leisure and work. Users can control what activities they engage with and can utilise both visual and audio to support their learning.

Evidence from the literature that the app is capable of the claims made: Bitsboard is an app that facilitates the learning of literacy using visuals, audio and mini games to support the learner. Research into the use of iPad as a learning tool conducted by Rodrigues and Cumming (2017) indicates that iPads are a hands-on tool that is motivating and engages with students with a disability. Furthermore, they indicate that iPads are a valuable tool to support language skills and develop independence. These findings are also supported by Flewitt, Kucirkova and Messer (2014) who indicate that the use of iPad apps create new opportunities for students with a disability to learn literacy. Flewitt, Kucirkova and Messer (2014) also indicate that the use of iPads support users in achieving goals and enables independence. It is through this research that the use of the app Bitsboard, would be of great value to support individuals with a disability in developing their literacy skills as well as their independence.

General Comments: Bitsboard is an app that would beneficial for a multitude of individuals with and without disability. It supports users in the development of literacy skills using visuals, audio and mini games. A great feature of the app is its learning algorithm to challenge users as well as the customisations that can be made to support the learner. Teachers can use it to differentiate their lessons to suit the individual’s needs of their students as well as track their progress. The mini games make the activities very engaging and motivating and support the learner in avoiding distractions.
Conclusion and Recommendations

Cognitive skills are considered essential elements of an individuals' life and impact on areas such as attention, sensory perception, memory, problem solving and communication (WHODAS 2.0). Efforts should be made to explore assistive technology which will support and improve outcomes and goals for individuals who are challenged in these areas.

Software applications, as a part of assistive technology, are utilised to assist with and improve the outcomes for individuals who face cognitive challenges (Cook and Polgar, 2014). Principles of Universal design continue to improve accessibility for individuals with cognitive disabilities. Examples of this include multimedia mobile applications which offer multi-modes of presentation, providing technology solution/options for functional improvement and substitutions.

In considering the apps for individuals with cognitive disabilities we found the following categorisation useful:

1) **Supporting learning with multiple presentation of information, options for sensory perception and enhanced attention and memory**: First Then Visual Schedule, Equip Myself, Everyday Skills Meal Planner Lite, Everyday Skills, Ereader Prestigio, Easy Talk Lite, Curiosity, TinyCards, Articulation Station, SmartEdTech, Voice of Daisy, Elevate-Brain Training, Avaz Australia - AAC App, 123TokenMe, AutismXpress Pro, Pictello and Bitsboard.

2) **Encouraging self-regulation and problem solving**: First Then Visual Schedule, Equip Myself, Everyday Skills, Ereader Prestigio, Curiosity, Headspace, TinyCards, Time Timer, Elevate-Brain Training, MindMate, Pocketbook Easy Budget Planner, Avaz Australia - AAC App, 123TokenMe, AutismXpress Pro, Reminder, Reminders with Voice, Choiceworks, Pictello and PODD with Compass.

3) **Improving accessibility**: My Safety Companion, Ereader Prestigio, Leelou-Aussie personal safety and Skool Loop.

4) **Promoting emotional regulation and mental health**: Headspace, Mindmate and AutismXpress Pro.

5) **Supporting communication**: Easy Talk Lite, MyTalkTools Mobile Lite, DAF Assistant, MindMate, Leelou-Aussie personal safety, Skool Loop, Avaz Australia - AAC App, 123TokenMe, AutismXpress Pro, PODD with Compass and Bitsboard.

Rather than remaking distinct parts of an application, in which technology for people with different needs is considered as specific and defined (Foley and Ferri, 2012), we advocate for a more inclusive view with a focus on the implementation of UDL principles in all applications on the market. We believe that incorporating Universal design into the initial development of applications would promote greater access and flexibility for students and adults living with cognitive disability.
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Mobility
Moving and
Getting around

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Trinidad Cofré Segovia
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## Apps for functional group: Mobility.

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Introduction

According to the Manual for WHO Disability Assessment Schedule WHODAS 2.0, mobility function, which is stated in Domain 2, is mainly related to standing up, walking or moving around by legs or with supports from different aids, equipment and assistive technology (World Health Organization, 2010). These activities are generally limited among people living with reduced mobility function or mobility impairment (World Health Organization, 2010). Consequently, they have difficulty in areas such as carrying out specific tasks which are fundamental to being able to live independently amongst the community and taking care of themselves (Courtney-Long et al., 2015; Fried, Bandeen-Roche, Chaves, and Johnson, 2000; Rantakokko, Mänty, and Rantanen, 2013). Technology has a significant impact towards contributing a chance for a person with a disability to have meaning in their life and experience being independent (Adibi, 2015; Istenic Starcic and Bagon, 2013; Lenker, Harris, Taugher, and Smith, 2013; Lupton and Seymour, 2000).

Douglas et al. (2012) state that apps have the potential to support people with disabilities in all areas of life when adequately aligned with the individual’s needs. This section reviews 25 apps which assist mobility function of people with disabilities. The reviews were written based on approaches of Universal Design for Learning (UDL) (CAST, 2018), SAMR (Puentedura, 2009), 5Cs (Carey, 2014), and person-centred approach (NSW Department of Ageing, 2009). These apps focus on supporting people to move around their house or to navigate and travel outside their living areas.

The apps that have been reviewed are not only to aid people to get to various places but to be able to carry out specific tasks such as exercising, catching transportations, finding car parks, read signs and toilets that are not possible to accomplish without the support of these apps. Many of the apps can be downloaded from both Apple Store and Google Play Store. However, some of the apps are only available in iOS devices or Android ones.
Reviewer: Julia Goldsworthy

BlueBay

Operating System: iOS, Android

Location: iTunes store, Google play

Cost: free

Description: The BlueBay app locates metered and unmetered car parking, according to postcode or registered address. It aims to provide informed choices and improve access for people with disabilities. Users can also refine their searches by adding additional information about the car parking spaces required, such as space type, park level. The app can be applied to both regional and metropolitan areas of South Australia.

Alignment with the UDL guideline: This app meets the UDL Guideline Principle 3: Provide Multiple means of Engagement. The app supports individual choice and autonomy 7.1 (Cast, 2011) by informing individuals about accessibility options of parks. It also aligns with Principle 2: Providing Multiple Means of Action and Expression; Checkpoint 6.2 Supporting planning and strategy development by providing knowledge of surrounding areas.

Curriculum area: This app promotes independence and planning. It supports individuals who are struggling with executive function challenges. It could also be useful when planning the logistics for school excursions. The app would potentially provide significant benefits to high school-age students to support them with planning and to improve their range of mobility.

How does the app meet the National Disability Standards? This app fits the National Disability Standard 1– Rights. It increases a person’s choice and independence by sharing, locating and making parking more accessible. This is particularly relevant to areas that are unfamiliar to drivers, as well as busy destinations where parking is challenging because of competition with others.

How the app changes pedagogy (SAMR)? The BlueBay app is a transformation of technology and facilitates the modification of teacher pedagogy. In the past, this type of information was published in council documentation, both online, and hard copy. Historically it was linked to public information about special-event parking. Now the data can be flexible and readily sought by accessing an app, with more information provided as it allows users to use crowdsourcing to add relevant information.

How does the app encourage person-centred planning? This app allows and promotes planning to support independence, mobility and safety. It gives individuals control of their own choices and empowers them to be more self-reliant. Users could use this information and make informed and accurate decisions based on refined, specific requirements. In the future, a real-time car-parking app would increase accessibility and convenience. A more sophisticated version might also incorporate the combined use of a GPS locating system, with explicit voice commands. This redefinition of technology would increase choice for the user, instil confidence through promoting self-reliance, and increase participation in community events, services and functions.

What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? This app helps a 21st-century approach, by promoting collaboration, facilitating connectivity and building
community-diversity through inclusion. This app can assist with greater planning opportunities and supports ease-of-involvement in the community. By allowing and encouraging users to add refined information, it also tailors for specific requirements, improves choice, access, and builds a growing sense of community and belonging. The capacity to refine or filter particular conditions that increase the accuracy of responses for the user. Previously, social, physical and resource criteria were based on predictions made at an administrative-support level, through which accuracy was compromised, as real-time conditions changed.

Evidence from the literature that the app is capable of the claims made: According to the Govt of SA (2016) the tool was developed for the community and provides information, location and type of open car parks in both metropolitan and regional areas for approximately 70 000 disability permit holders. The app uses crowdsourcing to share knowledge. Disabilities Minister Leesa Vlahos stated, ‘This is another example of technology increasing accessibility options for people with disability. The app is a creative use of technology to increase choice and independence.’

General Comments: The BlueBay’s app is a useful app that can increase accessibility options for people with a disability allowing for choice and independence. The app is designed to be user-friendly and accommodates the needs and requirements of users across a broad range of capabilities. By reflected research findings, Cummings et al.(2014) state through the use of mobile technology, the potential for independence and active citizenship for people with disabilities is greatly enhanced.
**Reviewer:** Julia Goldsworthy

**Mobility - App 2**

**Going Places 2**

**Operating System:** IOS, Android

**Location:** iTunes store, Google play

**Cost:** free

**Description:** This app fits into the category of Education. Going Places, 2 is a visual teaching tool for helping children to navigate, manage and understand appropriate behaviours in designated social situations. The app has six scenarios, including the hairdressing salon, the grocery store, the mall, the doctors, playground and a restaurant. Each scene is supported by a slideshow that visually models appropriate behaviours that fit each context. It is a social skills program designed to encourage students who are on the Autism Spectrum Disorder. The app has audio narration and uses a child’s voice that is clear and articulate to describe each photo. It affirms positive phrases within the description, aimed to encourage children to ‘stay calm’ and ‘listen to the doctor.’ The app also provides links to the additional option of DVDs, which offers further support for children. The format of the app is quite simplistic, with simple commands narrowed down to forward, back and home buttons.

**Alignment with the UDL guideline:** This app meets the UDL Guideline Principle 1: Providing Multiple means of Representation; Checkpoint 1.1 Offer ways of customising the display of information (Cast, 2011). The app has visuals and narratives of planned expectations at various familiar locations. It also aligns with UDL Guideline Principle 2: Providing Multiple Means of Action and Expression; Checkpoint 5.3. (Cast, 2011). This app model’s step-by-step social expectations, allowing for practice by individuals to gain and build independence to be able to integrate into familiar social settings successfully. Therefore, this app is designed to develop fluency within incremented levels of differentiation to support practice and performance aimed at varying maturity levels.

**Curriculum area:** This app has age suitability that starts at the age of 4 years plus. It aids in social-emotional management and development by providing predictable experiences in familiar settings (Apple, 2010). The app links to the Learning Continuum of Personal and Social Capabilities: self-awareness, self-management, social awareness and social management.

**How does the app meet the National Disability Standards?** This app fits the National Disability Standards 1: Rights, Standard 2: Participation and Inclusion and Standard 3: Individual outcomes by supporting students to understand processes and expectations in familiar locations. The social stories within the app allow the individual to engage with others and encourages them to participate within the community.

**How the app changes pedagogy (SAMR)?** Going Places 2 is an enhancement of technology through augmentation. Through task analysis, multiple steps are shown, with prompts, to help build knowledge and awareness, and to establish social management of predictable, public situations. Where flash cards and social stories were acceptable once a mainstream pedagogical practice, this app allows for interaction and creates versatility for the user to rehearse situations with the aid of audio narration.
How does the app encourage person-centred planning? This app provides modelling support that is predictable. It gives a visual plan and prepares the user for a range of community settings. It also allows the user to watch and practice in their own time, so they could repeat and control the frequency themselves. This app supports further follow-up that can be tailored to meet the needs of individuals.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The model builds social competence and enhances a sense of community belonging to the user. It helps the user develop competencies that are needed to successfully participate and feel confident in going to any one of six settings. Once competencies have become proficient, through practice and repetition, the teacher could then adapt the management skills to customised scenarios using student photos and a more extensive range of community settings.

Evidence from the literature that the app is capable of the claims made: This app claims to be a visual teaching tool that supports students to navigate through familiar community settings. It projects the user towards recommended and appropriate behaviours through modelling that is backed with audio narration. Waite (2012) claims that studies show that people with autism find video modelling more effective than in-person modelling. Olson (2012) has also had success with her ASD clients as they find apps more appealing and engaging. This is making a significant difference in the way their clients could function in the world. Using this app to support student learning to navigate challenges with community living, in a supported, engaging style, would ‘enhance student participation in community settings.’ Douglas et al. (2012) embellish this claim, ‘and give confidence, promote self-regulation to the user and family.’

General Comments: This app is a tool that can be used by teachers, parents and the student. It is simple to navigate. It accommodates an individual user’s need for independence when used on a phone or iPad. The app is a segway to life skill competency and can be readily tailored by the incorporation of intimate photos so that the student can find further relevance and meaning in their personalised context.
Reviewer: Julia Goldsworthy

GuideDots2

Operating System: IOS, Android

Location: iTunes store, Google play

Cost: Free

Description: GuideDots2 is a free, audio-supported navigation app that aims to encourage and provide greater independence for vision-impaired people. The app states that it compliments cane and guide dog usage. The app uses Facebook and Google Maps. It also allows the user to upload familiar routes and friends into its database. It claims that it can be used in any city and it keeps a database of local information. Local information such as hazards, warnings, restroom locations are identifiable, and reliant community uploads of information. One difference that GuideDots2 claims to have is the ability to determine a crowd by using crowdsourcing technology. Disability Horizons (2018) states that this app technology provides users with an inter-connected and broad perspective of the world around them.

Alignment with the UDL guideline: This app aligns with the UDL Guidelines Principle 2: Providing multiple means for action and expression; Checkpoint 4: Providing options for physical action. (Cast, 2011). This is demonstrated by the app’s capacity to reduce barriers regarding mobility and its support for user independence and optimal participation in the community. This app is regularly updated with users able to provide information on routes, dangers etc. UDL Guideline Principle 3; Providing multiple means of engagement, Checkpoint 7.1 and 7.3 Optimizing choice and autonomy and minimising threats and distractions (Cast, 2011). These checkpoints are illustrated so that visually impaired users can independently access places of their choice. Users can also establish a broader perspective of who and what is around them. Face recognition and emotion-detecting technologies enhance this.

Curriculum area: A wide range of users could use the app, and according to the app preview, it meets the capabilities of users who are 4+ years at any age (Apple, 2016). The benefits of this app are consistent with links to the Learning Continuum of Personal and Social Capabilities: self-awareness, self-management, social awareness and social management. It could be deployed across a range of curriculum areas and has obvious potential to build the skills of independence, mobility and confidence in all users.

How does the app meet the National Disability Standards? GuideDots2 meets the National Disability Standards 2- in its provision for Participation and Inclusion. This app supports visually impaired people to gain confidence, facilitate mobility and promotes social inclusion across a wide range of accessible services and opportunities. GuideDots2 reduces both physical and emotional barriers. It removes many restrictions placed upon independence, particularly with travel. GuideDots2 enables users to exercise choice in what, how and with whom they participate in their community of choice.

How the app changes pedagogy (SAMR)? GuideDots2 is a transformation of technology that has redefined the way that people can navigate with a mobile device. In the past, visually impaired people would have had mobility training by using a guide dog or cane to support them. There would still need to be a form of exercise or induction for users of GuideDots2. This would include...
how to set up and fundamentally use the app. GuideDots2 offers more than just a mobility aid. It also provides opportunities to connect with local users and form communities via Facebook. It gives route information via voice commands and alerts the user when friends are nearby. This all becomes functional for the user through engagement in the GuideDots website. This app is a community driven app that will become richer in information as the number of users increases.

**How does the app encourage person-centred planning?** This app helps independence, hence the choice for the user, without the need for assistance from others. The user can independently plan their outing. The teacher may use this app to support movement planning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app promotes community building, inclusivity and connectivity. It enables the individual to be independent and participate with increased self-reliance. It supports the gathering of information for places and to ascertain the whereabouts of consenting individuals through links to Facebook.

**Evidence from the literature that the app is capable of the claims made:** Branham et al. (2018) state that GuideDots2 is a navigation tool that focuses on detecting routes, landmarks and building. A feature unique to GuideDots2 is its connectivity to Google Maps and Facebook. This builds a community tool to improve access to community-driven information. This app has only 3 User-Reviews, all of the users are stating that the app needs more work. UDKU who supports the app replied to the reviews saying there was an update, that's being the app Guidedots2 They claimed that glitches have been fixed (Apple store, 2018). The app is still downloadable via the app store. It was last reviewed in 2014. Despite its overall perceived user-friendly appearance, may take some time to get this app to work. Csapo et al. (2015) states that assistive technology’s presence has increasingly become more user-friendly with its interfaces and modes of interaction making decisions that are more intelligent. The app does speak to you, but the app tends to call out wrong places as you pass. The GPS functionality is very incorrect. I was unable to access the website that it claims to be available though. A sighted person can add the detail of a passing public toilet and dangerous crossing, yet when I returned, the app did not give me this necessary information that its Product Review claimed.

**General Comments:** Considering its current glitches, I would not use this app as it did not work. The concept is encouraging, but it needs to be reliable. It requires further updates and support before coming a genuinely viable player in the field.
Red Panic Button

Operating System: IOS, Android

Location: iTunes store, Google Play

Cost: Free/ in-app purchases available also at $7.99

Description: The Red Panic app is a safety application that allows the user to press a button which instantly sends a message to emergency services or designated emergency contacts. By pressing the red button, it sends a message to your location via, SMS, email, Twitter. The in-app paid purchases take out adds and give the user unlimited emergency contacts. The user also can customise their alert messages as a voice message, picture or video. The location device uses a GPS.

Alignment with the UDL guideline: This app aligns with the UDL Guideline 3: Provide Multiple Means of Engagement; Checkpoint 7.3, Minimise threats and distractions (Cast, 2011). This app provides a sense of well-being and safety for the user. It also encourages independence and mobility for the user. By reducing the inhibitions created by fear of danger or isolation form assistance, it increases the potential for learning opportunities to occur.

Curriculum area: Learning to handle challenging situations positively is part of the Personal and Social Capabilities component of the Australian Curriculum. It also supports students become creative and confident individuals. This app would be particularly useful for students who have mobility challenges. Knowing their Emergency Plan can be activated if necessary, by the push of a button, gives the individual a strong sense of support. Learning to adapt to and manage an emergency, safety compromises and risky situations is all part of the educational planning for specific, random encounters or settings.

How does the app meet the National Disability Standards? Red panic button meets the NDS Standard 1: Rights, Standard 2: Participation and inclusion and Standard 3: Individual outcomes. This app creates a sense of confidence and encourages individuals to broaden their range of life choices. It fosters greater mobility through enhancing safety for the user. The reduction of fear-based emotions allows for broader decision-making opportunities. This will enable individuals to reduce anxiety and fear-based inhibitions, to allow for greater choice and opportunities to connect and participate in life in their community.

How the app changes pedagogy (SAMR)? The red panic button is a transformation of technology that modifies teacher pedagogy. Previous generations of panic buttons were home-based, often hard-wired to a phone line. A later generation of the app was built into the capacity of a mobile phone because users could add Emergency Contacts to their contact list. This app automatically relays the user’s current location, can take a photo, or send a video of the context affecting the user. Further modifications can be done with straightforward handling that essentially requires no more than the press of one button.

How does the app encourage person-centred planning? Red Panic button is a practical, easy to access and easy to implement app. Thus, it is straightforward to incorporate into planning a person’s emergency plan and establishing a network of support. It would be a useful tool to have when having discussions with a circle of friends, to affirm their support-roles in a user’s life. It could also be used by individuals to set up their personal Red Panic button. Practising to be efficient
in a controlled environment is an advisable preparatory procedure for any new user. Depending on the user's disability and needs, this app can be personalised to suit their ability and technological competence.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app helps connectivity by promoting a sense of support and availability for individuals. This app gives confidence and a sense of safety when moving about, particularly in new settings.

**Evidence from the literature that the app is capable of the claims made:** Wister, Acousta and Pancardo (2018) confirmed that the Red Panic app ‘is designed to improve the life of citizens by offering them a higher degree of security in our society. As a mobile device, this app offers safety guidance in unknown environments using GPS and helps people feel and safe when working or moving.’ There are many case studies on the Red Panic website that address situations wherein the absence of an emergency app would have resulted in a fatal conclusion. One example that was provided was about a man who was trapped in a construction site. Fortunately, he was able to alert his colleagues through sending an SMS on his phone. His friends found him in time to get him to the hospital for recovery.

Another example was of a woman who was trapped in a taxi driven by a rogue and bad-intentioned driver who was taking her in a different direction to where her party was. Using the GPS, she alerted her friends, who were able to track her down, without increasing the risk to herself and themselves (Red Panic button, 2016).

**General Comments:** This app is particularly useful if the user has it on a Smartwatch, which facilitates ease of access. It would also reduce the sense of vulnerability to the user and contribute positively to the user's sense of safety.
Seeing AI

Operating System: iOS

Location: iTunes store

Cost: Free

Description: The Seeing AI app describes scenes to people who have little to no vision. Its directed audience is the vision impaired. The app aims to support people to obtain more information from the world around them. The app is an amalgamation of specific features into one. It is capable of facial recognition, object recognition, currency recognition, reading barcodes, converting text to speech, detect colours and light, which is particularly useful in determining when lights are on or off. The app narrates what it sees to the user. The app can be accessed through a mobile phone to engage the inbuilt the camera and speaker components. It is predicted that the app will continually be updated as research progresses.

Alignment with the UDL guideline: This app meets UDL Guidelines Principle 1: Providing Multiple Means of Representation, Checkpoint 1.3 by offering alternatives for visual information in the form of providing narrative information of the world in front of the user (Cast, 2011). This app is the users’ eyes. Seeing AI also meets UDL Guidelines Principle 2: Provides Multiple Means of Action and Expression, as well as Checkpoint 6 and 4, by providing options for appropriate executive functions and physical activity. This is enabled because the user is informed about visual information in front of them, so that informed decisions and choices can be made, to enhance the user’s full participation in the community. UDL Guidelines Principle 3: Providing multiple means of Engagement, Checkpoints 7.1 and 7.3 are also met, because vision impaired users have improved, safe access because environmental threats are minimised (Cast, 2011).

Curriculum area: The app would be useful in all areas of teaching because it allows and supports greater independence and confidence for the user. It assists students with reading familiar objects, signs, documents, and text in different formats and styles. There might be some advantages if the user wore an earpiece of headphones, to reduce interference from external sounds, to privatise the service-use, and to reduce the threat of vulnerability because of the visibility of their impairment.

How does the app meet the National Disability Standards (NDS)? Seeing AI meets the NDS Standard 2 Participation and Inclusion by reducing the barriers to participating in society. It supports independent travel, inclusion and self-confidence. The app also meets NDS Standard 3 Individual Outcomes by promoting access to diverse resources that assist with the individual’s life goals. NDS Standard 1 is even met by supporting the individual rights of a user’s rights to increase independence through promoting greater access. This counters any potential for socio-cultural discrimination because it empowers the individual with self-determination, decision-making capacity, expanding the range of life choices and greater control over the user’s circumstances.

How the app changes pedagogy (SAMR)? This is quite a multifaceted app, being a reader, navigation tool and a detector of human-expressed emotions. The app enhances the use of targeted technology which augments teachers’ pedagogy by narrating to the user what is around. The
earlier generation of visual impairment aids was the cane or guide dog. Technology now allows for greater mobility, improved access and significantly greater independence. Seeing AI is a transformation of technology that has redefined the way that people can not only navigate with a mobile device but can become far more aware of and respond appropriately to surrounding features. Before the users use, it is essential for them to be provided with induction and introduction, so they are able to access all its features. Seeing AI has superseded the navigation devices of old.

**How does the app encourage person-centred planning?**  This app allows and promotes independence, mobility, safety and supports the learning process. It specifically targets the needs of visually impaired individuals. It shifts the locus of control to the user and counters the dependency model that might be established inadvertently between individuals and their assistants. It indeed promotes feelings of autonomy, empowerment, self-sufficiency and in control of a user’s learning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app helps diversity within a community. It allows for greater confidence in users as they attempt to integrate into their society. Facial recognition and emotion sensors enhance a feeling of safety and knowingness in various environments or settings. It also encourages connectivity, through the assistance provided to read documents, connect with social media, and builds capacity for the user to be able to describe scenes and people. The ‘Recognise with Seeing AI’ share sheet function allows the user to save images found on social media to be sent to the app. This way the app can immediately recognise and offers a description of the image. In the social media domain, this function supports community involvement and participation.

**Evidence from the literature that the app is capable of the claims made:** An app first started to incorporate personal safety management into navigation. Branham et al. (2018) stated that people with disabilities are disproportionately targeted as victims of crime. Previous modes of assistive technology would be capable of detecting routes and landmarks but didn’t focus on interpersonal safety. Seeing AI identifies passers-by by reading faces and scenes. Veronica with Four eyes (2018) reviewed the app stating that the reading text options for both short and long text was useful but didn’t recognise her teachers’ handwriting. She noted that the barcode scanner worked flawlessly. Many people desire access to visual information about others nearby to increase personal safety (Branham et al. 2018). Using this app provides the user with a greater sense of personal safety by recognising scenes. Veronica with Four eyes (2018) confirmed that the scene recognition was accurate enough to determine when a dog walked in a room and that it could locate objects and detect smiles on people’s faces. Furthermore, it was also able to recognise faces online via the SharePoint option.

**General Comments:** This app is relatively new and only available for free on IOS devices. Hopefully, this handy, multi-functional and easy-to-manage app will become available for Android users. The scene recognition and facial recognition didn’t work in low lit areas and were quite clunky. The facial recognition facility still has limitations, as currently, the user must take a photo of the person before it recognises the face. However, this app is breaking new ground, and will only get better as research progresses.
BlindSquare

**Operating System:** iOS 8.0 or later. Compatible with iPhone, iPad, and iPod touch.

**Location:** App Store

**Cost:** $53.59 with in-app purchases

**Description:** BlindSquare (MIPsoft, 2018) is a GPS-based indoor and outdoor navigation app, available in over 150 countries. Available in many languages, this app helps people with visual impairments move around cities based on FourSquare’s (a location-based social network) environment information. It provides audio information through high-quality speech synthesis and can also be controlled through Voice Command, an in-app purchase. BlindSquare does not require accessories, but user experience can be enhanced with specific headphone models. Starting up the app provides information on current surroundings, and then allows searching places of interest either by picking from a list or by the direct setting of a destination. It also displays venue’s information such as address, phone number or website if available. Users can set an alert distance to notify proximity of target, and when used indoors it also alerts of coming intersections, staircases and elevators. Indoor use is only available in venues equipped with Beacon Positioning Systems. People who are deafblind can also use this app through appropriate setups. The app allows saving favourite places and marking current position to find it again later. It does not provide turn-by-turn navigation, but users can choose from a list of third-party apps for this assistance. BlindSquare can be synchronised with all iOS devices and requires iCloud to save personal settings. It can be used running in the background, and GPS accuracy depends on either FourSquare or Open Street Map (a free collaborative world map) availability.

**Alignment with the UDL guideline:** BlindSquare aligns with UDL principles: 1 Provide options for perception, by offering customization options that include auditory and visual alternatives for people with hearing and vision impairments to ensure their access to required navigation information. 3.1 Activate or supply background knowledge, by turning on or off navigation cues that provide details of the surroundings’ features. 4.1 Vary the methods for response and navigation, by providing information that helps bypass environmental barriers that affect orientation and mobility. 4.2 Optimize access to tools and assistive technologies, by improving app user experience with the incorporation of headsets that allow better sound resolution, as well as allowing hands-free voice use. 7.3 Minimize threats and distractions, as BlindSquare not only provides detailed information of crossings or potential barriers but has also optimized features of headphones use so that these not interfere with environmental sounds that serve as navigation cues used by people with visual impairments. 8.1 Heighten salience of goals and objectives, by providing constant feedback of navigation positioning and distance to destination. 8.3 Foster collaboration and communication, as allows users to collaborate by adding new venues to FourSquare and checking in at destination to let other users know of user’s arrival.

**Curriculum area:** BlindSquare is rated suitable for 4+ ages. It promotes independent travel training by supporting pedestrian orientation and mobility, identifying destinations, routes and landmarks, and use of public and private transportation. It can also support recreation, leisure and
community access through exploration of local and broader community, as well as the use of audio and visual equipment.

**How does the app meet the National Disability Standards?** National Disability Standards met by BlindSquare include no. 1, Rights, as it promotes self-determination to move and travel as desired; no. 2, Participation and Inclusion, as it facilitates active participation in the community; no.3, Individual Outcomes, as the app has been developed in collaboration with people with visual impairments to address users’ needs and work based on their strengths and mobility goals; and no. 4, Feedback and Complaints, as MIPsoft is constantly receiving and working on app improvements based on users’ reviews, and engaging in new partnerships with other technology developers for further upgrades.

**How the app changes pedagogy (SAMR)?** Considered an augmented reality app for people with vision impairments, BlindSquare is a resource that Transforms use of technology for this group of people. It redefines their mobility functionality shifting from being complicated and commonly dependent of third parties help too much more comfortable, independent and self-determined navigation, previously inconceivable. It can enhance teacher’s pedagogy of independent living skills and technology use for children to gain new and useful navigation skills, as well as enhancement of self-confidence and social participation.

**How does the app encourage person-centred planning?** A person-centred approach is present in BlindSquare since people with visual impairments are at the centre of attention to provide appropriate support for them based on ongoing learning and action to address their needs considering their characteristics. Also, this app offers the opportunity for people with vision impairments to take power and control over their navigation and mobility, as well as supporting their independence and community participation and inclusion.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** BlindSquare promotes Connectivity, Community, Collaboration and Creativity. Providing the opportunity to connect with other people and available services easily, safely and independently not only helps develop mobility and public skills but also encourages joining the community to participate and cooperate with others. Collaboration among users to share data is also a feature of this app, as they combine their knowledge to keep improving other users’ BlindSquare experience, which at the same time promotes creativity and gives inspiration to technology developers to find new solutions to people’s needs.

**Evidence from the literature that the app is capable of the claims made:** This Finnish app has received several awards since release (BlindSquare, 2017). It is described as easy to use (Barrows, 2016), and it has been globally incorporated by people who are vision impaired (Goldberg, Zhu and Zhang, 2018) into their regularly used mobility aids.

**General Comments:** BlindSquare could also be potentially used by people who are not visually impaired to assist their navigation, for example, children with Autism Spectrum Disorder, dysexecutive function or memory difficulties.
Moovit: Public Transit App

**Operating System:** iOS 9.0 or later. Compatible with iPhone, iPad, and iPod touch. Android 2.3.3 or higher.

**Location:** App Store, Google Play Store

**Cost:** Free

**Description:** Public transport map and travel planner app based on user’s GPS use. Available in more than 80 countries and over 40 languages, awarded among the best navigation apps in 2016 and 2017. Provides bus, train and metro times shows nearby bus stops and stations and helps find the best travel route with step-by-step directions and real-time navigation, able to show delays, detours and traffic jams. Allows marking favourite places and ways and downloading a city map in pdf format to use offline. Moovit works based on crowdsourcing, as users can report any changes in traffic or services, as well as report wrong schedules and bugs. This apps makes mobility and use of public transportation much more accessible for people with and without disabilities as it helps plan distances and routes and choose best transport services according to each person’s needs. Moovit provides users with disabilities a planning and navigation tool to support their mobility encouraging autonomy and independence and assisting travel following the user’s location in real time, providing an estimated time of arrival and get-off alerts when the desired stop is near, even when the app is working in the back or screen is off.

**Alignment with the UDL guideline:** Moovit app fits into UDL principles (Cast, 2011) 4.1. Vary the methods for response and navigation, as it helps improve user’s capacity to navigate their physical environment and provides opportunities for interaction with the community. 6.2 Support Planning and strategy development, as it allows exploring and deciding how to arrive at destination according to desired transportation method or nearest stop. 6.4 Enhance capacity for monitoring progress, providing real-time navigation feedback and alerts for any changes during travel. 7.1 Optimize individual choice and autonomy, as it allows users to choose their best transport option, favouring independence and decision-making. Finally, principle 8.3 Foster collaboration and communication is present through crowdsourcing options to improve other user’s travel experience.

**Curriculum area:** This app is age rated 4+ and can be used by anyone with or without disabilities, as it has a clean and straightforward visual interface. Moovit improves independent travel training by supporting planning and execution of complicated trips on public transport.

**How does the app meet the National Disability Standards?** This app meets National Disability Standards (National Standards for Disability Services, 2013) no. 1, Rights, as it favours self-determination and choice and control over their mobility, and promotes the dignity of risk; no. 2, Participation and Inclusion, as it prefers a connection with user’s communities and collaboration with other users and several transport services; and no. 5, Service Access, as its real-time travel feedback provides timely updates for warning users of travel barriers and finding better service options. The app does not, however, include accessibility options so its use by people with a visual impairment may not be possible.
How the app changes pedagogy (SAMR)? This app can be considered as Transformation of technology and the task it assists. Moovit redefines paper maps into digital ones and incorporates interactive navigation options to improve user’s mobility, as well as including collaborative opportunities to improve user’s experience. Teachers can benefit from this app to enhance their teaching of independent travel training and decision-making skills, helping children develop self-confidence and self-sufficiency.

How does the app encourage person-centred planning? Moovit is focused on improving user travel experience and provides a service that supports user’s strengths and mobility interest and goals (National Standards for Disability Services, 2013), and promotes individual’s self-determination through the exercise of choice and independence, as well as favours social inclusion. The app gives users the power to be actively involved and have some control over their time management related to transportation (NSW Department of Ageing, Disability and Home Care, 2009). Moovit also promotes community participation and provides direct information to developers about what is essential for users for them to keep improving the app’s options.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Moovit encourages Connectivity, Community and Collaboration between individuals. The app promotes connectivity through access to information on different transport services as needed by users. It favours community helping people get to places where they can participate and be included. It also promotes collaboration, as the app allows users to report on traffic and services information that can be useful for other user’s travel experience and further improvement of the app.

Evidence from the literature that the app is capable of the claims made: Moovit users can plan their trip including walking and different types of vehicles transfers (Dror, Dalyot and Doytsher, 2015). Moovit relies on crowdsourcing to provide real-time transportation data, including crowdedness and cleanliness of vehicles (Project Consortium TUM Living Lab Mobility, 2016). However, Chopra, Moun and Kapil (2017) criticise that Moovit’s shortest route may sometimes not be the cheapest option for users. Nonetheless, Moovit allows users to warn others of traffic events and edit lines and timetables, influencing other user’s routes and also improving the app collaboratively (Project Consortium TUM Living Lab Mobility, 2016).

General Comments: Moovit has proven to support commuters effectively since its creation, however accuracy of information may vary in each country or city it is available. Moovit’s reliability should progressively improve as users collaborate more perfecting its knowledge. Moovit’s creators are confident that anybody can use their app’s services. Nonetheless, it does not provide accessibility options for people with disabilities yet, which could be an excellent addition for coming updates.
**Reviewer:** Trinidad Cofré Segovia  
**Mobility - App 8**

**It’s Accessible**

**Operating System:** iOS 8.0 or later. Compatible with iPhone, iPad, and iPod touch. Android 4.0.3 and up

**Location:** App Store, Google Play Store, Amazon app store for Android,

**Cost:** Free

**Description:** This is an English version of the original Spanish crowdsourcing app to find accessible places around the world using device’s GPS. Users can find places in a Google Maps-based interface and rate restaurants, hotels, public buildings, etc. according to their accessibility, with currently over 12,000 rated locations so far. Users can help improve the mobility of people with physical, visual and hearing disabilities, as they can help find and evaluate suitable sites for them to enjoy work and leisure spots. Accessibility rating is based on green, yellow, red and black rates that consider availability of access ramps, full doors, circulation space, accessible toilets, audio guides, Braille texts, subtitles and sign language. The global accessibility map can be accessed from mobile devices by installing the app or also through its website.

**Alignment with the UDL guideline:** UDL principles (Cast, 2011) included in this app are 6.3 Facilitate managing information and resources, by organising data according to colours and symbols for easy identification. 7.1 Optimize individual choice and autonomy, by promoting self-determination based on the news the app provides to users. 8.3 Foster collaboration and communication, by encouraging users to rate places and then go outside to use them to participate in the community. 9.1 Promote expectations and beliefs that optimise motivation, by inspiring users to assess sites so that one day every place will be evaluated, therefore promoting actions to improve accessibility everywhere.

**Curriculum area:** Rated for users of all ages, It’s Accessible helps develop awareness of maps, identify important accessible landmarks of cities and adequately locate directions of places, all skills related to independent travel training. It can also support the teaching of recreation, leisure and community access skills, such as planning activities out in the community according to people’s needs. Also, the app can be used to support the identification of potential safety risks out in the city where accessibility may not be available.

**How does the app meet the National Disability Standards?** It’s Accessible meets National Disability Standards no. 1, Rights, as it promotes self-determination and helps prevent neglect from society. No. 2, Participation and Inclusion, as it encourages people with reduced mobility to get out and enjoy the city and helps promote an accessibility culture. No. 3, Individual Outcomes, as it supports a collaborative information service according to users’ strengths and needs; and no.5, Service Access, by helping ensure equal, transparent and fair access to accessible places, and helping find alternatives for those which are not.

**How the app changes pedagogy (SAMR)?** It’s Accessible represents Transformation of technology use, as it redefines the previously inconceivable use of maps by promoting users to identify and rate places of interest according to its accessibility characteristics and share that information with other users around the world. Pedagogy is enhanced by supporting the education of the
community and environmental barriers, and the social and practical skills that children need to
develop to overcome them.

**How does the app encourage person-centred planning?** This app helps users, and their mobility needs
to be at the centre of its functioning by providing a source of information about cities around
the world and their accessibility characteristics according to their mobility needs. It does not
only address physical accessibility but also considers supports for people with hearing and visual
impairments that may face accessibility barriers as well. The app also invites people without
disabilities to participate and get involved in rating places and promoting better accessibility
standards everywhere for everyone. Its Accessible users get actively involved and take control
over information, therefore affecting the popularity of sites, leading to potential success or
failure by recommending it or giving a poor evaluation.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app
fosters Connectivity with favourite and new accessible places around the globe for people with
mobility impairments to enjoy participation as equals in work and leisure activities as desired.
It also encourages a sense of Community by helping people get together to share their
experiences and interests in physical places that are welcoming to all. It’s Accessible is based on
and promotes Collaboration among individuals so they can share data that can be then accessed
anytime anywhere by anyone either through the app or its website. Finally, this initiative is a
place for Curation of valuable accessibility information for people with disabilities around the
world.

**Evidence from the literature that the app is capable of the claims made:** It’s Accessible was invented
based on the need of people with reduced mobility to find and share accessible places for them
to enjoy leisure and tourism locations (Fuster, 2017). The app works collaboratively, so the more
users post their reviews, the more useful this app can become for everyone.

**General Comments:** This app could be useful to teachers and developmental educator to teach
children with disabilities some independent living skills such as finding appropriate places for
them to participate, as well as preparing them about accessibility and service provision
standards they should expect and advocate for. Hopefully, initiatives like this app will help
promote better and more widespread accessibility for everyone.
Reviewer: Trinidad Cofré Segovia

Deliveroo

Operating System: iOS 9.0 or later.

Location: App Store, Google Play Store

Cost: Free

Description: Food delivery app available in Australia among other countries, initially based on significant cities but quickly expanding to smaller locations. Deliveroo allows browsing high-quality independent restaurants that don’t usually deliver meals, and requesting for home or office delivery service, which is promised to arrive in approximately 32 minutes. Users can search by cuisine, category, postcode or shortest delivery time, and check menus in detail to then add items to a basket and place an order. The request can be then taken to a destination either at that time, later or the next day, with the possibility to schedule a delivery time. The app allows direct payment from smartphones, real-time tracking of progress of the request, and receiving notifications once the order is about to arrive. If a driver gets delayed or has trouble finding the address, then calls the customer for appropriate assistance. To avoid confusions, users can save directions to help drivers arrive more accessible, and can also use other app features such as saving preferred payment methods, saving different delivery addresses and downloading receipts. This app is ideal to satisfy gourmet food cravings, ordering fancy dinners for office meetings, or to make meal arrangements easier for people who cannot cook or travel to get some food, such as people who have mobility impairments.

Alignment with the UDL guideline: Deliveroo aligns with the following UDL principles: 2.5 Illustrate through multiple media, by providing both text descriptions and images to present different menu options and allowing real-time tracking of delivery through an app-incorporated map. 4.0 Provide options for physical action, by giving people with mobility impairments alternatives to access to food services without having to make efforts to leave home and face environmental barriers that may limit their navigation. 7.1 Optimize individual choice and autonomy, by providing different options in regard to menu and delivery times according to user’s needs and preferences. 7.3 Minimize threats and distractions, by reducing potential risks that people with reduced mobility may face when going outside their homes.

Curriculum area: Deliveroo indirectly supports awareness of safety issues that people with a mobility impairment may encounter by preventing exposure to potential barriers and risks that may be present when leaving the household and navigating public spaces. It is suitable to assist with decision-making skills related to shopping, purchasing and money spending, as well as teaching consumer rights and responsibilities. Also, it can encourage access to healthy eating arrangements. Deliveroo is rated E for everyone on Google Play Store, but 12+ on App Store as it can give access to alcohol, tobacco, or drug use or references to them.

How does the app meet the National Disability Standards? National Standards for Disability Services are achieved by this app through the following: no. 1, Rights, promoting self-determination and decision-making of people with mobility impairments who may wish to access to specific products or services with minimal restrictions. No. 4, Feedback and Complaints, embracing and
addressing user’s feedback in order to engage in continuous improvement of service quality. No. 5, Service Access, by expanding their service to provide equal access to customers, and also by ensuring transparent purchase options, and making arrival of products and payment information explicit.

**How the app changes pedagogy (SAMR)?** Deliveroo can be considered as Transformation of previous phone-based delivery services. It provides a Redefinition of user’s access to restaurant’s menus, food ordering and payment options, as well as the incorporation of order tracking features which were previously inconceivable. This app can assist teachers to improve children’s decision-making and problem resolution skills based on teaching how to draw upon available options for a given issue, as well as encourage technology use to assist daily tasks.

**How does the app encourage person-centred planning?** Deliveroo supports person-centredness by promoting people’s choice, power and control over services that can affect their daily lives, and by continually listening and working on service improvement tailored to user’s needs and preferences. Complementary, it provides people with mobility impairments alternatives to dealing with structural barriers that may compromise their participation and enjoyment.

**What area of a 21s Century approach to Teaching/training does the app encourage (5Cs)?** Cs encouraged by Deliveroo are Connectivity and Curation. This app assists people in connecting to favourite and new gourmet restaurants through its delivery service, which enhances people’s access to nutrition, leisure and social participation that may not have been reachable without the elimination of mobility barriers that difficulty accessing them. This app is an attractive and efficient resource for people to locate many high-quality nutrition restaurants that are curated for users to retrieve them and enjoy the benefits of tasty meals at home.

**Evidence from the literature that the app is capable of the claims made:** Deliveroo is on the fourth place among Australian food delivery apps (Sullivan, 2017), differentiating from other similar options by offering customers access to expensive food with excellent customer experience (Appsaustralia, 2017).

**General Comments:** Concerns related to food or its packaging may be addressed directly to the restaurant, but delivery issues are to be solved by Deliveroo and not the actual restaurants. This and other delivery apps could be used by teachers to educate children on finding alternative solutions to service needs and mobility issues that may interfere with their daily activities.
WikiCamps Australia

Operating System: iOS, Android, Windows 10

Location: App Store, Google Play Store, Microsoft Store

Cost: $10.7 with in-app purchases in Apple devices. $7.95 for Windows devices. Free for Android.

Description: Travel planning app especially designed to help users find camping spots, backpacker hostels and caravan parks around Australia from a crowdsourced database that includes over 31,000 listings. Users can add, modify and share information with others; therefore, the app is in constant update and provides a place for users to comment on their experiences and provide traveling tips. Users can search for day stops, points of interest, dump points and information centres, and details of each place include features such as toilets, showers and accessibility standards according to availability, which can also be used as filters to search according to traveler’s requirements. App navigation is simple and shows star ratings of both paid and free places. The app also includes display of a 7-day weather forecast, and allows user to access to venue’s details, reviews, prices and photos for better choice searching from a list or a map. Other features include the option of saving favourite spots, creating multiple-stops trips that show driving progress, a compass, a handy packing checklist, a satellite dish pointing tool and a users’ chat, among others. WikiCamps can work without internet or Wi-Fi signal after downloading desired content. Other versions are available for NZ, Canada, USA and UK territories.

Alignment with the UDL guideline: UDL principles present in WikiCamps include: 2.5 Illustrate through multiple media, as information can be found through lists or maps, and then each place description includes text, photos, symbols for each feature and map directions. 3.1 Activate or supply background knowledge, as WikiCamps’ website includes tutorial videos that enhance app use for optimal travel experience. 3.2 Highlight patterns, critical features, big ideas and relationships, as the app allows users to activate filters that optimize search results according to what is important to them. 4.1 Vary the methods for response and navigation, as the app provides the possibility for people to choose the best options for them to navigate physical environments that may not be accessible otherwise. 7.1 Optimize individual choice and autonomy, as WikiCamps provide users opportunities to develop self-determination and practice independence by engaging in safe and informed travel. 7.3 Minimize threats and distractions, providing users with mobility issues travel options that meet their basic and accessibility needs. 8.3 Foster collaboration and community, as the biggest strength of WikiCamps is user engagement that allows constant update and improvement. 9.1 Promote expectations and beliefs that optimize motivation, as encourages people to experience camp life and travel safely and incorporate it as a reachable and enjoyable activity.

Curriculum area: This app is rated E on Play Store, 3+ on Microsoft Store and 4+ on App Store. It is suitable to assist instruction of independent living skills that include recreation and leisure planning and implementing skills, asking for assistance to other community members, anticipating personal safety needs and identifying environmental dangers, as well as travel
training aspects such as collecting information, use of maps, packing bags and understanding of road rules.

**How does the app meet the National Disability Standards?** WikiCamps favours accomplishment of the following National Disability Standards: no. 1, Rights, by promoting self-determination and decision-making of people with mobility impairments to exercise control over their lives and choices in regards to traveling, leisure and access to tourism services, as well as providing dignity of risk related to these activities; no. 2, Participation and inclusion, allowing people with mobility impairments and their families to participate and be included in activities of their interest; no. 3, Individual Outcomes, promoting users to lead their information management related to tourism and travel services and supports; and no. 4, Feedback and Complaints, encouraging users to provide comments and reviews so that updated information is available for others to use.

**How the app changes pedagogy (SAMR)?** WikiCamps is an app that transforms technology, as it redefines use of travel guides and travel experience by incorporation of digital features that improve traveler’s planning and enjoyment. It can assist with acquisition of skills related to independence, decision-making, information seeking and management and technology use.

**How the app encourages person centred planning?** This app encourages person-centred planning by making travelers’ characteristics and needs central. It promotes enhancement of their social networks by involving all users in communication to make app improvements based on the information they themselves manage and may be useful to others. It gives the option to add as many users’ needs as required, including those of who may need accessibility standards during their travel. In addition, WikiCamp encourages and makes easier for people with or without mobility impairments to leave their home, participate in enjoyable activities and be included in virtual or real-life communities.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This travel planning app fosters Connectivity of users to leisure activities related to traveling and camping places and services with independence and control over the information they manage. It also provides a place for Community development by bringing together people with common interests and promoting their interaction to help each other. WikiCamps is based on Collaboration among users to collect and share data that will always be up to date. Bottomline, WikiCamps is an app for Curation of traveling tips and places to visit, which is accessible anywhere at any time.

**Evidence from the literature that the app is capable of the claims made:** WikiCamps is considered the most up to date camping resource, with features for everything real travelers and campers need (Highwaydreams, 2017). Even people not used to use technology resources are turning to WikiCamps for its practicality (Darley, Lambert and Ryan, 2017). In addition, WikiCamps is transforming self-reliant caravanners to be part of a ‘tribe’ to retrieve travel information and assist other users (Darley et al., 2017).

**General Comments:** WikiCamps gives the opportunity for people with and without disabilities to go out for and adventure with ease and safety. This app does not only promote collaboration and participation, but also encourages people with mobility impairments and their families and carers to try leisure activities that may otherwise not be achievable.
Aipoly Vision App

Operating System: iOS, Android

Location: iTunes and Google Play

Cost: Free (Limited access), $7.49 (Full access).

Description: Aipoly vision is an app that recognises a variety of objects and colours that aid individuals with visual impairment as well as individuals with colour blindness to help them comprehend their surroundings. When using the app all that must be done is to point your phone towards the objects and press any one of the buttons that identify it which is placed at the bottom of the screen. The app can recognise 1000 fundamental, items for free. However, when the app has been subscribed to there will be many more options. The app can identify plants, animals, food, colour, currency, read the text, voice over, signs on doors and is able to support multiple languages.

Alignment with the UDL guideline: This app belongs to two principles in the universal design for learning (UDL), which provides multiple means of actions and expression (Cast, 2011). Under principle 1: Checkpoint 1.3 provides alternatives for visual information which offers spoken description for any images and offers auditory cues keys; checkpoint 2.4 includes support for multiple languages and checkpoint 3.4 offers accurate, supported opportunities to simplify learning to new situations (Cast, 2011). Under principle 2: Checkpoint 4.2 is also met because it will describe the image out loud in speech form when a button is pressed in the app (Cast, 2011).

Curriculum area: The app guides people that are visually impaired or colour blind the age rating is 4+. This app provides individuals with a visually impaired and colourblind to recognises many different objects and is able to read labels for example from soda cans, food packets, titles of books. There are different categories for example just by directing your phone towards a dog, and it will tell you what breed it is, or it can also be used for reading signs on doors or on the street by just facing the camera towards it to be able to get to one place from another.

How does the app meet the National Disability Standards? This app fits the first national standards “Rights” and the second standard “Participation of Inclusion” (National Standards for Disability Services, 2013). The app provides a sense of freedom and independents when making a choice or caring out a task within the community. People that are visually impaired or colour blind will be able to carry out the day-to-day responsibility with more ease. People that are visually impaired may find it hard to read labels on objects or signs on doors, and people with colour blindness have difficulty in different shading colours. Nevertheless, this app can support individuals that are visually impaired or colour blind to be socially included and less dependent.

Show the app changes pedagogy (SAMR)? This app is under the groups, redefinition and belongs to the category transformation. This app allows a person without a vision to see things they usually will not be able to see. However, by using this app, they can get around to different places by reading the signs.
How does the app encourage person-centred planning? This app supports independence, social inclusion and helps individuals with vision impairment to be able to carry out a task by themselves. This app tailors support to everyone in its own way depending on who is using the app, for example, this app is mainly made for individuals that are visually impaired and colour-blind, and it allows them to carry out the specific task without help from another person. This app also allows the users to be included socially, for example, the user might want to go meet their friends in a café, and they can use this app to read signs to direct them to the restaurant. On the other hand, children in school or even children on the autism spectrum can use this app to achieve a specific goal as simple as picking an outfit independently.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This Aipoly vision app promotes the development of connectivity and curation. This app allows the user to be independent. The app can provide them information that they cannot usually obtain. For example, a user can use this app to pick out a specific colour of the shirt.

Evidence from the literature that the app is capable of the claims made: Aipoly vision is an app that allows individuals that are visually impaired and colour blind see the object from various categories by pointing the phone at the object and pressing the recognition button, and it recognizes what on the screen by using artificial intelligence (Sosa-García and Odone, 2017). New categories can be inserted if the type is not available (Sosa-Garcia and Odone, 2017).

General Comments: This app can also be used by a therapist for children with Autism to learn about new things for example names of different plants or colours and many more options available. Teachers in schools can use this to teach usually functioning children and children that are having a tough time learning so that they won’t be separated from one another. This app can provide aid for individuals that are visually impaired and colour-blind to navigate around by using the app, and it is available in different language settings.
PhysioAdvisor Exercise

Operating System: IOS, Android

Location: iTunes and Google Play

Cost: $ 3.99

Description: PhysioAdvisor Exercise is an app that offers a wide range of physiotherapy and injury rehabilitation exercise set up by a qualified physiotherapist. Each activity has been carefully chosen to enhance posture, strength, coordination, balance and core stability. This app is designed for people of all ages, athletes, patients, psychotherapist and health professionals. PhysioAdvisor Exercise provides more than 500 exercises. This app reminds you when you need to do your workout, and it can be personalised to your own training or rehab program. Physiotherapy items can be purchased through this app.

Alignment with the UDL guideline: This app belongs in all three principles in the universal design for learning (UDL), which provides multiple means of actions and expression (Cast, 2011). Under principle 1: Checkpoint 3.1 and 3.3 fits because it provides essential information and is by interactively modelling using a picture of a person carrying out the exercise by demonstrating it to influence better viewpoint (Cast, 2011). Under principle 2: Checkpoint 6.1 and 6.2 are met because this app allows you to set out a plan for your own self and allows you to set a reminder as a prompt (Cast, 2011). Under principle 3: Checkpoint 7.1, 8.1, 8.2 and 9.3 help the person see the progress they have been making when they set an individual plan which gives them a sense of self-determination and offers many different choices to learn from depending on the persons injury it also allows you to reach a goal by setting reminders (Cast, 2011).

Curriculum area: This app supports individuals with injuries by getting them to do specific physiotherapeutic exercise to reach a goal and reminders can be set as a prompt. The age rating is 3+. This app has a picture to model how the exercise is done and an in-depth description of how to do it and how long to stay in the position. This app does not recur online connection to be accessed.

How does the app meet the National Disability Standards? This app fits the third standard “Individual Outcomes “and the six standards “Service Management” (National Standards for Disability Services, 2013). This app provides support to and allows them to set individual goals, for example, a person that might have met into an accident and need physiotherapy to be able to move around and get to one place independently. This app allows you to do so without leaving the house and the goal can be to be ready to leave the house and go for a face to face physiotherapy session. This app also has reliable information because a qualified physiotherapist manages it.

How the app changes pedagogy (SAMR)? This app is under the groups, redefinition and it belongs in the category transformation. This provides an opportunity for people to slowly reach their goal at home and taking one step at a time from inside the house to outside then gradually progressing to going out. This app also gives a chance for people to be able to take instructions
from a phone app and not an actual human because face-to-face human contact might cause them to feel anxious.

**How does the app encourage person-centred planning?** PhysioAdvisor app provides the opportunity for the users to feel a sense of independence to make their own decisions and have control over their personal goals. It also allows every individual to tailor their own specific plan regarding what injury they have or to plan exercise schedule. It will enable the user to make their own choices on what exercise they should do from the suggestion that is provided in the app, and that can give them a sense of confidence over time.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The PhysioAdvisor app promotes the development of collaboration, creativity and curation. This app allows physiotherapist to share information using pictures demonstrations and enable the users to look up suitable items to help aid the exercise session that is safe and reliable.

**Evidence from the literature that the app is capable of the claims made:** Physical exercise is essential to recover in a shorter period and knowing the proper workout is vital if not there could be future injuries, and it can make it worse than it already is (Li, Ferraro, Caelli and Pathirana, 2014).

**General Comments:** This app can be used not only for people who have a physical injury and need physiotherapy but also for normally functioning individuals without an injury can use this app to plan their exercise schedule to set reminders to motivate them to carry out the exercise. This app can also be used to aid parents who have children that have a specific injury that needs physiotherapy, and they can carry it out with the information provided to guide them in the comfort of their home. This app can also be a reminder for students that take sports seriously but have a tough time remembering to do their daily exercise.
National Public Toilet Map

**Reviewer:** Brinda Nair

**Operating System:** iOS, Android

**Location:** iTunes and Google Play

**Cost:** Free

**Description:** National Public Toilet Map is an app from the Australian Government Department of Health. This app can look for toilets nearby or search the area you will be visiting to see if it is disabled friendly or whether it is open 24 hours. This app uses the map to direct the user to the toilet either by foot or by car. There are more than 18,000 publicly accessible toilets in Australia. Users can individualise their settings to return to the toilets that meet their personal needs for example if it is ambulant, left or right handed transfer and if there is parking that is easily accessible.

**Alignment with the UDL guideline:** This app belongs in principles 1 and principles 2 in the universal design for learning (UDL), which provides multiple means of actions and expression (Cast, 2011). Under principle 1: Checkpoint 3.1 is met because this app provides users with information on where there are accessible toilets and if it is ambulant and many more details if provided (Cast, 2011). Under principle 2: Checkpoint 6.3 is fulfilled because this app allows the users to plan their day in advance because if there are no toilets that are disabled friendly, then they can change their plans to a location where there is a toilet that meets their needs, and there are many options to choose from (Cast, 2011).

**Curriculum area:** This app allows people with a disability to check beforehand if there are toilets available near or around at the location they have planned to go and the age rating is 4+. It also allows people without a disability to find out if there is a toilet nearby without having to walk around to find one.

**How does the app meet the National Disability Standards?** This app fits the first standard “Rights”and the second standard “Participation of Inclusion” (National Standards for Disability Services, 2013). This app provides individual rights to be able to access toilets or find out if there is a disable friendly toilet available. It also allows the users to check the timing for when the toilets are open or closed. It is incredible that this offers the option to remember the place so that it does not take extra time to look it up again.

**How the app changes pedagogy (SAMR)?** This app is under the groups, redefinition and augmentation and belongs to two categories transformation and enhancement. This provides an opportunity for people with a disability to visit unfamiliar places without having trouble to have access to functioning toilet or having toilets available to meet individual needs. It allows to plan their day in advance that allows them to make changes in their plan and this app also directs users to the destination that is selected by the map that is provided in the app.

**How does the app encourage person-centred planning?** National Public Toilet Map is an app that provides the opportunity for the users to feel a sense of independence to make their own choices and have control over their lives. This app allows people with a disability to go out to
unusual places to meet friends and socialise which enables them to be socially included. It also provides essential information on the necessity for the humankind.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This National Public Toilet Map is an app that promotes the development of creativity and curation. This app has a map that shows you various locations when users search for it in advance or on the spot it will help them find the closest toilet that meets their needs. Furthermore, this app can save the place that the users have already been to and will be able to access the information that is kept in the app for future use.

Evidence from the literature that the app is capable of the claims made: Public open spaces in Australia are usually well maintained and always popular (Mygind, Bentsen, Badland, Edwards, Hooper and Villanueva, 2016). Furthermore, public toilets are widely available across the country and the time taken to look up a toilet is less compared to walking around and looking for one (Mygind, Bentsen, Badland, Edwards, Hooper and Villanueva, 2016).

General Comments: This app is not only for people with a disability this app will be beneficial for teachers to find out information beforehand to take their kids out on an excursion and know that there will be available toilets. It is also suitable for going on a road trip and not knowing were toilets are available that meets individual needs. However, this app does have feedback that people can comment on if it’s dirty or clean and if everything is in working conditions.
Reviewer: Brinda Nair  
Mobility - App 14

Equip Myself

Operating System: IOS, Android

Location: iTunes and Google Play

Cost: Free

Description: Equip myself is an app that has virtual world designs that aid users to have a look at assistive gear and technology. On this app they use assistive technology to display devices, products or systems that aids and increase persons accomplish a day-to-day activity and be able to participate in any situation in a person life. This app provides an extensive range of option by using a virtual world and view what assistive technology that can be used in varies areas such as the home, work, mobility, leisure and sports. This app provides real-life stories on how people with a disability use assistive technology in their daily life.

Alignment with the UDL guideline: This app belongs in all three principles in the universal design for learning (UDL), which provides multiple means of actions and expression (Cast, 2011). Under principle 1: Checkpoint 2.5, 3.1 and 3.3 is met because this app uses to provide information using virtual world to show different situations for carrying out a task in the kitchen or going to the beach it made more accessible by offering tools to aid daily task and presents interactive models that guide them to explore (Cast, 2011). Under principle 2: Checkpoint 5.1 and 6.3 is met by providing different assistive technology to solve problems using the tools suggested and offers a separate category for various day to day activity (Cast, 2011). Under principle 2: Checkpoint 7.1, 8.2 and 8.3 are met because information can be gathered using this app about assistive technology on alternative tools and people with a disability share their feedback on assistive technology in their daily life (Cast, 2011).

Curriculum area: This app individuals with a disability to feel a sense of independents and is to participate in different activities carried out in daily lives, for example, having tools online that can be purchased such as telephones with more significant numbers on it. Users can share their thoughts and ideas about with their support network. The age rating for this app is 4+.

How does the app meet the National Disability Standards? This app fits the first standard “Rights“, the second standard “Participation of Inclusion”, third standard “ Individual Outcomes” and fourth standard “feedback and complaints” (National Standards for Disability Services, 2013). This app allows an individual to carry out a task that generally will be hard to obtain and this app will enable users to make their own decisions and be included in the society by having a tool that makes it easier to go out and socialise which allows them to reach specific goals. This app also provides feedback from other users.

How the app changes pedagogy (SAMR)? This app is under the groups, redefinition, modification and augmentation that belong to two categories transformation and enhancement. This app allows them to carry out specific tasks that were previously hard to achieve, and this app sets up a virtual world so that people can relate better and its all categories in a proper an accessible format to excess.

How does the app encourage person-centred planning? Equip myself is an app that provides people that have a disability to become more independent and have a way of expressing
themselves; Users are also allowed to share their thoughts regarding the tools that are displayed in the app using virtual reality and can state how they felt it is useful or not useful to them. It is very individualised because everyone that has that app must create a profile and can then save items that they find helpful to be able to put a face to a person and go back to view it later and be able to socialise with other users to give them a platform to voice out and gain confidence.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Equip myself is an app that has all the 5Cs which promote the development of connectivity, community, collaboration creativity and curation. This app allows them to connect with each other by sharing their story and having a virtual world set up which the users can excess to view new tools that can aid them in their daily life to be able to gain more information. It also allows users to feel like part of an online community to feel connected to the other users to share their personal feedbacks among each other.

**Evidence from the literature that the app is capable of the claims made:** Assistive Technology services provide a sense of independence, and it can be beneficial to lessen the time taken on the task or the effort put into the work (Harris, Rosenwax, Hunter and Andrew 2014). Having individual that is under community care yet can be independent aspects that will enable them to grow as individuals with the help of assistive technology (Harris, Rosenwax, Hunter and Andrew 2014).

**General Comments:** This app can be useful for the teacher to gain knowledge about the tools that are available so that they can recommend it to any student that needs extra help. It is also a good app for teachers to be able to read what other users have to say able to attempt to put their self in their shoes.
Snap Send Solve

Operating System: IOS, Android

Location: iTunes and Google Play

Cost: Free

Description: Snap send and solve is an app that allows people to report specific issues to their local authority. This app is widely used in Australia and New Zealand. There are many types of problems that this app can resolve quickly such as damages roads, litter, broken playground equipment, noise complaint, abandoned shopping trolley, graffiti and parking. Issues that have been reported are resolved within 24 hours, and they state that if there are any questions, feedback or any problem to contact them at the email provided.

Alignment with the UDL guideline: This app belongs in the third principles in the universal design for learning (UDL), which provides multiple means of actions and expression (Cast, 2011). Under principle 3 Checkpoint 8.3 and 9.2 support communication amongst the user and the authority and help to manage frustration because situations for example rubbish everywhere can be frustrating (Cast, 2011). It also allows the community to have a platform to voice out their issues regarding their surroundings and can be heard and make every individual point about the surrounding resolved. This app allows the community to live with fewer problems and issues to deal with because if one person reports it the problem will be solved in 24 hours and no one else will have the same effect.

Curriculum area: This app is convenient for people that used the disable parking, and someone is using the parking without any credentials displayed. Because it can be intimidating to go up to a person and tell them, they are not allowed to use it without and pass, and it makes it so much harder for individuals using a wheelchair to park anywhere else there is already limited parking space for people in a wheelchair.

How does the app meet the National Disability Standards? This app fits the first standard “Rights“, the second standard “Participation of Inclusion”, the fourth standard “feedback and complaints” and the six standards “Service Management”(National Standards for Disability Services, 2013). This app makes sure that there is not neglect to any issue that is brought up by the people in the community and allows them to feel as important as other individuals in the society. This app also allows you to give feedbacks to maximise needs meet for everyone’s outcomes.

How the app changes pedagogy (SAMR)? This app is under the groups, redefinition that belongs to one categories transformation. It allows people to go on with the day to day life without any frustration.

How does the app encourage person-centred planning? Snap send and solve is an app that provides individual to be able to control their surroundings by taking a picture of it and sending it to the authority that deals explicitly with these issues. This app also deals with essential barriers such as strictly having disabled parking only for people with a pass or having holes in the footpath.
can be disrupting to a person that uses a wheelchair. It also allows the users to feel a sense of
importance that can build their self-esteem.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This snap
sends and solves an app promotes the development of connectivity and creativity. This app
helps individuals to have control over their environment, and this app uses a picture as a
substitute to a written report that is sent to the authority that is put in charge of these issues.
This app also provides a platform for each individual person in the community to be heard.

**Evidence from the literature that the app is capable of the claims made:** Individuals with a disability
have trouble getting around, and that can result in social isolation (Ellis, Kent, Locke, Hollier and
Denney, 2017). Considering that there is a chance that individuals with a disability do not want
to go to new places because of how hard it is to get to a site let alone have their parking taken
by people that are not disabled (Ellis, Kent, Locke, Hollier and Denney, 2017). Furthermore,
having apps like this allows to go out to new places without having anxiety or feeling frustrated
(Ellis, Kent, Locke, Hollier and Denney, 2017).

**General Comments:** This app is excellent for a therapist that want to take children with autism to the
park. However, if it is all damaged it can be dangerous for this child and that means it could be
inconvenient because children with autism have a challenging time to adapt to sudden changes.
For example, a different park can cause the child with autism to have anxiety or a meltdown.
The therapist then can report it so that they can use the park which is most convenient for the
child.
Reviewer: Trang Huyen Dao

Mobility - App 16

TripGo

Operating System: IOS, Android.


Cost: Free.

Description: TripGo is a universal multimodal app which was developed by the Sydney-based founder of SkedGo (Shaheen, Martin, Cohen, Musunuri, and Bhattacharyya, 2016; SkedGo, n.d.; SmartCompany, 2015). As other navigation apps, this app suggests many options for users to compare and to plan for a particular trip by different means and real transportation times (Shaheen et al., 2016; SkedGo, n.d.; SmartCompany, 2015). The difference between TripGo and other transport apps is that a suggestion of TripGo for a route of a trip could include various vehicles such as a car, bus, bike and walking to help users save their money and time (SkedGo, n.d.). Also, the information which makes this app more unique is the estimated cost, carbon dioxide emissions of travel (Sullivan et al., 2016), creating a reminder for next trips, recommending parking spots (Shaheen et al., 2016; SkedGo, n.d.; SmartCompany, 2015). In America, even information related to sharing a vehicle, such as ridesharing, car sharing, bike sharing, is covered by TripGo as well (Shaheen et al., 2016). TripGo is utilised by users in a variety of cities in Europe, Australia, the United States, Canada, South America, and Asia (Shaheen et al., 2016; SkedGo, n.d.).

Alignment with the UDL guideline: This app, TripGo, aligns with the checkpoint 6.2, which is titled “Support planning and strategy development” and listed in part 6 named “Provide options for Executive Functions” of the principle II themed Provide multiple means of Action and Expression (National Center on Universal Design for Learning, 2013a). TripGo presents various options related to vehicles, time and cost to support travel planning of users with and without disabilities. On the other hand, this clarification also meets checkpoint 7.1 titled “Optimizing individual choice and autonomy” which is categorised in part 7 which is Providing options for Recruiting Interest and under the principle III as Provide multiple means of Representation (National Center on Universal Design for Learning, 2013b).

Curriculum area: TripGo is useful for students to practice and to obtain life skills, especially organisation skills and independent skills. This app might be applied as the first practice for elementary school students to learn fundamental understandings about time, distances and travel expenditures. However, it is more useful for students at the ages of secondary school and beyond to practice organising skills for their routine travel timetables, to use public transports by themselves, and to manage travel costs.

How does the app meet the National Disability Standards? This app is in line with the standard one, Rights, and standard two, Participation and Inclusion, of the National Disability Standards (Department of Social Services of Australian Government, 2015). First, this app suggests different choices for people with disabilities to choose, to manage, and to control their daily and occasional travels, a part of their life. Regarding standard two, TripGo enables and encourages people with disabilities to participate in deciding about the appropriate time and vehicles to travel based on their preferences.
How the app changes pedagogy (SAMR)? TripGo aligns with Modification which is one level of the Transformation part of the SAMR model (Puentedura, 2009; Walsh, 2015). Integrating multiple means of transport means in one travel route is a core feature of TripGo. Otherwise, this app provides information about analysis of air pollution information caused by different modes of transport and cost of travel as well. These features are entirely new in comparison with other transport apps such as Google Maps or Moovit. Therefore, TripGo was developed by modifying similar transportation apps with two significant new features.

How does the app encourage person-centred planning? According to the person-centred approach manual developed by NSW Department of Ageing (2009), this app, TripGo, enables people with mobility impairments to live independently and to make their own choices based on different information provided by TripGo. On the other hand, person-centred planning also encourages social participation of people with disabilities (NSW Department of Ageing, 2009). Comparing to this manual, TripGo allows users with mobility impairments by providing different transport means for them to consider and to travel.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The core function of TripGo is to connect people’s needs and expectations to available means of transportation on a route. Additionally, this app can recommend different time, vehicles, and even near-by parking area for users to choose, thus, it enables users to increase users’ autonomy and independence on decision-making. Therefore, the approach of this app matches with the understanding of Connectivity (Carey, 2014).

Evidence from the literature that the app is capable of the claims made: Although Muñoz et al. (2016) illustrate that TripGo is not suitable for people with mobility impairments, these authors omit that mobility impairment comprises of different levels and types (Disable World, 2015). Despite that, TripGo would be useful for people with a mobility impairment, and not suitable for people using a wheelchair only.

General Comments: Developmental educators and teachers would utilise this app to support students with disabilities to obtain social skills related to self-care and daily living. It means students would be learned to use information provided by TripGo to plan their regular travel route with appropriate time, transport means and cost of transport (SkedGo, n.d.).
Runkeeper

Operating System: iOS, Android.


Cost: Free.

Description: Runkeeper is a fitness app for a smartphone which supports and encourages users to be more involved in physical activities in their daily life (Runkeeper, 2018; Stragier and Mechant, 2013). This app allows users to track users’ walking, running, hiking, jogging and biking time, duration, and distance (Runkeeper, 2018; Stragier and Mechant, 2013). There are nine languages for users to choose when using this app, English, Spanish, French, German, Italian, Brazilian, Portuguese, Japanese and Russian. Distance and time archived by a user are typically recorded on this app, and this data could be used to compare future routes of this user (Lifewire, 2018; Runkeeper, 2018). Additionally, this app allows users to upload the summary of each course on social media such as Facebook and Twitter (Lifewire, 2018; Runkeeper, 2018).

Alignment with the UDL guideline: This app, Runkeeper, aligns with checkpoint 8.2 on Vary demands and resources to optimise challenge as it enables users to experience various exercise performances, such as walking, jogging or hiking, which are appropriate for the level of their disability in their comfortable and free-of-choice manner. This checkpoint is under part 8 titled “Vary demands and resources to optimise challenge” of principle III as Provide Multiple Means of Engagement (National Center on Universal Design for Learning, 2013b). Additionally, core features of Runkeeper are: setting up goals for different exercises, following a set-up plan, supporting users to keep motivation and check progress all support users to make a personal exercise plan. It matches with checkpoint 6.2 of “Support planning and strategy development” listed in part 6 called providing options for Executive Function of principle II as Providing Multiple Means of Action and Expression (National Center on Universal Design for Learning, 2013a).

Curriculum area: Runkeeper is appropriate to build up the physical health of students. This app would be utilised to support teachers and students to track physical exercises related to running, walking or hiking. Also, students with mobility impairments would benefit from this app to maintain, strengthen, and build up the muscle of their legs through proper sports-related subjects at schools. Runkeeper would be applied for students of all ages from elementary schools to university.

How does the app meet the National Disability Standards? Comparing to National Disability Standards, Runkeeper reflects the application of standard one on the Rights (Department of Social Services of Australian Government, 2015). This app allows people with mobility impairments to self-control their physical exercises by choosing appropriate time, duration of times and physical activities to practice. Furthermore, Runkeeper app also confidentially and privately saves users’ information on the app. Runkeeper also meets the standard two on the Participation and Inclusion (Department of Social Services of Australian Government, 2015). This app promotes users with mobility impairments to practice with other people with or without disabilities by allowing to share users’ performance results on social media. Runkeeper is also a method which supports to motivate participation of people with mobility impairments and their family in planning and implementing proper physical activities. This last explanation is an
example of standard six titled Service Management (Department of Social Services of Australian Government, 2015).

**How the app changes pedagogy (SAMR)?** This app is integrated similar features with Health app on iPhone or iPod touch with an improvement on the function of sharing users’ progress performance on social media. Thus, this Runkeeper app is a level of Augmentation of the Enhancement in the SAMR model (Puentedura, 2009; Walsh, 2015).

**How does the app encourage person-centred planning?** Following manual of person-centred planning (NSW Department of Ageing, 2009), Runkeeper facilitates the process of empowering control and power to people with mobility difficulties and family. In another word, these people and family are able to control physical activities of these people based on their expectation instead of other people’ requirements.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Runkeeper is in line with the meaning of Connectivity of 5Cs because this app enables users with physical disabilities to go out and do physical exercises at their favourite places independently (Carey, 2014; The Charity Learning Consortium, 2013). Furthermore, users could invite like-minded people to accompany them during each session. Runkeepers also matches with Curation as this app supports users to save all performances for the user to adjust or to change exercise plans.

**Evidence from the literature that the app is capable of the claims made:** This app, Runkeeper, is useful for people with mobility challenges who are able to walk by themselves in short or long distance (Malu and Findlater, 2016; Stragier and Mechant, 2013). This app encourages people with a mild and moderate mobility impairment to walk in short or long distances based on set goals, then to track walking or physical activity which they involve (Malu and Findlater, 2016).

**General Comments:** Runkeeper is a simple physical fitness app to set up and to track physical activities of people with and without mobility problems. This app is suitable for students with mobility impairments at schools to strengthen the muscle of lower and upper limbs. Developmental educators could use this app in promoting physical well-being of people with physical difficulties.
Reviewer: Trang Huyen Dao

Jaccede

Operating System: IOS, Android.

Location: iTunes Store, Google Play store

Cost: Free.

Description: Association Jaccede.com is the company which developed and is currently selling the Jaccede app, though users are allowed to use this app for free of charge (Apple Inc., n.d.; Google Play, n.d.; Jaccede.com, n.d.-a). Fundamentally, Jaccede supports people with mobility impairments to search accessible places for different purposes; leisure and recreation, medical issues, fashion, post office, supermarket, and so on; and to provide proper direction to these places (Jaccade.com, n.d.-b). Jaccard integrates a filter which supports users to seek a place with more than one accessibility index such as accessible entrance and automatic door opening system; or appropriate lift and ramp and accessible toilet, bathroom, table. This app even contains information about suitable tours for people with learning difficulties, visual impairment, or hearing impairment (Jaccade.com, n.d.-b). This map, Jaccede, is available in five main languages, English, French, German, Italian, Spanish (Apple Inc., n.d.). Jaccede is available for users in Europe and megacities in Asian countries (Jaccade.com, n.d.-b).

Alignment with the UDL guideline: Jaccede matches with three checkpoints, 6.2, 7.1, 7.2, as this app provides different accessible places which support users’ choices to plan and to actively access, participate, explore and experiment in leisure and recreation activities, medical and other services. Checkpoint 6.2 aims to support planning and strategy development under part 6 titled Provide option for Executive Functions which is categorised in Principle II named Provide Multiple Means of Action an Expression (National Center on Universal Design for Learning, 2013a). Meanwhile, checkpoint 7.1, Optimize individual choice and autonomy, and 7.2, Optimize relevance, value, and authenticity, belong to part 7 as providing options for recruiting interest which is under principle III of Provide Multiple Means of Engagement (National Center on Universal Design for Learning, 2013b).

Curriculum area: Jaccede matches with the curriculum in teaching life skills, especially organisation skills, for both students with and without physical difficulties. Students with mobility disabilities would utilise this app to learn and to practice planning for outdoor activities with this app. Other students without disabilities would support and go out with family members, friends and other people with disabilities by the advantages of Jaccede as well. Jaccede would be utilised for students from year four or five and older ages.

How does the app meet the National Disability Standards? Features of Jaccede are in line with the Standard One and the Standard Two of the National Disability Standards (Department of Social Services of Australian Government, 2015). These are the standard of Rights and standard of Participation and Inclusion (Department of Social Services of Australian Government, 2015). In detail, this app displays a variety of relevant information which allows users with a mobility impairment to connect with communities based on the choices, interests and preferences of these people.
How the app changes pedagogy (SAMR)? This app matches with the Redefinition level of the Transformation part of the SAMR model (Puentedura, 2009; Walsh, 2015). People with mobility disabilities usually have two ways to check the accessibility of a place including either visiting this place at least once or asking service providers by phone calls. However, by using Jaccede, this population could check accessibility and availability of many services from different distances and places.

How does the app encourage person-centred planning? According to the theory of person-centred approach (NSW Department of Ageing, 2009), this app, Jaccede, promotes and values social inclusion, social participation and decision making skills of people who need mobility supports. Based on different expectations and needs of each person living with a mobility impairment, Jaccede sorts out relevant locations from its database. These suggestions support these people to plan outing activities and choose service providers which are appropriate.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Jaccede app aligns with the clarification of Curation, it means collecting and storing data and information for different using purposes in the future (Carey, 2014; The Charity Learning Consortium, 2013). Similarly, this app collects accessible information from a variety of service providers or reviews of other people, then stores information and data on the database of this app for users to search and to utilise later. Information provided by Jaccede reflects typically the physical accessibility such as infrastructures, facilities and equipment as mentioned in the description. Furthermore, Jaccede also meets the meaning of Connectivity when it supports users to connect with their appropriate and favourite sites (Carey, 2014; The Charity Learning Consortium, 2013).

Evidence from the literature that the app is capable of the claims made: Many articles highlight that Jaccede is a useful app for people with mobility disabilities, especially people using a wheelchair, to check accessibility of different places before they come (Comai et al., 2015; Edwards, Partington, Matthews, and Blythe, 2014; Matthews and Wardman, 2015; Ponsard et al., 2016). However, other people such as pregnant women, parents having babies in a carriage or stroller, people with short legs injuries also benefit from the features of this app.

General Comments: Jaccede app is a rich database, which enables users to find out complex accessible information based on their needs and expectations (Comai et al., 2015; Edwards et al., 2014; Matthews and Wardman, 2015; Ponsard et al., 2016). Features of this app would assist teachers and Developmental Educators to train daily living skills and self-care skills for these people or students.
Reviewer: Trang Huyen Dao

Wheelchair Calorimeter

Operating System: IOS.

Location: iTunes Store.

Cost: $0.99.

Description: Wheelchair Calorimeter app supports people using a manual wheelchair to measure users’ burnt calories while users are utilising this wheelchair to do outdoor exercises (Apple Inc., n.d.). This one is rated as a simple and easy app to check not only the calories but also the distance and the climbing high in a real timetable (Apple Inc., n.d.). Results which are achieved in different time are customarily stored on this app for users to compare their performance as well as to adjust exercise plan to meet with their expectations and needs (Apple Inc., n.d.). Wheelchair Calorimeter is set up to automatically save one exercise session of users after 10 calories are consumed (Apple Inc., n.d.). Users are able to do other mobile phone tasks while using this app instead of turning it off for other mobile phone functions (Apple Inc., n.d.). Wheelchair Calorimeter is operated depending on GPS. Therefore, users should consider the battery of the mobile phone before tuning this app on (Apple Inc., n.d.).

Alignment with the UDL guideline: this reviewed app matches with checkpoint 7.1 about Optimising individual choice and autonomy (National Center on Universal Design for Learning, 2013b) and checkpoint 6.2 of “Support planning and strategy development” (National Center on Universal Design for Learning, 2013a). As in the description, Wheelchair Calorimeter app allows users to make their own choices on available time and appropriate location to do exercises instead of frequently going to gym with indoor activities only. This app will enable people to create an exercise plan depending on their expectation of weight, burnt-out calories and time.

Curriculum area: Wheelchair Calorimeter matches with the sports activities of the Curriculum. This app supports collaboration between teachers and students to maintain and build up students’ physical health. Wheelchair Calorimeter would be appropriate for students from very young ages, such as year one, to university students.

How does the app meet the National Disability Standards? This app, Wheelchair Calorimeter, is in line with standard one, Rights, and standard two, Participation and Inclusion, of the National Disability Standards (Department of Social Services of Australian Government, 2015). Wheelchair Calorimeter ensures the rights of users using a manual wheelchair in the way that is saving their personal information on weight and exercise performances on their database only. This app also enables users to choose how various to do precise exercises and control results of each session and burnt out calories based on users’ expectations. The meaning of Participant and Inclusion is also implied in users’ freedom of participation choices depending on users’ preferences.

How the app changes pedagogy (SAMR)? Comparing to the traditional tracking for physical exercises by using pen and papers, Wheelchair Calorimeter is an Augmentation technology which is in the area of Enhancement (PuenteDura, 2009; Walsh, 2015). Core features of this app are basically similar with writing achieved miles and/or feet on papers to track. However, this app integrates
an improvement function to support user to measure their burnt calories after each exercise session.

**How does the app encourage person-centred planning?** Regarding person-centred approach, Wheelchair Calorimeter empowers the control of daily life activities and maintain physical exercises to users. The user can make decisions on time, location and level of uses in each session regarding their health condition, available time and accessible area.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?**
Wheelchair Calorimeter aligns with the clarification of Curation (Carey, 2014; The Charity Learning Consortium, 2013). The explanation given is that users using a manual wheelchair would store their exercise results on their own app in different time, then this data will be used to compare, to adjust fitness goals, or to develop a new plan in future.

**Evidence from the literature that the app is capable of the claims made:** Although the name and functions of Wheelchair Calorimeter app portrait its suitability for people who are using a manual wheelchair, no scholarly resource which reviews this app is found. This is an implication for future research to evaluate actual facilitators and challenges of Wheelchair Calorimeter which influences users.

**General Comments:** It is possible for teachers and Developmental Educators to utilise Wheelchair Calorimeter app to support students using a manual wheelchair to maintain physical health by frequently doing exercises at schools or outside the school boundary. This app is appropriate for rehabilitation sessions for people temporarily using a manual wheelchair because of injuries or other causes.
bSafe

**Operating System:** IOS, Android.

**Location:** iTunes Store, Google Play store

**Cost:** Free.

**Description:** bSafe which is a Personal Safety App supports to protect users’ safety when users travel by themselves (bSafe, 2017). This safety function is activated by pressing a big alert guardian button or by voice to send an SMS message to your guardian to notify about users’ situation (Apple Inc., n.d.; bSafe, 2017). When this button is pressed, users’ location and video of what happening around users are turned on and sent to users’ family members, friends and other people in users’ network which is set up before users commence to use bSafe (bSafe, 2017). This app automatically calls users’ guardian after sending the SMS message to this person (bSafe, 2017). Additionally, this app allows users to share their location with selected people, to make fake calls, to invite a friend to walk with users by using GPS (bSafe, 2017). All of these functions are to ensure users’ safety while users are alone in places (bSafe, 2017).

**Alignment with the UDL guideline:** This app matches checkpoint 7.3, “Minimise threats and distractions”, under the principle III of Provide multiple means of Engagement (National Center on Universal Design for Learning, 2013b), and checkpoint 6.2, “Support planning and strategy development”, under the principle II of Providing multiple means of Action and Expression (National Center on Universal Design for Learning, 2013a). Indeed, bSafe ensures that users would have numerous safety solutions to support them when they need help in emergency situations. This app would be a useful tool to encourage users to decrease the threaten feelings when they must travel alone or go to unsafe places by themselves. When utilising this app, users could liaison with their family members, friends, and caregivers to protect themselves if necessary.

**Curriculum area:** bSafe would match with the Lifeskills, in the Curriculum area as it encourages users to live independently and increase autonomy in the daily life. With this app, users would increase confidence to travel by themselves to various places and making decision skills by choosing proper supports in different dangerous situations or unrelated events. bSafe would be applied for students from year five to practice on how to protect themselves in various settings. However, due to the

**How does the app meet the National Disability Standards?** The functions of this app would be an example of three standards of the National Disability Standards (Department of Social Services of Australian Government, 2015). These are standard one about the Rights, Standard Two about the Participation and Inclusion, and Standard Three about Individual Outcomes (Department of Social Services of Australian Government, 2015). bSafe assists people with disabilities to have opportunities to have their own choice of support solutions in emergency circumstances, invite a person to walk with them through GPS, or immediately call for supports by phone calls and SMS message. Additionally, this app would increase senses of self-determination and freedom from risks of harm, abuse and violence outside or even inside their living area. On the other hand, bSafe also meets the standard two at the point of connecting users with disabilities with their chosen people in different situations. Eventually, this app allows people with disabilities
to “lead and to direct their supports with support from family, friends, and carers” (Department of Social Services of Australian Government, 2015).

**How the app changes pedagogy (SAMR)?** The features of expanding friend network and sharing the location of users, and Follow Me meet the level of Substitution of the Enhancement (Puentedura, 2009; Walsh, 2015) because users can use other technologies, such as Facebook, Twitter, Find my iPhone, FaceTime, Skype to do similar functions. The function of the SOS button of bSafe app matches Augmentation of the Enhancement (Puentedura, 2009; Walsh, 2015). When SOS button is activated, bSafe not only automatically sends SMS messages and makes phone calls to notify location of users, this app automatically turns on recording video and voice (bSafe, 2017).

**How does the app encourage person-centred planning?** The central concept of the person-centred approach is to support a person to achieve their goals based on needs and expectations of themselves and their family (NSW Department of Ageing, 2009). Two of the primary goals which need to be ensured in supporting people with disabilities are enabling social inclusion and shifting the power and control to the person who needs supports and their family (NSW Department of Ageing, 2009). While independent travel is considered as being an unsafe and risky activity for people with disability, bSafe supports to protect the safety of users with disabilities and to encourage social participation of this population in different communities and various places. Also, this app, as mention in the description, also provides different options for users with disabilities to choose when they need support in emergency situations.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The bSafe app is in line with the method of the Community and Collaborate of the 5Cs (Carey, 2014). Meaning of Community is reflected in the point that users can connect with family, friends and caregivers by using bSafe and add these people into bSafe network. Users could support people in their bSafe network as well if that person set a user as their emergency contact. Regarding Collaboration, users’ information will be shared to the emergency contact when bSafe is activated.

**Evidence from the literature that the app is capable of the claims made:** According to Magidwar, Hargane, Singh, and Nade (2016) and Bhandari, Agrawal, and Bansal (2016), bSafe is a convenient app for users because of a single touch to protect users. Most of the literature recommend this app to women or elderly instead of people with a disability (Bhandari et al., 2016; Magidwar et al., 2016; Nejati et al., 2016). However, this app would be employed by people with mobility impairment, both male and female, to promote independence and autonomy of people with disabilities as above explanations.

**General Comments:** bSafe would be appropriate to support Developmental Educators and Teachers to teach social and self-care skills to students with and without disabilities as well as and facilitate practices of safety in real life (Developmental Educators Australia Incorporated, n.d.). These skills enable independence, confidence and self-esteem of students when they must stay by themselves.
Tecla Access

Operating System:IOS, Android
Location:iTunes and Google Play
Cost:Free

Description:Tecla Access is a set of tools that support people who have physical movement restriction to access their phones or tablets independently. There is a tool called the Tecla shields which connects to a person’s wheelchair controller or their adapted switch via wire. That information is transferred wirelessly to the person’s phone or tablet through the Tecla app. Therefore, the person can move their wheelchair controller or their adapted switch to access their phone or tablets/iPads independently. The other features of this application control phone or tablets by using voice recognition, any switch will work to answer phone calls and enables to access most device functions such as lights. In the future, this app will connect with T.V and other more device functions.

Alignment with the UDL guideline: This app fits with the Provide Multiple Means of Action and Expression in the UDL Guideline. The checkpoint 4.2 stated the importance of building a switch to increase the independence of an individual (Cast, 2011). Therefore, this app enhances the user to independently use their phone by controlling it with their wheelchair’s controller or adaptive switch (4.2). The checkpoint 4.1 stated to provide an alternative for physical interacting (Cast, 2011). Nevertheless, the app allows the users to use alternative tools such as wheelchair controller or adaptive switches to access their phone (4.1). The checkpoint 5.1 stated the use of social media and interacting in multi-media (Cast, 2011). The app also lets the individual use multiple media to communicate with their family or friends, for example, by texting them. The app allows the users to access social media through their phone to interact with other peers (5.1).

Curriculum area: This app support people who have a restriction in mobility in their arms. The app could be suitable for people aged 4+. It is a useful app for increasing independence for people to access their phones or tablets. It allows people to use their wheelchair’s controller or adapted switches to obtain their phones or tablets to communicate with family and friends.

How does the app meet the National Disability Standards? This app fits the Standard One “Rights” and Standard Two “Participation and Inclusion of the National Standard for Disability Services (National Standards for Disability Services, 2013). The app allows the user to control the way they use their phone or tablets/iPads. The user can make choices on their phone or tablets/iPads by using their wheelchair’s controller or adaptive switcher. The app provides privacy to the users as they can access their phone or tablets/iPads independently. The app supports the user to increase inclusion as it allows them to communicate with their family and friends by calling and texting.

How the app changes pedagogy (SAMR)? According to Schrock (2017), Tecla Access is a pedagogy ‘enhancement’ through ‘augmentation.’ The individual uses this app as a direct tool for transferring information from their adaptive switches to their phone or tablets/iPad. For example, when the individual selects an app using their adaptive switch, the information wirelessly is transferred to their phone due to the app.
**How the app encourages person-centred planning:** Belief and Values underpinning social inclusion play a key role in person-centred planning. The app allows the user to increase their social inclusion because they can access their phone apps via their wheelchair’s control or adaptive switches. The users can enhance their communication using their technology devices. This app allows the user to increase their authority and power as they can operate their phone independently. This app also reduces the structural barriers for the users as it will enable them to use their phone using an assistive tool.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Tecla Access helps users to develop connectivity, community and collaboration. Using the app, it allows the users to connect with what they like to participate in their leisure activities. For example, using the app will enable them to access the internet or social media such as Facebook. This app helps users to connect with the community that has the same interest. For example, the user can search group that share the same interest as them. Lastly, using this app, it lets the users collaborate information using their phone or tablets/iPads.

**Evidence from the literature that the app is capable of the claims made:** Blanck (2016) stated that people who have limited upper physical mobility did not have the same chance to access their phone. Therefore, the tool called Tecla Access Shield was created to give an opportunity for people to obtain their cellphone with adaptive switches (Blanck, 2016). Miesenberger, Buhler and Penaz (2016) noted that Tecla Access Shield is connected to an individual’s wheelchair controller or adaptive switches via a wire and the information is passed through the Tecla Access app wirelessly for people to access their phone or tablets/iPads independently. For example, the individual can press the switch to select an application from their phone, or they can make phones calls or texts.

**General Comments:** At a school, these days students study using technology such as tablets or iPads. Therefore, this app could be useful for teachers or developmental educator who is supporting a person who has limited upper body movement to access their phone or tablets/iPads independently. Technologies play a vital role in modern life. This app will be crucial for people with limited upper body movement as it gives them the opportunity to access their phone or tablets/iPad like everyone else.
**Reviewer:** Suyasa Sharma

**Stand Up! The Work Break Timer**

**Operating System:** iOS 11.0 or later IOS

**Location:** iTunes

**Cost:** Free, In-App Purchases

**Description:** Stand Up! The Work Break Timer is an application that is only available on IOS devices. This app helps people to take regular breaks after being behind technology for a long time. Even though this app is free to use, however, it will charge money to unlock other features such as tunes of the alarm. It is fun and flexible for users to use. The individual can customise the timer based on their work schedule. The app also shows the users the history their progress within a week. The user can choose a different colour for their banner if they do not like the tone. They can also set the alarm to go off in a place only. For example, the user can limit their signal to go off just at their office and home. Before this app minimum alarm set was only five minutes, however, they have changed to one minute. This app has “sit back down” message after the time is up because most people work while they are standing up.

**Alignment with the UDL guideline:** This app fits with the Provide Multiple Means of Engagement in the UDL Guideline. The checkpoint 9.1 stated the importance of promoting the expectation of increasing motivation (Cast, 2011). Therefore, this app supports the anticipation for users because they must take a break in specific time. After deciding to have a break, they are motivated to continue with their work (9.1). The checkpoint 9.2 acknowledged managing frustration (Cast, 2011). This app support users to manage stress as it allows them to take whenever it suits them (9.2).

**Curriculum area:** This app support people with and without a disability to take regular breaks because sitting down for too long is not suitable for health. The app could be ideal for people aged 5+ because nowadays people are using their technology instead of playing outside. It is a useful app as it helps people to take a regular break from their computer. It allows users to take control of their alarm setting. For example, they can limit when their alarm goes off.

**How does the app meet the National Disability Standards?** This app fits the Standard One “Rights” and Standard Two “Participation and Inclusion” and Standard Three “Individual Outcome” of the National Standard for Disability Services (National Standards for Disability Services, 2013). The app allows the user to control the way set their alarm. The user can make choices on their phone with colours and tunes of the app. The app supports the user to increase inclusion as it allows them to communicate with their workmates or family during their breaks. The app will enable people to see their progress during that week.

**How the app changes pedagogy (SAMR)?** This app is an augmentation and modification which means it belongs to enhancement and transformation (Schrock, 2017). The app sends reminders to users to take their break using a phone. This app was modified from original alarm clocks to a phone app for taking breaks.

**How does the app encourage person-centred planning?** This app fits with control and power and tailoring support to individual needs. The app allows the user to take control and power when to set their alarm for a break. The user can limit their signal setting to a place. This app can be
tailored to the individual’s needs as they set the alarm. The users set their alarm based on their work. This app does not pressure users to take breaks if it is not convenient for them. They can press the cancel button, so the alarm does not go off.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This application fits within connectivity and collaboration. During work time the user can use this application to take a break and connect with other staff members by communicating with them. They can also collaborate with information relevant to their work. For example, collaborating on a data that was found. At home, this app will help users to connect with their family or roommates because they will think of their technology while having the break. They can share information with their family or roommates.

**Evidence from the literature that the app is capable of the claims made:** It is important to remember not to sit or stand in one position for a long time as it is not good for the health (Starrett and Cordoza, 2016). It is recommended that people should take breaks every 20 to 30 minutes to reduce joint or muscle pain (Starrett and Cordoza, 2016). There are many apps supporting people to take breaks during their work or home. There is this app called the Stand-Up! Work Break Timer where the users can take control when set their alarm to take a break (Starrett and Cordoza, 2016). The primary aim of this app is to help people to take a break from sitting or standing in one place for a long time (Starrett and Cordoza, 2016). This article states 14 exercises the users could do while taking their break (Starrett and Cordoza, 2016). These are neck movement, wrist roll, hip opener, quad smash, shoulder and chest opener, global forward bend, squat, anterior neck mobilisation, arm circles, forearm smash, foot smash and lastly, wrist mobility (Starrett and Cordoza, 2016).

**General Comments:** This app is excellent for teachers and lecturers working with students in high school or university where they sit in one spot for a long time. This app can be useful for the whole class as the teacher or lecturer can set the alarm for every 20 minutes so the students can take a three minutes break. This application can be useful for a developmental educator to teach their clients to have pauses in between to prevent them from sitting or standing in one spot for a long time. As mentioned above that sitting or standing for a long time can cause joint and muscle pains.
Reviewer: Suyasa Sharma

Wheelmap.org

**Operating System** IOS, Android

**Location:** iTunes and Google Play

**Cost:** Free

**Description:** Wheelmap.org is an application that supports people in wheelchair or family with prams to access their community. A non-profit organisation, Sozialhelden, developed this app. The primary aim is to provide equal opportunity to increase mobility for people in a wheelchair. It also gives others the chance to mark the accessibility of a place they visited. There are three colours to identify the convenience. These are Green, Yellow and Red. Green means fully wheelchair accessible, Yellow means limited accessibility and lastly Red is no wheelchair access. Therefore, it gives a chance for people in a wheelchair to see what places are available to them in their community. This app has been updated in 2017 now it enables the user to take measurements of the areas visited. For example, door height, the slope of their ramp or the height of the step.

**Alignment with the UDL guideline:** The app is allowing the users to access the public to increase the engagement with other peers (8.3). The checkpoint 5.3 states the importance of gradually building independence in a person (Cast, 2011). The app supports the users to be independent while accessing their community because the map will indicate where they can access or not using the wheelchair (5.3).

**Curriculum area:** This app support people with physical disability who uses wheelchair aged 10+. This app guides people in a wheelchair where it is accessible to use their wheelchair. For example, before the user attends the café, they can review the place for accessibility by seeing the indication of Green, Yellow or Red. On the other hand, it allows other people to mark the availability for a wheelchair in the place.

**How does the app meet the National Disability Standards?** This app complies with Standard One “Rights,” Standard Two “Participation and Inclusion” of the National Standard for Disability Services (National Standards for Disability Services, 2013). The app gives freedom for users to make choices where they want to go within their community. People in a wheelchair may face obstacles accessing their community. However, this app will support people to access their metropolitan to increase social inclusion.

**How the app changes pedagogy (SAMR)?** This app is augmentation as it acts as a direct tool for the users to access their community (Schrock, 2017). Therefore, this app belongs to a category called enhancement.

**How does the app encourage person-centred planning?** This app fits into three categories in person-centeredness. These are Belief and Values underpinning social inclusion, authority control and power and lastly dealing with structural barriers. The app allows the users to increase social interaction within their community. The users have control and power over the app because they can choose the location they want to visit. This app is supporting to reduce structural barriers for people in a wheelchair as it guides the users where is it accessible to use their wheelchair.
What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?

Wheelmap.org promote users to assist in developing connectivity, collaboration and community. Using the app allows the user to connect with other peers. It can increase their community access because the app lets the users know where it is accessible for their wheelchair to access. Other people who attended a place can collaborate the information about the area to people in the wheelchair by indicating by using green, yellow or red marks it allows people in a wheelchair to see if the area is accessible to attend. For example, the other people can indicate a location with a green mark, which means it, is convenient for people in a wheelchair to participate in that place.

Evidence from the literature that the app is capable of the claims made: Wichert and Mand (2016) stated WheelMap was created in Germany by a non-profit organisation (Sozialhelden). This apps comes in 23 languages (Wichert and Mand, 2016). The focus of this app is to let people indicate if the place was wheelchair friendly or not (Wichert and Mand, 2016). Therefore, it can show people in a wheelchair to see if the site is wheelchair friendly (Wichert and Mand, 2016)

General Comments: This app could be useful for a person in a wheelchair. For example, going on the excursion, the teacher could use this app to see places that are accessible for wheelchair, so that child would not miss out. For example, author’s school use this app before taking our children out for community access. The app could be useful for developmental educator if they are supporting a family who has a child in a wheelchair to increase community access. They can recommend this app to the family because it could help the family to improve access to the community for their child.
Reviewer: Suyasa Sharma

WheelMate

Operating System: IOS, Android
Location: iTunes and Google Play
Cost: Free

Description: WheelMate is an app that supports people in a wheelchair to find wheelchair-friendly toilets and parking. This app can be downloaded from IOS and Google Play. This app has been used across 45 countries, and more states have been added. 17000 people have already downloaded this app. This is a free app. Therefore, registration is not required. This app is like “Google Map” however it indicates where friendly toilets and parking are for people in a wheelchair. This app helps people in a wheelchair to plan their outing based on the information provided in the app for a friendly toilet and parking.

Alignment with the UDL guideline: This app fits in two UDL guidelines, these are Provide Multiple Means of Engagement and Provide Multiple Means of Action and Expression. The checkpoint 8.3 stated the importance of constructing communities so people can engage (Cast, 2011). The app is allowing the users to access the communal to increase the engagement with other peers (8.3). The checkpoint 8.3 also stated the importance of encouraging and supporting the opportunities for peer’s interaction and supports (Cast, 2011). This app allows other people to help people in a wheelchair by indicating the wheelchair-friendly toilets and parking. The checkpoint 5.3 states the importance of gradually building independence in a person (Cast, 2011). The app supports the users to be independent while accessing their community because the map will indicate where there are wheelchair friendly toilets and parking (5.3).

Curriculum area: This app support people with physical disability who uses wheelchair aged 4+. This app guides people in a wheelchair where it is accessible to find wheelchair-friendly toilets and parking. For example, before the user attends to a place, they can view the location on the app if it has wheelchair friendly car parks and toilets. Other people can indicate if the site is approachable for people in a wheelchair by adding the location in the app. This allows the users to access the information and go to the area.

How does the app meet the National Disability Standards? This app complies with Standard One “Rights,” Standard Two “Participation and Inclusion” and Standard Five “Access Services” of the National Standard for Disability Services (National Standards for Disability Services, 2013). The app gives freedom for users to make choices where they want to go within their community. People in a wheelchair may face obstacles accessing their community. However, this app will support people to obtain their local to increase social inclusion. As the app provides information about toilets and parking, it encourages people in a wheelchair to participate in the regional.

How the app changes pedagogy (SAMR)? This app is augmentation as it acts as a direct tool for the users to access their community (Schrock, 2017). Therefore, this app belongs to a category called enhancement.

How does the app encourage person-centred planning? This app fits into the three categories of person-centeredness. These categories are belief and values underpinning social inclusion, authority control and power and lastly dealing with structural barriers. The app allows the users
to increase social interaction within their community as they could access the information provided in the app about wheelchair-friendly toilets and car parks. The users have control and power over the app because they can choose the location they want to visit after accessing the information. For example, if there are two places near each other with wheelchair-friendly toilets and car parks. Then the user can choose to go to one of the areas. This app is supporting to reduce structural barriers for people in a wheelchair as it guides the users where is there are accessible toilets and parking.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?**
WheelMate promotes users to support to develop connectivity, collaboration and community. The app allows the user to connect with other peers. It can increase their community access because the app lets the users know where there are accessible toilets and parking. Other people who attended a place can collaborate the information about the site to people in the wheelchair by adding the location and their description. For example, if another person visits a park where there is wheelchair friendly toilets or parking. Then the person could add the area of that place and write a description indicating that the site has friendly restrooms and parking. So, it allows people in a wheelchair to access the information.

**Evidence from the literature that the app is capable of the claims made:** WheelMate is an app that supports people who have physical barriers (Munoz et al., 2016). The author noted people using this app relies on the other people information because people can put data in the app so the user can access it (Munoz et al., 2016).

**General Comments:** This app will be fantastic for teachers working with children in the disability unit who uses wheelchairs. School take children in a wheelchair for an excursion, and it is essential to know if there are wheelchair friendly toilets. For example, the author work in a disability unit where there are children in a wheelchair. This app could assist the teacher to indicate where there are friendly toilets for children to use if they are in a wheelchair. This app could also be useful for developmental educator if they are supporting an individual who is in a wheelchair but could drive. The educator can recommend this app to the individual to increase the access to their community. As mentioned above, people in wheelchair face obstacles are accessing their community because it might not be accessible.
Reviewer: Suyasa Sharma Mobility - App 25

Transit

Operating System: IOS, Android

Location: Google and iTunes

Cost: Free

Description: Transit is an application that can be used by people with and without a disability. This app allows users to see bus or train’s arrival and departure in real-time. That means the users will never miss their bus or train. This app is available in Australia and 125 other cities across North America and Europe. This app can be used offline which can be convenient for users who do not have that much data on their phone. The key features of this app are: It allows the users to plan their trip from point A to point B. There is alarm system for a user to be notified when their bus or train has arrived. The app will announce when the user’s stop is approaching so they can prepare themselves to get out of the bus.

Alignment with the UDL guideline: The checkpoint 8.2 stated the importance of providing alternatives in acceptable tools. In this app, the users could set the alarm system or stop announcers to meet their needs. For example, if the users have visual impairment then they can fix the app to stop announcer it allows the user to know when their stop is the approach.

Curriculum area: This app support people with and without a disability who catches bus or train as their transportation. This app will be suitable from the of 5+. This app assists people to see their bus or train’s arrival in real-time. Therefore, it facilitates users to plan their trip after knowing the real time of their bus or train timetable. Users can set the alarm or stop announcer while travelling so they would not miss their stop.

How does the app meet the National Disability Standards? This app complies with three standards from the National Disability Standards. These are Standard One “Right,” Standard Two “Participation and Inclusion” and Standard Five “Access Services” (National Standards for Disability Services, 2013). This app gives the user the freedom of planning their trip after accessing the information on their bus or train’s timetable in real-time. This app can increase participation and inclusion because the user can catch the bus or train to meet with their family or friends. This app provides access service because it shows the real-time of the bus or train’s arrival time and has an alarm or stop announcer options for users to access.

How the app changes pedagogy (SAMR)? This app belongs to two categories called the enhancement and transformation (Schrock, 2017). This app is augmentation as it acts as a direct tool for the users to access their transportation in real-time (Schrock, 2017). Transit is the modified version of Google Map as it provides the real-time data about the bus and train (Schrock, 2017). Google Map’s end goal is to have the real-time data for the users to access their bus or train’s timetable (McQuire, 2017)

How does the app encourage person-centred planning? This app fits into three categories of person-centeredness. These categories are belief and values understanding social inclusion, the authority of choice and power and lastly structural barriers. This app allows users to increase their social interaction with a community as they could catch the public transportation on time because it provides real-time data of bus or train. The app gives users the control and power over their departure
time. For example, the user could select a destination, and the app provides real-time of the bus or train’s arrival time. Then the user can choose what time to leave to catch the public transportation. This app reduces structural barriers for people with disability as it provides an alarm or stops announcer when the stop is near the destination.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Transit app allows increasing connectivity, collaboration and community. The app allows the user to connect with their family and friends by catching public transportation. The app collaborates with the users as it provides the real-time of the bus or train’s time. The app allows the users to access their community so they can meet people that have the same interest as them. For example, the user could catch the public transportation using this app to attend gym where they will meet new people.

**Evidence from the literature that the app is capable of the claims made:** Many people catch public transportation to go to school or work. It is crucial for users to know when their bus or train will arrive, so they can plan their trip (Cedar, 2016). Ghahramani and Brakewood (2016) acknowledged that Transit app was created in 2012 in Canada to assist people who catch public transportation to view the bus or train’s arrival in real-time. This a free app and that can work offline, and it is available around 125 cities in the world (Ghahramani and Brakewood, 2016). It is one of the favourite app used by people to view real-time of public transportation such as buses or trains (Ghahramani and Brakewood, 2016). This allows the users to mark a location as a favourite, so they do not have to search for it for next time (Ghahramani and Brakewood, 2016).

**General Comments:** This app could be highly recommended for a developmental educator who is teaching their client about independent living. The educator could teach their client how to catch public transportation independently by using this app. It will guide users to reach their destination step by step. It has features such as an alarm or stops announcer which could assist a person with a disability.
Conclusion and Recommendations

People with disabilities have the fundamental right to participate in society as any other person entirely. Inclusion and progress for those with disabilities have been hampered by many barriers throughout history, but over the last decades, technology has become a tool to promote and facilitate inclusion of this population into mainstream lifestyles. The development of assistive technology has become one of many factors of creating, supporting and upholding the tenets of an inclusive society, and there is no longer a need for complicated and expensive technology to support functionality.

The flexibility and accessibility of mobile devices have opened-up opportunities for people with disabilities to achieve independent lifestyles and be active citizens; no longer only an ideal, rather a possibility in the palm of the hand.

The barriers of mobility and social connectivity have been addressed by the robust increase in diversity and availability of apps. Douglas et al. (2012) state that apps have the potential to support people with disabilities in all areas of life when adequately aligned with the individual’s needs. The success of these apps is an evaluative process determined by the end user and ultimately relies on the availability of support for induction and training.

Apps have opened-up many opportunities to enhance independence and inclusion for those who have disabilities, and in the case of people with mobility impairments, apps have brought the opportunity to improve autonomy and self-determination over where and how to travel and engage with the city and the community. After researching the 25 apps, the result showed that 13 out of 25 apps support people with mobility disability exclusively. However, the other 12 out of 25 apps help people with and without limitation as these are universally designed.
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Self Care
Being independent in daily life

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Harpreet
Apps for functional group: Self Care

Reviewer

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2. Pepi Bath Lite 4+
3. Weather Dresser
4. Life Tiles Pro
5. Dirty Kids
6. Brush DJ

Asheri Bukuru

7. iDo Food
8. Bond – With People That Matter
9. iDo Hygiene
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Hong Zhao

11. Home Routines
12. National Relay Service
13. SmallTalk Dysphagia
14. Ability 8
15. Calm

Amanda Petersen

16. Tube Feeding
17. Round Health
18. RR: Eating Disorder Management Recovery Record
19. My Food Basket

Vicki Bullock

20. Toothy, Brush, Floss, Rinse!
21. Equip Myself
22. Weather Duck

Jenna Nottle

23. MyHealthGuide
24. iDress for weather
25. Stepping Stones- Daily Routines

Harpreet

26. Hygiene Helper
27. iGet cooking
28. Feel Safe
Introduction

With rapid development of technologies, our society has entered an information and digital era (Khetarpal, 2014). Information and Communication Technology (ICT) plays a significant role in people’s daily life such as shopping, working, banking, business, transportation, education, healthcare, communication and social participation (UNESCO, 2017). The use of ICT is changing the way people live, communicate with others and engage in the community (Nunes et al., 2015).

Society has changed its view towards disability since the 1980s. Disability is regarded as the complex interactions and functions between heath conditions, and the physical and social environment (Haegele, and Hodge, 2016). The World Health Organization (WHO) developed the World Health Organization Disability Assessment Schedule (WHODAS 2.0) which is a general assessment instrument (Üstün, 2010). It provides practical standards for assessing and measuring health and disability across any culture in the world (WHO, 2010). It focuses on the capacity of how people function and on supporting needs of people with disabilities instead of their medical conditions (Üstün, 2010). ICT has the potential for changing the lives of people with disabilities (UNESCO, 2017). According to WHODAS 2.0 (2010), the functional domain of self-care includes washing the whole body, getting dressed, eating, and staying alone for a few days. They are the basic and important functioning skills of being independent in daily life (Istenic Starcic, and Bagon, 2014).

People with disabilities have some difficulties in functioning, however, if they are given opportunities and support, they can learn new things and skills to achieve their (Üstün, 2010). Benmarrakchi, El Kafi, and Elhore (2017) indicated that people with a disability could learn new skills and become more self-determined with adequate support. The applications (apps) for computers and mobile phones provide a bridge for people with disabilities to learn basic functioning skills and become independent in their daily life (Istenic Starcic, and Bagon, 2014).

The apps introduced in this chapter, are discussed in terms of self-care for people with disabilities. The following reviews are based on the apps’ alignments with the 5 Cs that include Connectivity, Community, Collaboration, Creativity and Curation (Carey, 2013). In addition, the apps are aligned with the UDL guidelines (CAST, 2018), National Disability Standards (DDS, 2013), and person centeredness (DADHC, 2009). Apps that align with the 5 Cs easily accommodate 21st Century teaching styles through the incorporation of technology that not only provides information to individuals but provides avenues for the functional use of the information it provides (Beckingham, and Nerantzi, 2015). The apps explored have also been chosen specifically based on their person-centeredness (Dulmen et al., 2015). Applications that are person centred have been designed with the individual’s needs and requirements in mind, with choice and control being with the individual rather than the service provider (DADHC, 2009). These reviews examine the elements in the design of each app that cater to the individual needs of the user. Additionally, each of the apps have been evaluated based on their effectiveness as a teaching tool, with consideration to the curriculum area at which they could be incorporated. These reviews evaluate the technological impact of these apps in relation to Dr Puentedura’s (2013) SAMR Model that categorises them based on their contribution to existing technologies and uses. These apps highlight the ever-increasing possibilities technology offers individuals with a disability to use apps as a tool to improve their quality of life.
Reviewer: Asheri Bukuru

Self Care - App 1

iDo Chores

Operating System: iOS

Location: iTunes

Cost: Free

Description: The iDo Chores app (Center for Educational Technology, 2016), is designed for the user to learn specific skills that can encourage independence in performing personal hygiene tasks and taking care of the house they are living in. These include activities such as sweeping, washing dishes, general cleaning up, folding up clothes and using the dishwasher. In order to support the learning of users, iDo Chores can create strategies that would help the user be able to learn effectively. These include videoing the task for later use and sequencing the task by breaking down into steps. The iDo Chores has a board game, which includes 7 features that can allow the user to generalise the learned skills into other settings. iDo Chores is designed to suit all ages. It has proven to be life changing for people with disabilities in learning and mastering the skills quickly after reviewing themselves performing activities and following step by step instructions (Mechling et al., 2015).

Alignment with the UDL guideline: The iDo Chores app meets the 1st principle of the UDL guideline - multiple means of representation (National Centre on UDL, 2018). The application promotes the option of video, photo taking and sequencing activities to be accessible and easily represent the user (National Centre on UDL, 2018). This application also meets with the third Principle of the UDL guideline, which is provide for multiple means of engagement (National Centre on UDL, 2018). This allows the user to select the activity they want to be involved in based on their personal interest and needs by following the video demonstration and picture sequencing (Center for Educational Technology, 2016; National Centre on UDL, 2018).

Curriculum area: iDo Chores would fit well in the educational curriculum and children from the early age would learn about personal hygiene, what skills and tools are required for learning self-care, health and environment (Gray, 2018). This would be a good opportunity to teach children, especially for children with a developmental delay about how to take care of themselves and their body when they are transitioning from childhood to adulthood.

How does the app meet the National Disability Standards? iDo Chores meets with the National Disability Standards two as it is about individual outcomes and participation and inclusion (Department of Social Services (DSS), 2013). These outcomes would promote learning and participating in learning new skills that would make an individual feel more independent and empowered. As this application is designed for the inclusive participation in learning new skills, people with a disability would see the application as an opportunity for activity participation that would make them feel valued and be involved with other people in the community (DSS, 2013).
How the app changes pedagogy (SAMR)? It is noted that SAMR was considered as the model or tool that educators use to introduce training and learning participation through technology from the low level to the high level of the technology (Puentedura, 2018). Hence, the iDo Chores enhances the teaching pedagogy through augmentative methods (Puentedura, 2018). This application promotes the learner understanding and utilising the gained self-care skills in making their life meaningful and connected to the community.

How the app encourages person centred planning? The iDo Chores application encourages person centred planning approach and is designed to support the user or learner to be supported based on their interest, goal, needs and abilities (DSS, 2013). In addition, all the tasks involved in iDo Chores application are personalised based on their abilities, interests and needs. The application allows the user to be the centre of the service to manage and make decisions regarding the services and support offered (DSS, 2013).

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The iDo Chores meets with collaboration (Carey, 2014). It highlights that community is a group of people living in the same area or geographical location that share values, culture, work and interest and have joined in the group with the same intention (Carey, 2014; Silver, 2017). Therefore, this application allows the user to learn about self-care skills that would make them feel happy and a valuable member of the community.

Evidence from the literature that the app is capable of the claims made: The video modeling has much value in helping a person with special needs to learn and master, generalise and maintain those skills within a short time (Al-Salahat, 2016; Boles et al., 2017; Gardner and Wolfe, 2015). In addition, using task analysis and sequencing the task by breaking down into steps will assist a person to learn skills quickly (Bishop and Duncan, 2015). The importance of learning those skills help them feel more empowered and independent in the completion of their daily routine such as eating, personal care, cleaning up and storing things away (Bishop and Duncan, 2015). It can also increase community participation and job opportunities (Boles et al., 2017). Therefore, the iDo Chores app can help people with self-care skills, feel more valuable in society and the increase their quality of life.

General Comments: iDo Chores application is the most useful tool that could help to implement self-care skills as it so important in human healthcare. The teacher could integrate this app in a student’s learning about self-care to prevent health issues that may arise from poor personal hygiene practice. People with intellectual disability and developmental delay would benefit through this as it uses videoing the activity, sequencing an activity and breaking down the activity. This would help the users to learn in a scaffolded way to master skills (Bishop and Duncan, 2015).
Pepi Bath Lite 4+

**Operating System:** iOS, Android

**Location:** iTunes and Google Play

**Cost:** Free

**Description:** The Pepi bath lite 4+ is designed to teach the children and young people with special needs such as autism to learn about self-care through playing this game (Marcelionis, A, 2016). This application is more about role-playing through simulation for ensuring that a person learns about hygiene. The application would allow the users to select any of the characters and go through the activities.

**Alignment with the UDL guideline:** Pepi Bath Lite 4+ aligns with two of UDL guidelines including principal II and III, which are to provide multiple means of action and expression and engagement (CAST, 2018). The UDL guideline principal II notes that the user would require a great time to practice a task to master the skills (CAST, 2018). It was highlighted that this application would allow a child to interact with other children in playing a game repeatedly by taking a turn. The application of Pepi Bath Lite meets with the UDL principle of multiple means of engagement as it promotes children learning about the importance of self-hygiene and development. The application would be helpful for promoting the option of self-regulation, sustaining efforts and persistence, and option for recruiting interest in the hygiene activities.

**Curriculum area:** It is noted by Carey (2014) that there are different stages that an individual’s needs could be met with regards to personal care and safety. An individual should be able to actively anticipate and carry out self-care independently without supervision or prompts otherwise needed to participate in the activity (Carey, 2014). Therefore, this application is suitable for children aged between 4 to 7 years old including a young teenager who has special needs as some could lack basic self-care skills (Feng and Mlinac, 2016). The application would be helpful for promoting the excellent option of self-regulation, sustaining efforts and persistence, and option for recruiting interest in the hygiene activities.

**How does the app meet the National Disability Standards?** Pepi Bath Lite 4+ aligned with National Disability Standard two, which is about participation and inclusion (DSS, 2013). In addition, this standard promotes the individual to have the right to participation based on the interests, task preference, goals and aspirations for the participants (DSS, 2013). This application is for ensuring that the children get clear information about the importance of hygiene and the opportunity to develop skills that will help them to stay healthy. This could be achieved through participating in the various activities like personal care, washing clothes, brushing teeth at the sink and other related personal hygiene activities.

**How the app changes pedagogy (SAMR)?** The Pepi Bath Lite4+ enhances teaching instruction by augmentative as it allows the significant task deliverable for the personal hygiene teaching (Carey, 2014). Children receive an opportunity of participating in the learning through animated
videos, audio and photos, which is in real-time (Marcelionis, A, 2016). This application gives children an interactive in-game practice session and at the same time an insight of the self-care tools that they need for performing self-care activities and privacy based on the body exposing while performing self-care.

**How the app encourages person centred planning?** The Pepi Bath Lite4+ application was designed in a way where a child needs to be in the centre of choosing the game that he or she likes in order to have fun and at the same time learning. The skills gained through participating in this game would help the child develop the sense of belonging, attempting to perform less intrusive or complex self-care routines independently (Carey, 2014). This application allows children and a young teenager with special needs to successfully get clear and concise ideas about the importance of personal hygiene (Feng and Mlinac, 2016).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Pepi Bath Lite4+ encourages collaboration between children who could be playing the game (Marcelionis, A, 2016). The application ensures children learn the tools around personal care, washing hands and clothes and brushing teeth all done by playing the game.

**Evidence from the literature that the app is capable of the claims made:** Evidence suggests that games using educational techniques that attract children to learn new skills makes them less dependent and feel empowered (Boutsika, 2014). Research reports that better success for school children, including special needs, is to learn self-care skills, social interaction, and behaviour management through playing games such as board games (Davis-Temple, Jung and Sainato, 2014). The Pepi bath lite application has a feature that helps children learn about personal hygiene through role-play games (Marcelionis, A, 2016). Hence, this application is a critical tool that can increase children's choice of learning skills that would help in their future needs including self-care (Davis-Temple et al., 2014). In addition, it helps children gain appropriate skills that promote building positive relationships with people around them (Davis-Temple et al., 2014).

**General Comments:** This app can be used as an effective learning tool in an educational setting to teach students from a young age. It teaches what to do on the toilet, brushing teeth, washing clothes and taking a shower. As this application is free, the teachers and developmental educator could suggest the parent or carer to download on their phones or iPads so children could learn it in their free time.
**Weather Dresser**

**Operating System:** Android

**Location:** Google Play

**Cost:** Free

**Description:** The weather Dresser application was developed for providing the support to the weather dressing for the users to have a selection of which clothes to wear for the day (Signaware, 2016). The application displays various dresses for the outside weather conditions such as clear or cloudy sky, the time and temperature of the day (Signaware, 2016). This application shows the expected weather conditions for the next 12 hours. The weather condition would help in easing the choice of selecting dress according to the weather by providing options for the user based on the weather (Signaware, 2016).

**Alignment with the UDL guideline:** The Weather Dresser aligns with the 1st principle of providing multiple means of representation of UDL guidelines (CAST, 2018). This is because it enables people to have the option of perceiving and understanding the information that the application has visually through the photos and digitally in the application. The application analyses the weather forecast from an online server and provides the appropriate information about dressing options (Signaware, 2016). The application displays different photos and temperature to give options for what to wear for the day (Signaware, 2016).

**Curriculum area:** The weather Dresser application gives a visual representation using the photo, time and temperature for showing the upcoming weather condition for the day (Signaware, 2016). The users would have a better understanding and plan what to wear for the day. This could be suitable for all ages to learn and know the weather for the day and for planning different activities with the appropriate clothes for the day. This application could be good for people with a disability who might depend on the carer to exercise their choice and control in regards to their clothing selection. In addition, this application could offer the self-trust, empowerment and positive self-esteem and more engagement in self-planning which would enhance their quality of life.

**How does the app meet the National Disability Standards?** The weather Dresser application aligns with National Standard 1, which is associated with the right of people (DSS, 2013). This application meets this standard that promotes equality of people, right to freedom and making choice and control of how they want to live their life (DSS, 2013).

**How the app changes pedagogy (SAMR)?** The weather Dresser application enhances the teaching pedagogy through the use of augmentation (Schrock, 2016). This is because the application could assist the user by giving clear online information that allows them to know the forecast through the use of photos, time and day temperature degrees. This allows the user to independently check the weather and have a choice and control of selecting outfits according to weather prior to going out in the community.
How the app encourages person centred planning? The weather Dresser application promotes choice and control for the user to dress to the weather conditions. People with a disability and elderly living in the supported accommodation disempowered due to not exercising their choice through of getting the opportunity of choosing what to wear or knowing the weather for the day (Lakhani, McDonald, and Zeeman, 2018). It was highlighted that providing people with choice and control with the services enhances the freedom, empowerment and pride to participate in their everyday activities (Lakhani et al., 2018). This application provides the user with the ability to self-plan what to wear according to the weather for the day.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Weather dresser app enhances community inclusion and the ability to self-plan for the user. This application promotes the approach to planning for an individual that needs to be completed before joining others in the community without the fear of discrimination and discomfort. The application would show the development of the weather throughout the day through the use of showing photos of the sky for the day how it looks like. Also, this application would show geographically which city and location.

Evidence from the literature that the app is capable of the claims made: People with special needs are considered to be vulnerable to the outdoor weather such as the heat and cold (Becker et al., 2017). This can decrease their social participation and increase the health issues psychologically and physically (Becker et al., 2017). The weather dresser is designed to be the solution for people who are considered as being vulnerable to weather conditions as it helps to plan a different activity for at least 12 hours from the weather forecast (Signaware, 2016). This app would allow the user to know the weather outside without going outside. It allows people with disabilities the ability to have a choice, freedom and control in what to wear according to the weather condition (Signaware, 2016).

General Comments: The application is supportive for the use in the school context as it could familiarise children to know the changes of the weather, climate, reading map and reading the time of the day. It would be good to teach people with a disability living on their own for a few days to dress for the weather condition.
Reviewer: Asheri Bukuru  
Self Care - App 4

Life Tiles Pro

Operating System: IOS

Location: iTunes

Cost: Free

Description: Life Tiles Pro app is an app that is designed to assist the user manage effectively their self-care (Mazzaz, 2018). The application promotes healthcare solutions to various users with health issues who need therapy and other support from a health professional. This application enables users to deal with their self-care, treatment and everyday health issue needs through monitoring and progressing tracking the health specialist and be able to be provided with feedback in real-time. The application would provide the user with 24/7 care via mobile phone, by automatically uploading health data for correction and treatment. In addition, through this application medicinal services suppliers can convey customised medications and self-improvement advice, providing a dynamic treatment option for people staying at home alone. This application can assist people with intellectual disability, chronic pain, or autism remain safely in their home for a few days secure in the knowledge that their heath is being monitored.

Alignment with the UDL guideline: The Life Tiles Pro application aligns with the UDL guideline principal I, which is written in the way everyone can easily be understood and ensure vulnerable people can understand and access the information (CAST, 2018). In addition, it also meets with UDL guideline 5, which provides the options of expression and communication (CAST, 2018). This application helps the user establish a good relationship, increase self-esteem and resilience.

Curriculum area: Life Tiles Pro application can be used to teach children from the middle of school to the high school level how to communicate effectively with the healthcare specialist and how to track personal health data for use by a medical practitioner. This application would be suitable for children aged 12 to adulthood, including people with disabilities.

How does the app meet the National Disability Standards? Life Tiles Pro app meets with the National Disability Standards through the standard one “rights” and three “individual outcomes” (DSS, 2013). The 1st standard promotes rights of the user, which could include having freedom, self-determination and privacy protected from any harm (DSS, 2013). In addition, it also meets the standards 3, to ensure that all users including people with disabilities exercise choice and control in deciding about the given services.

How the app changes pedagogy (SAMR)? Any technology that has been used as a substitute for another traditional tool would be consider as augmentative (Puentendura, 2018). Hence, the Life Tiles Pro application allows the user with health issue being tracked by the doctor using phone 24/7 for the benefit of the user and automatic health data corrected and report treatment results online easier an on real-time the doctor (Mazzaz Corporation, 2018). The
application has an option of sharing information with who are involving supporting the individual (Puentendura, 2018).

**How the app encourages person centred planning?** Life Tiles Pro app allows the healthcare specialist and user to see the same page and same information. For instance, if the participant wants to reschedule or check the appointment or report any health issues straight away they can go in the app and report online without a doctor visit. This application can be customised to show screen shots showing what is happening each day such as a schedule, behaviour health page, medication check and morning checks (Mazzaz Corporation, 2018).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Life Tiles Pro application encourages community; collaboration and curation (Carey, 2014). The application would encourage the curated application for retrieving the medical information for later use (Carey, 2014; Time Doctor, 2018). This application helps the user join with the health specialist and other people in the community and enable the collaboration via distance using Internet and mobile phone. This works to achieve the goal of providing information without the delay or the user feeling overwhelmed (Time Doctor, 2018).

**Evidence from the literature that the app is capable of the claims made:** The current studies claimed that the mobile health application such as Life Tiles Pro is successful in assisting patients managing their self-care and to deal with their health issue such as type 2 diabetic (Boothe et al., 2015; Burford et al., 2016). It noted that the health specialist would successfully use the mobile health application to automatically collect the data by tracking the user’s health and be able to know either the need for medical support in an emergency (Burford et al., 2016). The application provides an option to the patient to have a choice of sharing their sensitive health issue information with their family, carer and health specialist in real-time (Boothe et al., 2015). Using this technology as a solution provides a way of accessing support on time, reducing cost, and feeling empowered in enabling them to control their health issue through online consultation or communication (Boothe et al., 2015).

**General Comments:** Life Tiles would be a good tool for a developmental educator fulfilling the choice of people with disabilities and working in a collaborative way to fulfil the client’s needs in an inclusive way. It would also allow the developmental educator to offer multi-tasks while monitoring the client’s health through the application or communicating with the doctor quickly if there was any issue raised.
Dirty Kids

Operating System: Android
Location: Google Play
Cost: free

Description: “Dirty Kids” is a fun game teaching kids to learn how to clean their teeth, wash hair, wash their whole body, moisturise their skin, put deodorant on, wash dirty clothes in the washing machines, and get dressed up by choosing clothes from a fashionable wardrobe. There are a variety of choices of shoes, shirts, shorts, pants and hair styles for boys and girls. There are extra sunglasses for boys and beauty stuff such as hair catchers, purses and handbags for girls. It is a free app. Children use the app to have fun and ‘play dirty’, then get their whole body washed and get dressed at the end. Kids can experience the basic skills of self-care, including washing themselves, cleaning teeth and getting dressed into a complete engaging game (GameiMax, 2016).

Alignment with the UDL guideline: This app provides multiple means of representation. It delivers information through visual and auditory means instead of traditional education. It is easy and perceptible for people with disabilities to receive information with alternatives of emphasis, animations and video. The users can learn from imaginative play. This app provides multiple means of engagement too. This virtual environment is easy to use. This app is full of fun illustrations, bright colours and lively sounds that will really attract people with disabilities to engage in the role-play exercises and learn the life skills of self-care. It provides a range of tasks and possible resources for users to find challenges and motivate user engagement (udlcenter, 2014; Romrell et al., 2014).

Curriculum area: This app can be for education and entertainment. It can be used for teaching the curriculum area of life Skills. It is suitable for everyone aged over 4 years including people with disabilities. It provides an easy and interesting way for people with disabilities to play and learn self-care skills. Its design allows people with disabilities to develop their skills, knowledge and understanding on an equal basis as other students.

How does the app meet the National Disability Standards? This app teaches people with disabilities to learn self-care skills. Self-care skills are basic daily life skills. If people are having difficulty in self-care, it will impact on their participation in life experience (Kid Sense, 2018a). This app increases the strength and capacity of people with disabilities to live independently and take control of their lives to reach their goals as much as they can. It meets the standard of the individual outcomes, which is one of the national standards (DSS, 2013).

How the app changes pedagogy (SAMR)? This app is very useful for people to learn self-care habits that are basic life skills. It is a substitution for direct teaching. The audio and visual illustrations allow people with disabilities to easily understand and learn the self-care skills like washing their body.
It is a modification that lets significant tasks be redesigned. Learning the skills of self-care is no longer boring and difficult for people with disabilities. They can learn all these skills through playing fun games which are built on auditory and visual learning principles (Puente, 2013).

**How the app encourages person centred planning?** Person centred planning is to discover what is truly important to the person and what capacities and skills that the person can achieve (OFWDD, 2018). The most important thing in life for people with disabilities is living independently and social inclusion in society (DSS, 2011). This app teaches people with disabilities to learn basic self-care skills while playing games. It increases the capacity of people with disabilities to be independent by playing this app. This app supports person centred planning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app encourages creativity. There are a range of choices and combinations of playing in this app. For example, playing to get dressed, there are many choices and options for users to make including how to dress well, how to style clothing for boys or girls by using different styles and colour of clothes. It not only teaches how to get dressed but instructs on how to get dressed in a good manner. It is a very useful app for learning self-care skills in a new way (Carey, 2013; Romrell et al., 2014).

**Evidence from the literature that the app is capable of the claims made:** Abdul, Jabbar and Felicia (2015) state that people think and understand better when they can project themselves into imaginative situations and prepare for an action. This app presents a familiar home situation through simulation with audio and vision. It encourages people with disabilities to think, understand, prepare, and take actions to master the self-care skills through playing this app.

**General Comments:** This app is free online for developmental educators and teachers to use to teach life skills. It can teach people with disabilities to learn self-care skills and take responsibilities to keep themselves clean and dressed well. People with disabilities can play in the virtual environment to learn valuable skills while enjoying the entertainment and fun.
Brush DJ

Operating System: IOS and Android

Location: iTunes and Google Play

Cost: free

Description: Brush DJ is a free app with animated videos teaching basic oral hygiene skills such as using flossing and a toothbrush to clean teeth in the correct way. It works with a manual or electric toothbrush. There are other functions that can be set up in this app. They include changing the toothbrush every 3 months, brushing teeth at least twice a day, flossing every day, rinsing the mouth with mouthwash at certain times, and reminding them to visit the dentist. There is 2 minutes maximum for tooth brushing time with selected songs or music. It also allows users to download new songs or rediscover their own songs or music collections. It allows users to choose the colour of the screen to match the colour of their toothbrush and bathroom or just select their favourite colour combinations. It makes brushing teeth more interesting. In addition, it will provide free updates on new oral health information once available (Benjamin Underwood, 2017a, 2017b).

Alignment with the UDL Guideline: This app provides multiple means of representation. It delivers information through visual and auditory means such as animated videos and music. It also provides multiple means of engagement. It optimizes individual choice and autonomy. The users can choose their favourite song and colour of the screen while brushing teeth or playing this app. This app is interesting and attractive for people with disabilities to learn and practice oral hygiene skills through fun play (udlcenter, 2014; Romrell et al., 2014).

Curriculum area: This app can be for education and entertainment. It is suitable for everyone at any ages. People with disabilities can learn and practice oral hygiene skills and receive oral care information while enjoying listening to music. It can be used for teaching the curriculum area of self-care life skills.

How does the app meet the National Disability Standards? This app teaches people with disabilities to learn oral care skills and it helps them to prevent oral diseases. It teaches and prompts people with disabilities oral hygiene skills which is part of self-care skills. It enhances the capacity of independence for people with disabilities. It helps to build their strength so that they can reach their life goals. It is person-centred approach. It meets the standard of the individual outcomes which is one of the national standards (DSS, 2013).

How the app changes pedagogy (SAMR)? This app is very useful for people with disabilities to learn basic self-care skills like oral hygiene skills. It is a substitution acting as a direct teaching tool substitute. The audio and visual illustrations allow people with disabilities to easily understand and learn oral hygiene skills. It also redefines the task, turning it into an engaging activity. It creates new tasks that allows users to download new songs and rediscover their favourite music collection. It promotes well-being too (Puentedura, 2013; Romrell et al., 2014).
**How the app encourages person centred planning?** Person centred planning is to discover and promote the most important things in life (OFWDD, 2018). One of the most important aspects for people with disabilities is being able to live independently and to take part in a socially inclusive society (DSS, 2011). This app teaches and prompts people with disabilities to learn and practice basic self-care skills in a fun game with their own favourite music in daily life. It increases the capacity for people with disabilities to be independent without support. This app is person centred planning.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app encourages curation. People with disabilities can use it every day to practice proper oral hygiene. It allows users to download new songs and rediscover their own favourite music collection. Users can use it every day to brush teeth while listening to their favourite music in daily life (Carey, 2013).

**Evidence from the literature that the app is capable of the claims made:** Bunt and Stige (2014) indicate that listening to music can enhance a wide range of cognitive functions such as learning, attention memory and communication as well as emotional function such as preventing negative mood and depression. This apps encourages people with disabilities to learn and practice oral hygiene skills in their daily life as well as enjoy listening to music.

**General Comments:** This app is free online for developmental educators and teachers to use teaching life skills. It can teach people with disabilities to learn life skills such as the oral care skills and prompt them to practice it in daily life. People with disabilities can play it to learn valuable skills while enjoying lively music and their music collection. It is a useful app.
Duckie Deck Hungry Clipper

Operating System: iOS,
Location: iTunes
Cost: $4.49

Description This app uses animated video and audio to teach users how to clean and cut their fingernails. Hungry Clipper acts as a fun and interactive character with a sense of humour to teach nail-clipping. There are a wide range of different hands and animal paws for checking and nail-clipping. This app teaches the steps of nail clipping through fun and interactive tutorials. First, check and clean the animated hand; second, removing adornments; and, third, clipping nails. It also teaches how to prevent dirt build up and accidental scratching. It is very easy to play. A new hand will automatically appear without tapping buttons. It prompts the skills and healthy habits of keeping fingernails clean and tidy and neat. The skills are part of self-care skills. In addition, it helps users to develop fine motor skills and coordination in a completely safe environment (Duckie Deck Development, 2015).

Alignment with the UDL guideline: This app provides multiple means of representation. It delivers information through visual and auditory means such as animated videos, colourful graphics, dynamic elements and lively sound effects. It provides multiple means of engagement too. The simple interface makes it easy to play independently or playing with others. A new hand will automatically appear without tapping any buttons. The variety of hands attracts user’s interest and choice. The friendly amicable clipper character encourages users to keep playing imaginatively to learn to clean up dirty hands and clip overgrown fingernails (UDLcenter, 2014).

Curriculum area: This app can be for education and entertainment. It is suitable for everyone aged over 4 years. People with disabilities can learn and practise hand hygiene skills while enjoy the fun game. It can be used for teaching and promoting the curriculum area of self-care life skills, motor skills and coordination. Fine motor skills refer to using the smaller muscle of the hands. They are essential for performing daily life skills and academic skills, such as hand typing, handwriting, eating, and dressing (Kid Sense, 2018b).

How does the app meet the National Disability Standards? This app can teach people with disabilities to learn hand hygiene and nail clipping skills. It prompts their fine motor skills and coordination too. Fine motor skills are related to using hands. They are essential skills for daily activities and academic performance (Kid Sense, 2018b). It helps to build the strength and enhance the capacity of independence for people with disabilities so that they have abilities to do what they would like to do and reach their goals. It meets the standard of the individual outcomes which is one of the national standards (DSS, 2013).
How the app changes pedagogy (SAMR)?  This app is very useful for people with disabilities to learn basic self-care skills like nail clipping and hand hygiene skills. It uses a substitution pedagogy by acting as a direct teaching tool substitute. The audio and visual illustrations such as fun sound effects and animated videos allow people with disabilities to easily understand and learn hand hygiene and clipping overgrown fingernails. It is augmentation acting as a direct tool substitute with functional improvement. It allows user to learn and practise nail-clipping in a completely safe environment without cutting themselves. It can be used as training for motor skills and coordination for practice clipping fingernails (PuenteDura, 2013; Romrell et al., 2014).

How the app encourages person centred planning?  Person centred planning is to discover and promote the most important things in life for a person (OFWDD, 2018). The most important thing in life for people with disabilities is living independently and social inclusion in society (DSS, 2011). This app teaches and prompts people with disabilities to learn and practise basic self-care skills like nail clipping and hand hygiene in a fun game. It increases the capacity of people with disabilities to be independent without support by playing this app.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages building community. It allows people with disabilities to play it together with friends and family members for learning and practising hand hygiene and nail-clipping with fun. It also supports creativity. It allows users to practice fine motor skills and coordination in a safe environment (Carey, 2013).

Evidence from the literature that the app is capable of the claims made: Wass and Porayska-Pomsta (2014) indicates that ICT used for cognitive training provides a supported environment for people with disabilities, in which they can learn and understand the ways of emotions and communication with others and peers. This app is capable of these claims.

General Comments: This app is affordable only costing $4.49 online for developmental educators and teachers to use. It can teach people with disabilities to learn and practice self-care skills such as hand hygiene and nail-clipping in daily life. It also offers an opportunity for people with disabilities to prompt their fine motor skills and coordination. Fine motor skills are strongly associated with daily life activities and independence as well as academic achievements. It is quite useful.
iDo Food

Operating System: IOS

Location: iTunes

Cost: Free

Description: iDo Food is a free app for teaching people cooking and dining skills. It contains seven units. They include making chocolate milk, washing fruit, making sandwiches, making a salad, setting the table, heating up food in the microwave and eating with a fork and knife. Each unit includes a video and an instruction of each step with narrated text. There are a wide range of games combined with fun for users to learn and practice. Users can watch the videos and follow the steps of instruction to practice skills within the app. It is built with visual, auditory and kinaesthetic activities to teach and reinforce users to gain important daily living skills such as using cutlery and setting the table.

The user can play independently or play with others taking turns. The activities are selected randomly to reinforce the learning and understanding of how to set up equipment and how to eat. (Center for Educational Technology, 2015).

Alignment with the UDL guideline: This app provides multiple means of representation. It delivers information through visual and auditory means such as videos, pictures, audio, narrated text, voice instruction. It provides multiple means of action and expression. It provides different ways of materials and communication to encourage all learners to interact with the activities. It provides multiple means of engagement. Users can watch the videos and follow the steps of instruction to practice skills within the app. Users can also add their own photos, video and steps to personalise the activities. The users can play it independently or play it with others. It uses visual, auditory and kinaesthetic activities to teach and reinforce users to gain the important daily living skills such as using cutlery and setting the table. Allowing for the promotion of self-care skills of eating and staying home alone (UDL center, 2014).

Curriculum area This app can be for education and entertainment. It is suitable for everyone aged over 4 years to learn and practice eating skills. People with disabilities can learn and practice self-care skills such as using cutlery and setting the table while enjoying playing the games. It can be used for teaching and supporting the curriculum area of self-care life skills, such as eating skills and staying home alone.

How does the app meet the National Disability Standards? This app enhances the capacity of independence for people with disabilities. It is person-centred approach. It meets the standard of the individual outcomes, which is one of the national standards. The national standards for disability services requires that any service should be assessed, planned, delivered and reviewed based on building individual strengths and helping them to reach their goals (DSS, 2013). This app supports this capacity building.
How the app changes pedagogy (SAMR)? This app is a substitution acting as a direct teaching tool. The audio and visual illustrations allow people with disabilities to easily understand and learn eating skills step by step. It is also redefinition with the creation of new tasks previously inconceivable. Users can set up their own video, photos and task steps according to their preferences and situations (Puenteédura, 2013; Romrell et al., 2014).

How the app encourages person centred planning? Person centred planning is about providing services that support an individual’s needs and can help achieve living independently (DSS, 2011; OFWDD, 2018). This app teaches and prompts people with disabilities to learn and practise basic self-care skills step by step, such as using cutlery and setting the table in a correct way. If people with disabilities want to stay alone a few days without support, this app will be helpful for them. It increases the capacity of people with disabilities to be independent by using this app.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages community. It allows people with disabilities to play it together with friends and family members for learning and practising eating skills in a fun way. It is also curation. It allows users to make own video, photos and sequencing steps for performing tasks. It would be very useful for people with disabilities who have to store these, keeping these in mind and using them for daily tasks (Carey, 2013).

Evidence from the literature that the app is capable of the claims made: Erhel and Jamet (2013) mention that motivation plays a most important role of driving learning. Without motivation, people will stop learning and playing. This app provide a simulated environment for users to play and learn. It provides multiple means of representation, action and engagement. It encourages users to learn and practice cooking and dining skills in fun games. It seems to deliver on its claims.

General Comments: This app is free online for developmental educators and teachers to use. It can teach people with disabilities to learn and practise self-care skills such as cooking and dining skills in daily life. It also offers an opportunity for people with disabilities to build their own menu or tasks. It is useful for everyday life.
**Reviewer:** Hong Zhao

**Self Care - App 9**

**Bond - With People That Matter**

- **Operating System:** iOS
- **Location:** Apple Store
- **Cost:** Free

**Description:** Bond – With People that Matter is a free app. It is designed to keep users connected with friends and family members in life. Usually there are different ways to contact people such as call, text, email and Facebook. This app combines those different services together including phone call, text message, and Facebook message, Emails, Gmail, WhatsApp and LinkedIn. This app allows users to communicate with a single person across multiple communication platforms. It also reminds users to keep in touch with their friends and family members on a regular basis. Users just select how often they would like to contact one of their friends or family members, then this app will schedule regular reminders. Users simply swipe the notification open, choose the service preferred to contact, then they can enjoy the connection and strong bond with others (Fill the Bill LLC, 2014).

**Alignment with the UDL guideline:** This app provides multiple means of engagement. It combines multiple communication platforms together. Users can engage in communication with others through many options (UDL center, 2014).

**Curriculum area:** This app can be used for communication and socializing. It is suitable for everyone aged over 4 years old. It provides a very good function to remind people with disabilities to keep in touch with others to avoid isolation. It prompts people with disabilities to practice communication skills by having regular contacts with others. It can be used for teaching and prompting the curriculum area of life skills such as communication and social skills.

**How does the app meet the National Disability Standards?** This app provides the opportunity for people with disabilities to keep communication with others. It provides the opportunity for them to join the community and participate in meaningful social activities. They can share information and resources through keeping in touch with others by using this app. This app promotes participation and inclusion and avoids isolation for people with disabilities. It meets the standard of participation and Inclusion which is one of the national standards (DSS, 2013).

**How the app changes pedagogy (SAMR)?** This app is very useful for people with disabilities to stay connected with others. It is a substitution for a direct communicating tool. It allows users to communicate with a single person across multiple communication platforms. It maximizes the chance of success of connection. It is augmentation acting as a direct tool substitute with functional improvement. Its improved function of reminding connection is very helpful for users to keep in touch with their friends and family members on a regular basis to prevent social disconnection (Puenteleda, 2013; Romrell et al., 2014).
How the app encourages person centred planning? This app prompts participation and social inclusion for people with disabilities by keeping in touch with others. It enhances their well-being and reduces isolation and loneliness.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages connectivity. It allows users to communicate with a single person across multiple communication platforms and keep in touch on a regular basis. It encourages building communities. It reminds users to keep in touch with their friends and family members on a regular basis. It provides an opportunity for people with disabilities to build a social community with others by keeping connection regularly. It also encourages collaboration. It provides an opportunity for people with disabilities to share information, thoughts and resources with others by keeping communication on a regular base (Carey, 2013).

Evidence from the literature that the app is capable of the claims made: Khetarpal (2014) states that ICT applications provide better opportunities for people with disabilities to take social and economic integration into their communities. The software of ICT like apps enable people to communicate with others in a private and safe social networking environment. It can reduce isolation. Douglas et al. (2013) mention that ICT becomes a substitute for more expensive ways of communication, it breaks the obstacle of physical distance such as traveling. ICT has become a communication tool in everyday life. Saito (2014) indicates that with more people using the same platform, ICT will facilitate collaboration and learning and reduce barriers. This app delivers what it claims.

General Comments: This app is free online for developmental educators and teachers to use as a component of developing communication skills by using a mobile phone. It can used as a communication and learning tool for students with disabilities. It provides an opportunity to build learning communities and collaboration sharing learning experiences, ideas and information for people with disabilities.
Reviewer: Amanda Petersen

Self Care - App 10

iDo Hygiene

Operating System: IOS
Location: iTunes
Cost: Free

Description: iDo Hygiene (CET, 2015a) is a wide-ranging application that teaches a person about basic hygiene such as taking a shower, shampooing, brushing teeth and toilet training. It has 12 units plus a game that presents a step-by-step guide in video format of how to do each activity. Each activity has a sequence of steps, which includes a text-based narrative description of each task, and the option to mark each activity as complete once achieved. The ability to create a personalised sequence of tasks by photographing each step within the app and the added option of creating a personalised video for each activity provides for a richer and more user-friendly experience. The board game builds on to each activity by allowing for generalisation of the hygiene tasks to other environments. Created by a team of professionals and in consultation with parents, this app uses rich media, on and offline capability, and the capacity to personalise materials to allow for suitability for all ages. It is especially beneficial for teaching self-care skills to people with an intellectual disability and autism.

Alignment with the UDL guideline: iDo Hygiene aligns across the UDL framework (CAST, 2018) in all three areas. By using personal photographs and videos for instruction, this app provides for relevancy and authenticity in providing multiple means of engagement (7.2). Using multiple means of representation, it offers the ability to generalise the learner’s understanding to various environments using a game (3.4). It allows for alternate ways to present the information by using text, video, audio and pictures (2.5). As it is a step-by-step guide, it scaffolds the activity for the learner and presents this information in multiple formats to guide the person through each goal (6.1). By allowing each task to be checked-off as completed, it ensures that monitoring of progress is visually provided and that goals are achieved (6.4).

Curriculum area: iDo Hygiene supports the WHODAS 2.0 Domain: Self-Care D3.1 – washing your whole body (Ustatun et al., p.50, 2010). It also supports Domain: Self-Care D3.3 – eating, as a person can video the steps involved in cleaning, setting up and administering non-oral feeding apparatus (Ustatun et al., p.50. 2010). This app is especially suited for people with an intellectual disability or autism, and for a range of ages and abilities, in Life Skills. As the supplied videos are performed by young adults, this app is suited to encouraging independence in high school students. However, as videos and photographs can be personalised, any age can use this app by incorporating a video of an age-appropriate person or the individual themselves. This app also aligns with the Australian curriculum in understanding how Health and Physical Education works and the general capabilities of Personal and Social Capability (Australian Curriculum, Assessment and Reporting Authority (ACARA), 2018).
How does the app meet the National Disability Standards? Individuality and independent functioning is represented in iDo Hygiene and meets the National Disability Standards (Department of Social Services (DSS), 2012) Standard One: Rights and Standard Three: individual outcomes. By allowing the person to learn skills that provide for independence and support in reaching goals and for the rights for a person to make their own decisions, this app meets the standards.

How the app changes pedagogy (SAMR)? iDo Hygiene uses a transformation pedagogy for the user to learn how to perform basic hygiene tasks (Hamilton, Rosenberg, and Akcaoglu, 2016). This is shown by the user either using videos that are interactive and can be paused or slowed down to highlight steps (modification) of the task to being fully individualised by the user performing the tasks and having them videoed for use in the app (Redefinition) (Hamilton et al., 2016).

How the app encourages person centred planning? Person centred planning is where the user is an active participant in the planning of their support (Dumen et al., 2015). iDo Hygiene encourages active participation and user input in the planning of the activities the app supports through personal video modelling and activities that are centred around the needs of the PWD.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? iDo Hygiene incorporates communication, collaboration, creativity and curation in the use of this app (Beckingham, and Nerantzi, 2015). This is achieved through communicating and reflecting on how the app will help the individual, collaborating with the user and the support person to then create ideas for videos and instructions, and finally by curating these ideas in text and video format to retrieve for later use (Hwang, Lai, and Wang, 2015).

Evidence from the literature that the app is capable of the claims made: Many people with a cognitive impairment take a long time to master hygiene tasks (Campbell et al., 2015). The use of prompting and visual schedules, with repetition, to successfully learn and complete basic hygiene tasks has been well documented, especially for people with ASD (Birtwell, Willoughby, and Nowinski, 2016). iDo Hygiene uses prompting and visual schedules as the main basis for its interaction with the user. By the user watching videos of how to perform the task and with the ability for the app to be used every time the activity needs to be repeated, adaptive skills that are commonly impaired can be supported and increased (Birtwell et al., 2016).

General Comments: iDo Hygiene can help a developmental educator instruct and support a person and their family to learn and develop adaptive behaviours for self-care. The educator can help set up the app and teach the support person to use the app to record and document any self-care instructions that the PWD may need (Chisholm et al., 2014). It can also be used to instruct in self-administering with non-oral feeding.
iDo Getting Dressed

Operating System: iOS

Location: iTunes

Cost: Free

Description: iDo Getting Dressed (CET, 2015b) is an application that supports people’s independence by providing a step-by-step guide to getting dressed. It has 9 units plus a game that presents activities such as putting on socks, shoes, preparing clothing for various seasons, getting undressed, getting ready for bed and for going out. It also provides different options for boys and girls. Each activity is in video format with sequential steps, with the option of uploading personalised videos and pictures to support individualisation of each activity. A text-based description of each task is provided with the option to mark each completed activity on achievement. Additional learning games gives the person the opportunity to practice sequence understanding by asking questions about what the next step is and whether an item belongs or not. The board game also allows for generalisation of the dressing tasks to other environments. Created by a team of professionals, it is a user-friendly app that uses a diverse range of media to engage a wide range of ages. This app encourages independent functioning and development of self-care skills for children through to adults with autism, intellectual disability and special needs.

Alignment with the UDL guideline: iDo Getting Dressed aligns across the three UDL guidelines (CAST, 2018). It provides for multiple means of engagement and relevancy to each user by providing an option to personalise photographs and videos for each step (7.2). Using learning games, it offers the ability to generalise the learner’s understanding to different environments and supports multiple means of representation, (3.4). By allowing the information to be presented using text, video, audio and pictures, multiple means of representation are further supported (2.5). Executive functioning is enhanced using scaffolding and the presentation of information in various formats guides the person through each activity (6.1). Progress is monitored using a check system that visually shows the achievement of goals (6.4).

Curriculum area: iDo Getting Dressed supports the WHODAS 2.0 Domain: Self-Care D3.2 – getting dressed (Ustatun et al., p.50, 2010). This app aligns with the area of Health and Physical Education, as well as Personal and Social capability of the Australian Curriculum (ACARA, 2018). It is suitable for all ages and abilities. This app encourages independence in self-care skills. As personalisation of videos and photographs can be implemented, any age can use this app by personalising videos to be age-appropriate.

How does the app meet the National Disability Standards? Standard One: Rights, Standard Two: Participation and Inclusion, and Standard Three: individual outcomes of the National Disability Standards (DSS, 2012) is supported by this app. Individual self-care outcomes that a PWD wants to achieve through collaboration with a support person and their family can be guided and
supported by the app. By providing the PWD with the opportunity to learn basic care skills, their participation and inclusion in the community can also be enhanced. If a PWD learns the skills to get dressed and tie shoelaces, they may be less reliant on other people to engage in activities and the community, such as swimming or other interests, where the changing of clothing could have prevented them from enjoying it independently. Therefore, this app can support an individual’s priorities and active participation in the community through developing self-care skills and confidence in their ability.

**How the app changes pedagogy (SAMR)?** iDo Getting Dressed uses a transformation pedagogy for the user to learn how to complete dressing tasks (Hamilton et al., 2016). This is demonstrated by the user being able to slow down animations or replay them (modification). By the user acting out the tasks and videoing the performance to be used in the app, redefinition is achieved through individualisation, creation of new tasks and reinforcement of each activity through viewing and creating the videos (Hamilton et al., 2016).

**How the app encourages person centred planning?** The person-centred approach is about valuing and appreciating a person’s unique self and about empowering them (Kettley, Kettley, and Lucas, 2017). iDo Getting Dressed uses a person-centred approach by creating autonomy of daily activities for the user. The PWD has the option to create videos and task steps that are individualised to their requirements and their likes and dislikes. Due to the app allowing the user to create their own instructions and videos, the user is not bound to the order that the app suggests performing an activity. The PWD can create their own steps, the way they would like to and the order that they feel more comfortable with to complete a self-care activity.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** iDo Getting Dressed incorporates four out of the 5Cs. These include communication, collaboration, creativity and curation (Beckingham, and Nerantzi, 2015). This is achieved through the user and support person communicating about how the app will be used and reflecting on how the app has helped the PWD, collaborating with other professionals on the best way to implement the app, creating videos and instructions, and curating text and video for easy retrieval as and when required (Hwang et al., 2015).

**Evidence from the literature that the app is capable of the claims made:** Assistive technology can help people with an intellectual disability to learn new skills that can promote independence (Lorenz et al., 2017). Creating independence and making it sustainable is about achieving small goals that when joined together can increase confidence in a person’s ability to live independently (Chisholm et al., 2014). iDo Getting Dressed enhances a person’s functional skill of daily activities, like getting dressed, that promote independence and quality of life using step-by-step instruction and video modelling (Bjornestad et al., 2016). Video modelling and the use of handheld devices has been shown to be a very effective tool for the acquisition of adaptive skills, especially for people with ASD (Campbell et al., 2015).

**General Comments:** iDO Getting Dressed provides developmental educators with a tool to support their clients with learning self-care skills. By a client having a scaffold/structured template that has been developed with their own individual needs addressed, motivation for the client may enhance participation and facilitate learning in a more relaxed and supported way (Nunes et al., 2015).
Reviewer: Amanda Petersen

Self Care - App 12

Home Routines

Operating System: IOS

Location: iTunes

Cost: $4.99

Description: Home Routines (Wunderbear Software, 2017) is a task list app that users can create a routine checklist for doing activities around the home. A person can create a to-do list for activities that need to be accomplished on certain days of the week or month. By using the “Focus Zone” section, each room of the house can be added to a zone. Each zone can then be customised to suit the chores required for the individual room. Checklists can be scheduled for different days, weeks, or months and be set as a recurring routine. There are also to-do lists pre-installed for one off jobs. A reminder functionality notifies the user to keep them on track of tasks for the day. The app also has a timer, allowing jobs to be set for completion within a specific time-frame. Accomplishments of tasks are rewarded with a star sticker and are logged in the “Accomplishment” section, which can be shared via email. This app supports the user in their self-care and independent living by providing a list of daily chores and a way for the person to achieve completing home care tasks to help them stay at home.

Alignment with the UDL guideline: Home Routines provides for multiple means of engagement using optimising individual choice and autonomy (7.1) (CAST, 2018). It does this by using customisable checklists that are individualised to the user’s needs and encourages autonomy by providing lists that are achievable without requiring help. With initial support by a support worker, if required, to set each task in consultation with the user, effective goal-setting can be implemented (6.1). With the app providing stickers as visual feedback for attainment of tasks and the ability to share accomplishment lists, this app provides for a clear progression of achievements and timely feedback of incomplete tasks (6.4).

Curriculum area: Home Routines supports the WHODAS 2.0 Domain: Self-Care D3.4 – staying by yourself for a few days (Ustatun et al., p.50, 2010). This app aligns with the area of Life Skills and is suitable for people who are old enough and capable of performing activities that allow them to stay at home by themselves. This app supports independent living and aligns with the curriculum general area of Personal and Social Capability (ACARA, 2018).

How does the app meet the National Disability Standards? Home Routine supports the National Disability Standards (DSS, 2012) Standard One: Rights – that allows a person to make choices and have control about their own lives and how and when they use services. It also provides for dignity of risk, that is, a person’s right to take some risks in life. Standard Three: Individual Outcomes is met by the individual using services and supports that support a person to reach life goals, such as independent living.

How the app changes pedagogy (SAMR)? Home Routine uses an enhancement pedagogy by augmentation (Hamilton et al., 2016). This app substitutes a written list of items that need to
be accomplished but uses functional enhancements that provide better support for the user than having only a list of tasks to be completed. This includes reminder functionality, sharing ability and automated visual feedback of tasks completed.

**How the app encourages person centred planning?** Home Routine encourages person centred planning as each activity is individualised to the requirements and needs of the user. Person centred planning is based on the person with a disability having a genuine role in the decisioning making of their own life (Wilkins, 2015). This app allows a person to create tasks that need to be accomplished for them to be able to stay at home independently for a few days. The tasks are customised to the needs of the person and supports decision making by the PWD as to how and when activities need to be completed.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Home Routine encourages confidence in a person’s ability to develop competency in skills that are required to live independently for a few days, which is one of the aims of the 5C framework (Beckingham, and Nerantzi, 2015). It encompasses all parts of the 5C framework as it allows for connecting, collaborating and communication between a support worker and the PWD, and the creation and curation of tasks for outlining required activities and storing and retrieving them at a later stage (Beckingham, and Nerantzi, 2015).

**Evidence from the literature that the app is capable of the claims made:** The loss of ability to live independently can also be detrimental to the quality of life (Chisholm et al., 2014). Loss of independence in activities that are considered basic to daily living can mean a person having to be admitted to a care facility (Bjornestad et al., 2016). This app provides a person with the tools to fulfil daily activities, without full-time support and for a few days if required, by prompting, itemising, guiding and supporting the person.

**General Comments:** The role of a developmental educator is to promote independence, quality of life and to enhance skills of people with a disability (DEAI, 2018). Home Routines can help to foster the skills of a PWD by creating activity lists that encourage independence and the ability to stay at home for a few days by themselves.
National Relay Service

**Operating System:** iOS and Android

**Location:** iTunes and Google Play

**Cost:** Free

**Description:** The “National Relay Service” (NRS) (National Relay Service, 2014) app is designed to help people who are deaf, have a hearing impairment or little to no speech be more independent and to keep in touch with others or to make an emergency phone call when they are alone. The app supports making and receiving phone calls through various channels (internet relay, Speak and Listen, video relay and web-based captioned relay) for people who have difficulty with speech or hearing. It also has a link to the NRS website. There are additional benefits using the app for internet relay and Speak and Listen, such as creating start-up messages to allow for one-tap call connections with a pre-written message sent on connection to the relay officer; quick phrases, which users can insert text with pre-set phrases during calls; contacts, allowing access to phone numbers stored on your phone to be pre-populated in the number field; GPS, offers location information to be easily sent using the app during a call; profiles, sends a person’s profile information at the start of a call for the relay officer to use; and, security features to protect the person’s data from being accessed by other people. The app is free, as are the calls made using the app. However, as the app utilises the internet to make a connection, data charges would apply from the mobile service provider.

**Alignment with the UDL guideline:** The NRS app aligns with the UDL guidelines of multiple means of engagement and optimises individual choice and autonomy (7.1); provides for multiple means of representation, providing options for perception; and, provides multiple means of action and expression. It can be optimised for individual choice by the user creating their own quick phrases, deciding on the type of call they will make, inserting profile information to quickly provide at the start of a call to the relay officer and being able to make phone calls independently. The app also provides for individual expression and action, as well as representation, through the various call options like internet relay – for typing and reading conversations; Speak and Listen – for people who may be hard to understand on the phone; video relay – for using Auslan; and, captioned relay – for people who can speak but cannot hear clearly.

**Curriculum area:** The NRS app supports the WHODAS 2.0 Domain: Self-Care D3.4 – staying by yourself for a few days (Ustatun et al., p.50, 2010). This app aligns with the area of Life Skills and is suitable for people who are old enough to stay at home by themselves. This app supports independent living and aligns with the curriculum general area of Personal and Social Capability (ACARA, 2018).

**How does the app meet the National Disability Standards?** The NRS app supports the National Disability Standards (DSS, 2012) Standard One: Rights – that allows a person to make choices...
and have control about their own lives and how and when they use services. It also supports Standard Two: Participation and Inclusion, and Standard Three: individual outcomes of the National Disability Standards by allowing for independence and active participation in the community through the ability to successfully communicate with out the need for support (DSS, 2012)

**How the app changes pedagogy (SAMR)?** A Redefinition pedagogy is used in the NRS app as it redefines how the user initiates and interacts in a telephone conversation that would have been impossible without the use of web or app-based technology.

**How the app encourages person centred planning?** This app supports person centred planning as it encourages self-management and independence for the client being able to communicate with other people of their choice. It gives the person full decision making in the use of the technology in a way that suits their individual need. The app also supports the biopsychosocial element of being person-centred by providing elements of engagement that can be modified and implemented to suit their physical needs (Kettley et al., 2017).

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** The NRS app allows a person to communicate with other people if they are alone and contact emergency services. It includes communication, collaboration, curation and connecting with other people (Beckingham, and Nerantzi, 2015).

**Evidence from the literature that the app is capable of the claims made:** Autonomy, living independently and being able to connect and communicate with other people to ensure their safety is a fundamental right for people with a disability (Alper et al., 2015). ‘National Relay Service’ encourages independent living by providing the user with a way to communicate with other people and supports the Convention of the Rights of Persons with Disabilities with freedom of expression and opinion and equity of social participation (Goggin, 2016). The NRS app provides the opportunity for people with speech impairments to be independent at home and know that they can contact and communicate effectively with emergency services or other people (Alper et al., 2015). At the Australian Communication Consumer Action Network National Conference, the NRS app won the award for the most innovative app designed for people with a disability. The winning app was chosen based on its ability to be used by the majority of people without the need for modification, ease of use, value for money, universal design and accessibility (Cooper, 2015). The NRS app also won the M-Government service award in the international social affairs category in 2016 at the World Government Summit for innovative services and solutions in mobile technology use (Department of Communication and the Arts, 2016).

**General Comments:** This app can be used by a developmental educator to support and teach the skills of communication for people who have a restricted ability to use a conventional telephone. It also is a great app for supporting independence and relieving the stress of someone who is staying at home alone. It can alleviate worries about contacting a person/emergency services in case of an emergency.
SmallTalk Dysphagia

Operating System: IOS

Location: iTunes Store

Cost: Free

Description: SmallTalk Dysphagia (Lingraphica, 2015) is an application for people who have dysphagia (problems with swallowing). It contains 50 pre-recorded phrases that a person can choose from to outline their eating and drinking equipment, meal assistance, medications, diet modifications, and compensatory swallowing treatment techniques. It uses vocabulary and icons, in a natural human voice, to convey to other people what modifications (cups, bowls, etc) are required for the PWD’s swallowing needs. There are also four videos that demonstrate swallowing techniques for the user to practice.

Alignment with the UDL guideline: The SmallTalk Dysphagia app aligns with the UDL guidelines of multiple means of engagement and sustaining effort and persistence (8); provides for multiple means of representation, providing options for comprehension (3); and, provides multiple means of action and expression and communication (5). It can be optimised for individual choice and sustaining effort by the user creating their own icons and phrases and videos to support their swallowing exercises. The app also provides for comprehension as well as expression, using picture-based vocabulary to help other people understand the needs of the PWD and any unique requirements. The videos can assist not only the PWD with completing the exercises but provide an instructional guide for their carer. By providing pre-recorded phrases, users can communicate their swallowing requirements and any challenges associated with it using natural, human voices.

Curriculum area: SmallTalk Dysphagia supports the WHODAS 2.0 Domain: Self-Care D3.3 – Eating (Ustatun et al., p.50, 2010). This app aligns with the area of Health and Physical Education of the Australian Curriculum (ACARA, 2018) and the general area of life skills. It is suitable for people aged over four years, with the required physical and cognitive abilities. This app encourages independence in self-care skills.

How does the app meet the National Disability Standards? It supports Standard Two: Participation and Inclusion, and Standard Three: individual outcomes of the National Disability Standards by allowing for independence and active participation in the community through the ability to successfully communicate without the need for support (DSS, 2012).

How the app changes pedagogy (SAMR)? The app would be considered as an Enhancement - augmentation model by substituting the task of swallowing exercises that would normally be provided by a support person and by allowing the user to communicate using the app, which would have been either provided by another person or a communication book.
How the app encourages person centred planning? SmallTalk Dysphagia encourages person centred planning as it provides exercises and communication tools that are tailored to the individual user’s needs. A person-centred focus uses a biopsychosocial viewpoint that encourages selection of interventions, goal setting, and the prioritisation of goals to be achieved by the individual (Dulmen et al., 2015). This app allows the individual to address all these areas and therefore supports person-centred planning.

What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? This app supports communicating with other people. Connecting with the exercises in the app also allows for connecting with other people, such as a provider or the community; collaboration with professionals using effective exercises; and, creating and curating by using individualised phrases that can be stored and accessed to use with other people, especially in the community (Beckingham, and Nerantzi, 2015).

Evidence from the literature that the app is capable of the claims made: Rehabilitative exercises, including swallowing exercises, have been shown to improve long term outcomes for people with Dysphagia (Kraaijenga et al., 2017). These types of exercises involve retraining the neuromuscular system to encourage neuroplasticity (ability of the nervous system and brain to change in structure and function) (Langmore, and Pisegna, 2015). Swallowing exercises are promoted by speech therapists to prevent degradation of the swallowing musculature (Kraaijenga et al., 2017). By purposefully swallowing a person improves their swallowing technique (Langmore, and Pisegna, 2015). To encourage neuroplasticity, swallowing should be of an intense level and duration (Langmore, and Pisegna, 2015). SmallTalk Dysphagia provides exercises and times that are required to achieve these levels and duration for a person with Dysphagia. As adherence to treatment is of importance for achievement of goals, this app encourages a person to perform the swallowing exercises in the comfort of their own home and without the additional need of a professional to show them the correct techniques if they forget the movements involved (Govender et al., 2017).

General Comments: A developmental educator could use this app to encourage a person to learn to swallow and continue exercising with a speech therapist supported program. It can also provide the DE with another option to support a person with swallowing issues and that has difficulty communicating to use it as an AAC. The use of the videos can also be used as an instructional video for a DE as it depicts the movements required for a supraglottic swallow, a supersupraglottic swallow, the Mendelson Manoeuvre and an effortful swallow (Lingraphica, 2015). Adherence to exercises has been shown to improve the outcomes for people with dysphagia (Govender et al., 2017). Therefore, the use of this app along with other behavioural interventions that encourage adherence to exercising can be incorporated to support the PWD.
App 15

**Reviewer:** Vicki Bullock

**Ability8**

**Operating System:** IOS

**Location:** iTunes

**Cost:** Basic Plan - $5 a month or $55 a year; Advanced Plan - $15/mo. or $165/yr.; and Complete Plan - $25/mo. or $275/yr.

**Description:** Ability8 provides a way for the user to create a care plan not only accessible to themselves but to selected carers, therapists, doctors, teachers and family members. It provides a storage area for all photos, appointments and files. It also allows the user to create a profile including special care instructions, contacts, funding details, required medications, employment information, goals, preferences for clothing and equipment use. It acts as an effective diary for the user. The advanced plan has an additional feature that allows the user to schedule appointments with carers, therapists and other professionals. It also provides timesheets that includes cost, date, time worked and notes from the carer about duties performed. This level is for people who are service provider managed. The complete plan allows for more control over the management process, with a function that tracks claims from NDIS and allows users to pay for services from carers and suppliers. This can be created by either the person with a disability or their carer. It is designed for users who are self-managing their NDIS plan.

**Alignment with the UDL guideline:** Ability8 aligns with Principle 1, ‘to provide multiple means of representation’ (CAST, 2011). A variety of ways for displaying information [1.1] is offered as there are both audio and visual displays. Audio alerts and physical ‘buzzing’ alerts offer alternatives to audio information [1.2]. It also provides comprehension options [3.1] through pictures and text that provides background knowledge. It highlights big ideas and relationships through the interactive diary, timesheet and payment options [3.2]. Principle 2, ‘to provide multiple means of action and expression’ (CAST, 2011) is addressed as options are varied within the three plans [4.1]. There are multiple forms of media for communication [5.1] through message or telephone options. The executive functions option is strong with this app through goal setting, planning, information management and progress monitoring tools [6.1, 6.2, 6.3 and 6.4]. Principle 3, ‘to provide multiple means of engagement’ (CAST, 2011) is provided by individual choice of the user in functionality and level of self-direction [7.1], relevance and authenticity as the app tailors information that maintains the focus on the user’s needs [7.2]. Threats and distractions are eliminated by the security features of the app. User email and password is required to operate the app’s features [7.3]. It fosters collaboration and community [8.3], as access to the care plan is available to all nominated parties. Self-regulation is a priority of the app as the user can choose carer or specialist information including timesheets and payment options, create and book their own appointments, organise and set goals, prepare a total care plan including medication alerts, equipment needs and wardrobe planning [9.1, 9.2, 9.3] (UDL Guidelines, 2018).
Curriculum area: Despite this app being designed for ages 4+, this app is a secure subscription app and so it would be difficult to use as a teaching app, especially in the primary or high school setting. However, in a differentiated disability setting, it could be used to teach Life Skills and Self Care (Hume Region Special Schools Curriculum, 2010). There would be a focus on Maths for calendar use and cost/payment options. Also, it could be tailored to teach English when using the diary function. Technology curriculum (ACARA, 2014) would be also be addressed when learning how to use the app. Based on the complexity and security element of the app, it would only be suitable for people with a disability in high school or post-secondary.

How does the app meet the National Disability Standards? This app addresses the needs of the individual according to the National Disability Standard Three ‘Achieving individual outcomes requires collaboration between the individual and service provider to ensure active choice and decision-making’ [3.1, 3.2 and 3.5]. It provides access to a variety of carers and therapists, the user can collaborate with family, carers, therapists, teachers and doctors.

How the app changes pedagogy (SAMR)? The app could be used as a Substitution for a diary. However, the diary has been augmented as it can be shared with others involved in the care plan. It has been modified to include extra functions when the advanced plan is selected, as the app can be used to choose carers. The complete plan is a redefinition of a diary as it allows all the functions of planning, booking and paying for carers or professionals, including NDIS payments. It also provides a record keeping function when completed.

How the app encourages person centred planning? Person centred planning focuses on listening and learning to what an individual and their family wants and needs in order to fulfil their goals for living (ACU, 2009). This app provides three levels of support depending on the needs of the individual or carer to assist in the planning of a total care plan. It can be tailored as a diary, a way to book the care and specialist therapies required or as a complete management system, including management of costs and NDIS contributions.

What area of a 21st Century approach to Teaching/training does the app encourage (SCs). This app encourages connectivity as the app can be used to contact family, friends, carers and professionals. Community is at play, as there is a community of carers and specialists that are available to the user. It also embraces collaboration as there is a function that allows access to relevant parties in the care plan of the person with a disability. Creativity is encouraged through the clothing selection and the goal-setting features. Curation is at play as all relevant files, photos, contacts, care plans, even goals can be stored in the one place.

Evidence from the literature that the app is capable of the claims made: Ability8 appears to be a comprehensive way to plan, control and share disability services for the user. Teachers could use this system to assist students’ autonomy. Smith (2015) proposes that autonomous learners can be supported through differentiation.

General Comments: Ability8 has been reviewed only once since its release. This was on the Facebook page (https://www.facebook.com/ability8/) where it was given 5 stars.
Reviewer: Vicki Bullock

Self Care - App 16

Calm

Operating System: IOS, Android

Location: iTunes and Google Play

Cost: 7 days free and then a yearly subscription of $59.99.

Description: Calm is an app that provides calming meditations, including music, images and mindfulness sessions that are timed. It also contains sleep stories, a window to purchase recommended products on Amazon, such as ‘Calm Sleep Mist’ and a new ‘Masterclass’ from mindfulness experts is added each month. It includes reminders in the form of e-mail and musical alerts. It has a tracking feature that includes a calendar designed to motivate continuous daily activity. Calm also offers a customisable breath training program. The app has over 100 guided meditations covering topics such as gratitude, anxiety, stress, awareness, patience and other areas of mental health. Calm can connect to Apple health when using the Apple version. Each session can be rated and there are opportunities to share views on Facebook and other social media.

Alignment with the UDL guideline: Calm provides multiple means of interpretation as it provides options for perception [1.2 and 1.3] in auditory and visual displays. Information display can be customized [1.1] to set favourites, reminders and to select mindfulness settings. It provides multiple means of action and expression [4.1] as methods for response and navigations are varied, e.g., there are different navigation panels within the app and the opportunity to respond to and evaluate meditations can be posted directly to social media. There is multiple media for communication [5.1], through music, voice, imagery and community engagement. There is graduated support [5.3] as there is a beginner’s function and an opportunity to experience a trial period before purchase of a yearly subscription. It provides options for executive functions [6.1, 6.2 and 6.3] as there are supports for goal-setting, planning and managing within the content of the mindfulness meditations. The app provides progress monitoring [6.4] as a feature within the profile function. Calm also provides multiple means of engagement with a variety of options to create interest [7.1]. It fosters collaboration, community and mastery of feedback [8.3 and 8.4] with the review option available at the end of each session. This app provides options for self-regulation through mindfulness meditations, sleep stories and reflection [9.1, 9.2 and 9.3] (UDL Guidelines, 2018).

Curriculum area: The app is designed for use with children 4+, so personal and social capabilities could be built using the Calm App within Humanities and Social Sciences as well as within Health and Physical Education (ACARA, 2014). This could be achieved across all age groups. Mindfulness is used in modern classrooms as it promotes healthy approaches to classroom, family and work communities. It could also be used to inform the areas of values, rights and responsibilities. The mindfulness content of calm, focus, relationships, self-care, personal growth, resilience and inner peace all contribute to a comprehensive understanding of what is required to understand an individual’s and a group’s values, rights and responsibilities.
How does the app meet the National Disability Standards? This app addresses the first and second
National Disability Standards, i.e., ‘Rights’ as well as ‘Participation and Inclusion’. The
mindfulness meditations contribute to knowledge of how to prevent feelings of abuse, harm,
vioence and neglect. It works with individuals and their community of family and friends to
enhance positive feelings of inclusion and meaningful participation.

How the app changes pedagogy (SAMR)? The app enhances the teacher’s pedagogy and acts as an
augmentation. This means the app acts as a ‘direct tool substitute’ for the teacher’s ability to
provide suitable mindfulness meditation. There would be functional improvement as the music,
voice and content are synced for best results.

How the app encourages person centred planning? Calm allows a teacher to provide a person-
centred approach as it focuses on the individual and how they are feeling, their wider social
network can be involved and there is continual learning of positive outcomes. Calm, through
the mindfulness content and self-reflection opportunities, provides encouragement for control
over an individual’s feelings of worth and self-efficacy.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The Calm
app encourages Connectivity as it allows an individual to connect to a collection of ideas and
thoughts that promotes independence and control within their lives. These ideas can be shared
with family and friends through social media, promoting well-being.

Evidence from the literature that the app is capable of the claims made: The Calm app is designed as
a tool to help manage anxiety, sleeplessness and depression. It was voted 2017 App of the Year
by Apple. Research to support the idea that mindfulness improves stress and anxiety includes
the following summary statement from Leonard, et. al., (2018) when they used a similar
mindfulness app combined with a sensor band to explore its effects on mental health in
adolescent mothers: “Use of the app...increased their identification and understanding of their
emotions in a variety of stressful situations with their children, peers, and family, which in turn
helped them engage in more adaptive emotion regulation and behavioural strategies.”

General Comments: The Calm app would be a useful tool both in the classroom and in the private
home to prevent negative emotions from causing anxiety, stress and depression. This way of
connecting to themselves, as well as their peers, family and friends should provide an excellent
tool for teaching values education and should help to diminish bullying and emotional isolation
found in our communities, especially for those with a disability.
Our Journey with Tube Feeding

Operating System: iOS, Android

Location: iTunes and CBS Interactive

Cost: Free

Description: This app is produced by the Emily Center at Phoenix Children’s Hospital in the USA. It is designed for families of children who are going home with a feeding tube and includes information on the three different types, i.e., nasogastric tube [NG tube], gastrostomy tube [G-tube] and jejunostomy tube [J tube]. It has been written for both English and Spanish languages. It includes information and resources to ensure understanding of the various tubes and how they function, including care, how to recognise and respond to problems and who to contact for further information. It is written in question style, with PDFs designed to answer questions. There is a Note function so further questions and information can be recorded. There are links to the Emily Center’s website, as well as to Facebook, Twitter and Pinterest.

Alignment with the UDL guideline: It provides Multiple Means of Representation as it is written in multiple languages [2.3]. It supplies background knowledge [3.3] which is activated through the ‘teach back’ feature of the app. Parents are required to ‘teach back’ to the medical team to ensure all elements of the tube feeding care and process is understood before leaving the hospital. It provides multiple means of action and expression as it supports planning and strategy development [6.2] through the supply of information and provides a way to monitor progress [6.3] through the star recording function. A star is awarded when ‘teach back’ is carried out successfully to the health care team. It also provides multiple means of engagement [7.1 and 7.2] as it optimizes individual understanding, relevance and autonomy. It fosters collaboration and community [8.1] via Facebook, Twitter and the Center’s website. It facilitates individual coping skills [9.2] through understanding and aids in the development of self-assessment [9.3] using the star feature (UDL Guidelines, 2018).

Curriculum area: While the app is designed for use with parents of children 17+, this app would be suitable for the curriculum areas of Health and Science in both primary and high school settings (ACARA, 2014). If a child has a feeding tube at school, it would be valuable for all members of the classroom community to be aware of its function and care. This would allow the person with the feeding tube to feel included and it would also serve to normalise the presence of the feeding tube for the rest of the class. Exploration of the function of the feeding tube would be a valuable science lesson, exploring how our anatomy works and what can be used to substitute the body’s normal function. This would be suitable for Primary and High School aged children.

How does the app meet the National Disability Standards? Standard 6, Service Management is relevant in the following way - 6:4 The app has monitoring feedback, learning and reflection to support continuous improvement. Also, Standard 2 is addressed – 2:2 Where appropriate, the service works with an individual’s family, friends, carer or advocate to
promote community connection, inclusion and participation. The ‘teach back’ feature ensures information is accessed and understood by family members before the feeding tube is taken home.

How the app changes pedagogy (SAMR)? The app is an Enhancement. It acts as a direct substitute for an instruction manual but with functional improvement. It is an augmentation that enhances the way the information is delivered, and the knowledge is then to ensure carer and patient’s understanding of the function and care of feeding tubes.

How the app encourages person centred planning? It tailors specific support about feeding tubes to parents in partnership with the hospital. The knowledge of parents is checked before the child and their feeding tube is released from the hospital.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? It creates and provides access to community through Facebook and Twitter. It provides curation within the app itself through the display of information and via Pinterest.

Evidence from the literature that the app is capable of the claims made: Lyman, et. al., (2017) states “There is a lack of knowledge on the part of caregivers who need to place nasogastric (NG) tubes in children for enteral nutrition therapy”. This app serves to address this lack of knowledge by providing relevant information and care. The ‘teach back’ function ensures that caregivers fully understand the care and use of feeding tubes before they take their children home from the hospital. Ongoing notes can be made, and access is provided to communities of families who are experiencing the same medical journey.

General Comments: As this app provides the fundamental knowledge needed to care for and maintain a successful feeding tube, this app could be used as a teaching tool for a lesson on the varied functions and use of feeding tubes. Teachers could ‘ask the questions’ as displayed on the app and children could be prompted to ‘find the answers’. This could also be done in pairs using the ‘teach back’ approach. This could be a Health or Technology lesson in upper primary or high school.
Round Health – Medicine and Pill Reminder

Operating System: iOS
Location: iTunes
Cost: Free

Description: Round Health is a scheduled reminder to take medication, both prescribed and over the counter. The app allows a user to create a profile and an email account and a collaborative medium is available through Facebook and Twitter links on the app. Medicine details are recorded under ‘My Medicine’, including strength and number needed to be taken per dose. The doses are then programmed onto a daily timer (up to 4 doses can be programmed per day). There is a programmable window of times (with alerts ranging from ½ hour to 2 hour reminder windows). All medications can be added to the app and there is a function that allows a user to discontinue a medication when necessary. The app also lets the user know when there are only 5 pills left, to allow for reordering as necessary. The ‘Today’ function allows a view of the scheduled dose times and a tick records that the medication has been taken. App data can be curated and sent to email, or other storage areas located on the phone device. Siri and Search can use data from this app as well.

Alignment with the UDL guideline: The app provides multiple means of representation. It offers ways of customizing the display of the information [1.1] in the ‘My Medicine’ and ‘Today’ views. It provides multiple means of action and expression [4.1] through push notification settings and the ability to export app data. It provides options for executive functions [6.2, 6.3 and 6.4] through; planning strategies for medication, including scheduling of doses; management of resources which consists of an alert built in to notify when resources are getting low; and a capacity to monitor progress through the tick feature when a dose has been taken. It provides multiple means of engagement through the fostering of collaboration and community [8.3] via Facebook and twitter; and provides options for confidence in the self-regulation of medication [9.1, 9.2] (UDL Guidelines, 2018).

Curriculum area: This app would be suitable for the curriculum areas of Maths and Health (ACARA, 2014. This app would help individuals who are taking medication to be more independent and responsible for their own treatments. As it is designed for ages 12+, it would need to be done in conjunction with adult supervision in a school setting. However, people with disabilities in a secondary, or post-secondary setting, could use this app to address outcomes within the Hume Region Curriculum (2010) - Independent Living Skills, Personal Care, Stages 4 to 15: Co-operates with the administration of personal medication (Stage 4).

How does the app meet the National Disability Standards? This app addresses standard 3, Individual Outcomes. It promotes a person-centred approach to self-management. It allows individuals to lead and direct their own services and supports. This app leads to autonomy and safety related to the timely taking of medication.
How the app changes pedagogy (SAMR)? This app is an augmentation – where the tech acts as a direct tool substitute, with functional improvement. Instead of watching the clock, the tool allows the user to relax and wait for the alerts to indicate what doses of medication are needed and to record when and what medications were taken. It also allows for the reminder of ongoing supplies and the data can be saved to email, Facebook or twitter.

How the app encourages person centred planning? This app tailors support to the individual. It allows the person involved to be in control of their medication. It also provides for community participation through the inclusion of links to Facebook and twitter.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?
Connectivity – via Facebook and Twitter sites. The app’s ‘What’s New’ section claims Round is soon to be combined with pharmacy delivery store Alto, which also supports Connectivity; Collaboration – carers, family and medical practitioners can receive data from the app; and Curation – a place to store data recorded on the app.

Evidence from the literature that the app is capable of the claims made: Salgado, et. al., (2018) conducted a study to determine app features necessary to “promote independence in the management medication process by young adults with developmental disabilities using a Delphi consensus method.” During this study, the following features were identified as essential: medication list, reminders, administration records, automatic refills through pharmacies, links to drug information sources, privacy settings, password protection, script refill reminders and the ability to share medication information with providers, family, friends and carers. Round health has most of these features, with a future additional function of a link with a pharmacy to dispense refills.

General Comments: Within the disability sector, this app would be an excellent tool to teach independence and responsibility for the taking of medication. The Hume Region Special Schools Curriculum (2010) addresses this need and requires adherence to the outcome of co-operation with the administration of personal medication. This augmentative tool would be an excellent tool for teaching this outcome.
Reviewer: Vicki Bullock

**RR: Eating Disorder Management**

**Recovery Record**

**Operating System:** IOS, Android

**Location:** iTunes and Google Play

**Cost:** Free

**Description:** RR is a mobile app that provides several features and functions to assist someone with an eating disorder. Functions include: record keeping of meals, including thoughts and feelings at the time; a jigsaw game that motivates and rewards; customisable meal plans; customisable ring tones and alerts; a feature to share meal and feeling logs with professionals and carers; access to a free telephone helpline at the Butterfly Foundation in Australia; access to like-minded communities, with options to share and receive positive reinforcements and encouragement; access to clinicians and to programmed meditations and positive affirmations.

**Alignment with the UDL guideline:** The app RR provides multiple means of representation as it offers ways of customising information display [1.1, 1.2] from questions about feelings, behaviours and goals, information regarding coping skills, requests for photographs of meals to create logs, links to community and professionals, including access to a helpline at the Butterfly Foundation for Eating Disorders. There are also charts to display eating patterns. It illustrates through multiple media [2.5] wallpaper varieties, emoji’s, text and variable music genres and provides options for comprehension [3.2] through questioning, video instructions and links to clinicians. It provides multiple means for action and expression. [4.1] methods of expression are variable through customisable log questions, pair-up settings for community contact, notification preferences, meal names, meal photos, wallpapers, rewards and affirmation preferences. It uses multiple media for communication [5.1] and provides options for executive functions [6.1, 6.2, 6.3 and 6.4] through scrapbook and rewards for goalsetting, weekly skills and goals for individual eating disorders, meal planners, meal logs using camera, back log meal function, records of thoughts and feelings, links to clinicians and pair-up options to find like-minded community members. RR provides multiple means of engagement [7.1, 7.2 and 7.3], as it is tailored to each individual person’s journey. It heightens goal-setting and relevant objectives [8.1] and promotes collaboration and community involvement [8.3] as outlined above. It provides excellent options for self-regulation [9.1, 9.2, 9.3 and 9.4] through self-monitoring logs, motivational goal-setting and coping strategy information (UDL Guidelines, 2018).

**Curriculum area:** The area of the curriculum relevant for this app would be Health and PE – Personal, Social and Community Health outcomes (ACARA, 2014). As the app is rated for ages 12+, all children from upper primary and high school would benefit from the strategies to counteract eating disorders presented in this app.

**How does the app meet the National Disability Standards?** The app is designed to supply differentiated information, tailoring the app to suit people with a variety of eating disorders.
Standard 3, Individual Outcomes, is the Standard most relevant to the use of this app. With support from clinicians and carers, individual people with eating disorders request services, implement eating logs, source coping strategies and engage in dialogue based on personal strengths, needs and goals.

**How the app changes pedagogy (SAMR)?** This technology is a transformation of how eating disorders are generally managed. It is a modification as the technology allows for significant task redesign in the following ways:

- photographic log of food eaten, including prompted thoughts and feelings;
- Information can be uploaded to a clinician for monitoring and support via the app;
- like-minded communities can be used for support and encouragement;
- the app includes a helpline for emergency situations;
- it can increase motivation through rewards and positive affirmations;
- goal setting is tailored to individual eating disorders; and
- displays can be tailored for individual design through selection of wallpapers, alerts and music rewards.

**How the app encourages person centred planning?** The app provides a focus on the individual person, who they are, how they feel, their goals and aspirations and their daily reactions to their eating disorder. Teachers can show how there must be a partnership between the individual, their professional clinician and the wider community when helping someone to combat negative thoughts and feeling associated with an eating disorder.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The RR app fosters Community with like-minded people; Collaboration with clinicians and carers; Creativity in planning meals, food logs, goals, rewards and reflections; and Curation of food logs, including graphs and reflections.

**Evidence from the literature that the app is capable of the claims made:** Sadeh-Sharvit, et. al., (2018) claim that while current treatment for eating disorders require face to face meetings with qualified clinicians, “stigma, inadequate insurance coverage, geography, and gaps in dissemination of evidence-based interventions often impede access to treatment for EDs”. The RR app would allow patients to work with a qualified Clinician, in their own homes, to allow for a more effective way to receive treatment. The use of apps for people with eating disorders holds the potential for cost-effectiveness of assessment and intervention and greater patient access (Sadeh-Sharvit, et. al., 2018).

**General Comments:** This app could be valuable to developmental educators and teachers as a way to promote understanding of eating disorders, especially the thought-processes surrounding the development of an eating disorder. It would allow students to understand, empathise and offer encouragement to people with eating disorders. This app could also provide a way to improve the efficacy of treatment so that individuals could engage in self-care that improves their overall WHODAS score and their independence.
**Reviewer:** Jenna Nottle

**Self Care - App 20**

**MyFoodBasket**

**Operating System:** IOS

**Location:** iTunes App store

**Cost:** $1.49

**Description:** MyFoodBasket (Schenectady ARC, 2015) is an app designed to assist people with the WHODAS Domain 3 of Self Care, specifically, this app addresses D3.4 by encouraging independent food preparation and shopping and by making it more possible for people with intellectual or developmental disabilities to live alone, by being able to plan and create food-shopping lists themselves. The app provides health and product information on a large range of common shopping products and allows users to select ingredients based on nutritional value using the health guidelines provided. Once the user has selected items from the desired categories of food groups, the user is able to create a portable/ printable shopping list to take to the store which can then be ‘ticked off’ as they have been located.

**Alignment with the UDL guideline:** The app conforms to the UDL checkpoint 7.2 “Optimize relevance, value and authenticity”. Specifically, the app is “Personalized and contextualized to learners’ lives”, the app contains a very wide range of foods and food groups for different lifestyles but also provides users with the custom option to add their very own food products to their plan by photographing the product and manually entering the details themselves. It also employs UDL checkpoint 6.1 relating to executive functioning, guide appropriate goal setting, in that it provides food guidelines and shopping checklists for scaffolding goal-setting (CAST, 2018).

**Curriculum area:** MyFoodBasket assists in the teaching of Health and Nutrition to young adults learning to plan and create healthy eating choices. By swiping on a food category, the user can read practical advice on purchasing various subcategories of the food. For example, click on Poultry, and you will be led to a list of subcategories, the first is “Fresh Chicken and Turkey- Avoid eating skin. White meat is better”.

**How does the app meet the National Disability Standards?** MyFoodBasket app meets the National Disability Standard of Services in that it targets individual outcomes- it allows users to plan and regulate their own healthy diet to the degree they wish by providing them with the ability to make informed shopping decisions, (DSS, 2013).

**How the app changes pedagogy (SAMR)?** This app transforms shopping lists in the way users choose and create and use their shopping lists. Learning to create and follow a shopping list using technology is not new, but the app modifies the way lists and meal plans can be created by providing easily accessible product and nutritional information, and shopping guidelines to assist users while they shop. The user also no longer must write a shopping list but can simply choose from the categories and food provided by swiping on the appropriate image.
How the app encourages person centred planning? This app provides the user with information, and the ability to make more informed choices to meet their own personal preferences and dietary needs. This is a person-centred approach in that it “situates power with the person and their allies” (Department of Aging, Disability and Home Care, 2009, p3). This technology aims to empower its users by providing them with the information they need to govern and regulate their meals more easily based on their dietary wishes and health requirements. The portable and visual nature of the app assists the individual in the shopping process by providing customized and detailed photographs of chosen products to find and an interactive checklist that can be ticked off as they go, enabling independent planning and shopping.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages Connectivity, by connecting users with the information they require to independently plan meals and follow shopping lists (Carey, 2013). The app assists the user in taking responsibility of their own food planning and shopping. By providing individuals with added confidence to shop independently, it also connects the user to the wider shopping community.

Evidence from the literature that the app is capable of the claims made: Bouck, Satsangi and Bartlett (2017) assert that “The research literature is rich with studies involving self-operated prompting systems (SOPS) – picture, audio, video – to support students with intellectual disability (ID) and autism spectrum disorder (ASD) in acquiring life skills” (p. 605). Although their study focussed on the success of using video modelling to assist with grocery shopping, teachers participating in the study claim that out of the three SOPS, video modelling took the most time and effort to prepare and was less practical than using picture or audio prompts on a larger scale. This app not only provides detailed visual prompts and information, but it is also easily portable, and the list is chosen and prepared by the individual themselves.

General Comments: This app provides health education and training opportunities for teachers of students with a disability. It is a valuable resource for teaching about nutrition, food ingredients and healthy food choices. It helps to teach the transferable life skills of making healthy decisions and meal planning as well creating and checking off shopping lists.
Toothy: Brush, Floss, Rinse!

Operating System: iOS

Location: iTunes App store

Cost: Free with optional in-app purchases.

Description: Toothy: Brush, Floss, Rinse! (Yahenskyi, 2018) is designed to help people with a disability by reminding them to brush their teeth, provide them with a timer and play music to brush along to. It also contains hygiene videos to teach people about basic hygiene practices for example, flossing how to floss your teeth. Another thing this app does is offer reminders to renew their toothbrush every three months. There is an option to subscribe to Toothy Pro for $0.99 a month. The Pro version allows you to track personal goals and removes the advertisements. To sign up for the Pro version, the user is prompted to prove they are an adult with a maths question “4 x 4”.

Alignment with the UDL guideline: This app aligns with the UDL guideline 8.1 regarding the provision of options to “Sustain Effort and Persistence- Use prompts or scaffolds for visualizing desired outcomes,” (CAST, 2018). This app offers three different voice over prompts to assist the user in brushing their teeth. It also provides video animations that model how to brush, floss, and rinse.

Curriculum area: This app can be used to teach about health and hygiene habits. It’s suitable for anyone who struggles to remember basic teeth brushing habits. The timers and ‘how to’ videos make it appropriate for a very young audience-children still learning how to brush their teeth. Parents can use this app to teach their children healthy brushing techniques and also to assist them in establishing a routine. It can be used to promote independence in young children, taking responsibility for their own teeth.

How does the app meet the National Disability Standards? This app allows users the freedom to choose how many times they want to brush their teeth a day (it recommends twice), it provides options for when and how often they want to be reminded to do so and to change their toothbrush. Finally, the app allows users to customize the music they wish played while brushing from and choose songs from their own music library.

How the app changes pedagogy (SAMR)? Regular timers and music on a phone can be substituted with this app. This app combines both these features, enhanced by providing reminders and modelling videos made available in the same spot. The transformative aspect of this ap is in its organisation and accessibility. This app allows young children or people with disabilities to become more independent and self-reliant.

How the app encourages person centred planning? The Australian Catholic University (Department of Aging, Disability and Home Care, 2009) describe a person-centred approach as one that “Focuses on organising individualised, natural and creative supports and reduces reliance on
the service system.” (p.3). This app allows the users to personalise the support it provides and by encouraging self-sufficiency, reduces the need for additional supervision and assistance in maintaining oral hygiene.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The app encourages Critical Thinking (Carey, 2013) it promotes self-planning and the Pro option allows for self-reflection and monitoring of personal goals though tracking, providing feedback and statistics. For example, the app will track how many times it has been used and scheduled dentist appointments and times that have been missed.

**Evidence from the literature that the app is capable of the claims made:** A Google scholar search of this app did not turn up any peer reviews but the benefits of audio and visual prompts as well as timers and reminders can be very successful in helping those with intellectual disabilities to live more independently (Australian Dental Outreach Foundation, 2018). It is noted on the Dental Outreach - Disability Services website (2018) that “People with dementia or other intellectual disabilities may require no, or only limited assistance, or may simply need reminding about their oral care.” One technique they suggest for assisting people who need physical assistance is “Giving the person something familiar such as a favourite toy, pillow or cushion may provide them with a safe and pleasant distraction while you clean their teeth,” (Australian Dental Outreach Foundation, 2018). The option this app provides for listening to a song of their choice while they brush serves a similar purpose and additionally, helps to ‘time’ the session for the user.

**General Comments:** This app could be very useful for parents or carers of a person with a disability in setting them up to live on their own or particularly useful for someone with an intellectual disability who may benefit from the additional prompts and support through consistent reminders and engaging music.
Reviewer: Jenna Nottle

Equip Myself

Operating System: iOS, Android

Location: App Store, Google Play

Cost: Free

Description: Equip Myself (2016) is a complex app developed by the Independent Living Centre in Western Australia. It has several functions and links, but its main aim is to help people with disabilities to identify possible assistive technologies that can benefit them and helps them identify areas in their daily life where assistive technologies could be incorporated. It assists with WHODAS Self-care domain, specifically D3.4 by supporting people to function independently alone at home alone, it provides a virtual world with options to explore different environments where assistive technology may be useful, including work, home, leisure and sports and mobility.

Alignment with the UDL guidelines: This app aligns with multiple UDL guidelines, one of the most relevant would be 7.1 “Recruiting Interest by individualizing choice and autonomy” (CAST, 2018). The app allows the users to customise their own use of assistive technologies by providing virtual environments and situations for them to explore different practical options and solutions, so they can pick and choose what might benefit them personally. Checkpoint 6.3 “Facilitate managing information and resources,” is also well aligned with this app, (CAST, 2018). When reading through the stories on the app, the users have a voice option which will read aloud the page, as well as a text size button to for people who are vision impaired. This follows the first checkpoint of the UDL Guidelines in that it “provides multiple means of representation”.

Curriculum area: This app is suitable for young adults and adults looking to become self-sufficient by exploring and embracing possible technologies in different areas of their life. The category “Leisure and Sports” can certainly be used to explore options with Health and PE students. The app in general can be used to explore technology as a subject. It can also be used around Life Skills, opening up student minds to the possibilities of technological assistance for the purpose of daily living.

How does the app meet the National Disability Standards? This app meets the National Disability Standard of meeting Individual outcomes and allowing users to make important decisions about their life (DSS, 2013). It provides two different options for exploring assistive technologies. There is a ‘search’ feature where the user can type in keywords to explore the National Equipment Database (NED). Another option is to use the Stories Feature, where you can click on a specific area, and read about real life stories of people who use technologies to improve their quality of life. The app is supported by a range of technology organisations and has a wide range of options for the user.
**How the app change pedagogy (SAMR)**
This app transforms the way students and individuals with a disability explore and select assistive technology. Not only does it introduce the users to new technologies that they may not have heard of before, but it directs them to current technologies that are already in use, allowing them to review the products through listening to and reading about real life stories and examples of how the technology has been used in the past. The virtual reality feature of the app presents real life solutions to every day obstacles that a person with a disability may face.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)**
This app encourages creativity, opening people’s minds to new possibilities and opportunities to improve the quality of their lives. It also encourages critical thinking by requiring the user to evaluate their current living and working habits and requirements and finding places where assistive technologies could fit.

**Evidence from the literature that the app is capable of the claims made:**
Great Schools Staff (2018) discuss the importance of considering the individual’s context when deciding on appropriate assistive technology devices, “Technology that is appropriate in one setting may be quite inappropriate in another. Therefore, it is important to consider the selection of technology relative to all settings where she is likely to use the tool (e.g., school, home, work, social, and recreational or leisure environments)” (p. 4). The virtual reality feature of this app visually places the user into different environments to help them choose technology specific to their needs.

**General Comments:**
This app is promoted on the Living Centre website where a link to a survey is available for feedback on the app, (Equip Myself, 2018). It provides educators with a visual and realistic way to represent options for their students, together they can discuss real life limitations and benefits of alternative technologies and options they may have not ever considered before.
**Weather Duck**

**Operating System:** IOS,

**Location:** Itunes Store

**Cost:** Free

**Description:** Weather Duck by Hendri Soerianto (2018) provides fun weather notifications as well as informs the user of how to wear based on appropriate weather choices. It is an extremely basic app - it has a single screen (besides a setting option that allows you to choose between Fahrenheit and Celsius). The screen displays a cartoon duck and at the top in large colourful font, it displays your current location (city or town name) and provides advice at weather to rug up or not. For example, currently, it reads “Gawler, 6 degrees, you better wear a thick jacket, it will be clear tonight”. This app assists in the WHODAS Self-care domain D3.2 relating to getting dressed, it allows users to independently choose what clothes they want to wear to accommodate for current temperatures.

**Alignment with the UDL guideline:** This app aligns with the UDL checkpoint 9.1 “Promote expectations and beliefs that optimize motivation,” (CAST, 2018). Unlike other weather apps, this app assists in self-regulation, if a person with a disability struggles to dress to the weather, either due to sensory processing disorders associated with disabilities such as autism or poor memory or cognitive abilities associated with intellectual disabilities, it acts as an entertaining cue, informing the user of the weather while prompting them with suggested attire suitable for their current location.

**Curriculum area:** This app comes with a cute cartoon duck that quacks when you tap it. It would likely amuse a younger cohort of students but, its function could be useful for a range of students and ages depending on their personal needs and self-regulation skills. The practical nature of this app means it can be beneficial to any age of students or adults.

**How does the app meet the National Disability Standards?** This app meets the National Disability Standards in that it supplies a service that can assist an individual with a disability to comfortably participate in the community without having to rely on a nurse or carer to determine what they will wear to an event. The app encourages independence in dressing one’s self, the users can confidently follow the advice of the app and easily incorporate it into his or her daily routine, (DSS, 2013).

**How the app changes pedagogy (SAMR)?** This app substitutes the user having to web search, listen to the radio or news for the weather, and automatically personalised to the geographical location of the user. It is an augmentation of regular weather apps, in that it provides clearly stated, basic clothing advice, to assist people in dressing appropriately depending on if it is currently raining, sunshine or windy. In giving clothing advice, it also considers weather predictions for the near future and so can be used as a planning tool for someone attending an event or planning to go out.
How the app encourages person centred planning? This app allows teachers and carers to provide person centred approaches by “organising individualised, natural and creative supports and reduces reliance on the service system,” and by “Offers beyond what is currently available and works towards the future.” (Department of Aging, Disability and Home Care, 2009, p13).

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs) This app connects the users to real time, local information. Teachers and trainers can teach the user how the app can be of use to them daily.

Evidence from the literature that the app is capable of the claims made: There is evidence to show that certain disabilities and sensory disorders can negatively impact on an individual’s ability to dress according to their physical needs and surroundings (Garland, 2014). In a discussion on children with autism for example, Garland (2014) notes that “Safety is the primary concern for children with poor temperature sensation.” (p.76). One technique that they suggest is drawing levels on to taps, to avoid burning during showers and using the sink. In this same way, often students need to be told to ‘remove their jumper’ on extremely hot days or reminded to ‘bring their jackets’ during cold winter days.

General Comments: This app would be most useful for parents of children or teens with a disability. Getting dressed independently and without help is something that most people without severe physical disabilities can achieve, one barrier to people with intellectual disabilities or sensory disorders, is dressing appropriately for the environment they are in. This app gives users straight forward and practical advice on choosing what they will wear. Although it doesn’t assist in choosing clothing according to specific social occasions, it can still help shift this responsibility from carers and provide the users with greater control over their lives.
Reviewer: Jenna Nottle

Self Care - App 24

MyHealthGuide

Operating System: IOS,

Location: Itunes Store

Cost: Free

Description: MyHealthGuide (Maldaba, 2018) app assists with WHODAS Domain 3.4 Self Care-Living alone. It has many functions in helping people with a disability to keep track of their health records and medications. This app is unique in that it is designed as a communication tool between the user and their carers and health care professionals.

Alignment with the UDL guideline: This app aligns with the UDL guideline 4 Providing options for action and expression, - there are multiple ways for a user to input content into this app, users can store and communicate health information and details in video form, by taking photographs, recording audio or writing, (CAST, 2018). This app also clearly meets the UDL guideline of providing multiple options for representation. Users can customise their experience by creating their own profile picture and inserting their name. They can select a preferred font size and colour theme for using the app. This app allows the user to customise reminders for appointments, contacts and share information with whoever they choose depending on their health requirements and needs.

Curriculum area: This app is useful in teaching life skills. It is a tool designed to help the user become more independent by organising their medical history, daily medication reminders and appointments all in one place.

How does the app meet the National Disability Standards? This app encourages individuality and meets the NDS by honouring people’s right to access and participate in services as they wish (DDS, 2018). The degree to which content on this app is shared and utilised is completely up to the user. The user can choose to use the app as a personal organisation tool to remind them of their appointments and so on or they can choose to use it more as a communication tool to pass on valuable information between health care professionals and health care teams.

How the app changes pedagogy (SAMR)? This app completely transforms the way medical information is stored and shared. It gives complete control to the user, who can choose how the information is stored, who they will share the information with and how they choose to present it. One example of such use is provided on the MyHealthGuide website where they describe a situation where a past user of the app has been frightened to visit the dentist. He was able to pre-record the information and details he wanted the dentist to be aware of before he went using the app, (Maldaba Ltd, 2018). In the case of a person whose disability prevents them from using the app, carers and family member can use the app in the same way to maintain and share records on behalf of the person.
How the app encourages person centred planning? This app encourages a person-centred approach according to the DHDAC as it by “Situates power and control with the person and their allies,” (2009, p13), as described previously, total control lies with the user. It enables the user a place to store and control the sharing of their own medical needs and personal health care information.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app allows people with a disability to curate valuable health and medical related information and choose when they share it and who they share it with. It enables them to set reminders for appointments and to take medication. Teachers and trainers can teach users to organise and store their health information using a variety of modes and for multiple purposes and contexts. Also, this app encourages communication between the individual and their families and between users and their health care professionals and teams. Health partners and professionals can be added and stored in the app allowing the user to email and be emailed information including suggestions and health advice.

Evidence from the literature that the app is capable of the claims made: The claims made by this app are that it can help give users back control over their medical information, how it is shared and its use. Control over own medication and appointments is important as it encourages independence and self-sufficiency (Chan et al., 2013). Chan et al. (2013) state that “There are many reasons why providing patients with their health information and tools to manage their health might be beneficial” (p.823) and that “an increasing number of patients are taking advantage of online personal health records (PHRs) or patient-controlled health records (PCHR)s to collect, manage, and control their own health information.” (p.823).

General Comments: This app could be used by teachers and trainers in setting up individuals with disabilities to live on their own or to take more control or responsibility for their health care. The website provides a ‘How To’ video to help introduce the users to the app for those who may not have someone initially to teach them how it works. Once the user becomes more comfortable with using the app they may learn to rely on it for important medical reminders and information, in place of, at least some of the time, carers and family.
iDress for weather.

**Operating System:** iOS

**Location:** iTunes

**Cost:** $2.99

**Description:** The app “iDress for weather” (Brodsky, 2016) is useful to increase independence for children and adults with or without disabilities. It helps to reduce conflicts in the morning routines by providing a connection between the weather conditions and the clothing. The screen of the app provides brightly coloured images with a simple swipe, which is very easy. A user does not need to read or perform maths skills to use them. As everyone feels the temperature differently, due to geography and body functioning, iDress weather app helps to define what is warm, hot, cool, cold and very cold for them. While using this app a single swipe to the left shows clothes matching with forecasted high or low temperatures. For the evening it shows clothes to wear overnight. There are some rules to customise this weather app and to set temperature levels, wind and humidity.

**Alignment with the UDL guideline:** “iDress for weather” app follows UDL Guidelines in diverse ways. Following multiple means to engagement, it encourages self-regulation among the users andsecondly it increases means of representation which enhance perception and provides options for comprehension. In other words, the self-regulation of the users increases as they start to set the options according to their use and find the results as accordingly. Secondly, the daily use of the app makes users more proficient in their work and they become quicker day by day in following the instructions provided by the app. The app fits with the third UDL Guideline of Actions and Expressions, as it provides opportunities to do physical and executive functions. Thus, the app encourages people with disabilities to follow the instructions step by step to make actions and when they start to do the functions directed by the app. slowly and steadily they start to remember the dresses according to the weather or temperature (Cast, 2014).

**Curriculum area:** “The iDress for weather” app is useful for the students to develop their English skills. The app provides a wide range of vocabulary with the pictures and gives opportunities to the followers to practice the various activities by doing things manually. The relation between pictures and the words increases the knowledge of the students about English. The use of this app is mostly applicable for early-mid primary school students to enhance their English skills. The teacher has a crucial role to help the students to use the distinct options on the app which provides numerous opportunities of learning English for them.

**How does the app meet the National Disability Standards?** The “iDress app for weather” is designed to support those people whose memory or cognitive processing is affected with a disability. For example, it can be used effectively for people with autism spectrum disorder or for those who have any other type of developmental disability. This app can also be utilised by those
individuals whose memory is affected by any injury or illness. This app is therefore designed for people having brain injury, Alzheimer’s disease or dementia.

**How the app changes pedagogy (SAMR)?** The use of the “iDress app for weather” helps the teacher to make his/her teaching interesting and entertaining. The app encourages students to follow the instructions and suggest the ideas to do improvements in their daily wearing of clothes. Thus, the students become more proficient and faster to do complete their self-care. The app helps to learn English, thus providing numerous ways for a teacher to instruct students with the countless examples of English. The student’s English learning can also be increased through playing with the diverse options on the app. Similarly, the app enables the teacher to develop the learning of those students who are facing memory or learning difficulties.

**How the app encourages person centred planning?** The use of the “iDress app for weather” by people with disabilities helps to develop their personal skills and encourages their self-confidence. They become independent in doing personal routines. Consequently, it helps to decide what learning strategies can be used by the teacher according to the memory of the student. Thus, the app is useful to develop the English skills among the students and it helps a teacher to make English learning easy, interesting and enjoyable by using this app for them.

**What area of a 21st Century approach to Teaching/ training does the app encourage (SCs)?** The use of the “iDress app for weather” encourages connectivity, develops community of learners and creates innovative ideas and things to develop the learning of the users. The app provides a connection between pictures and the words, which enables the users to understand a connection between their previous and new learning. The app provides several options and their use helps learners to practice new things and ideas. Also, the app provides an option where the users can put their reviews. Thus, this app promotes the development of a community of learners and a connection between the various reviews about the use of the app.

**Evidence from the literature that the app is capable of the claims made:** “The iDress app for weather” gives information in an exciting way that motivates the students to pronounce words and to recall the words (Benmarrakchi, El Kafi, and Elhore, 2017). While using this app students with or without disabilities use options on the app to compose sentences, to do reading and to recall them which enables them to be more efficient English language users (Moats, 2016). Moreover, the one author recommends that language learning is very important to enrich vocabulary, writing, reading and speaking skills (Moats, 2016). Also, the low cost of the mobile apps, their availability and convenience enhance learning opportunities not only in the classroom but outside of the classroom as well (Levy, and Steel, 2015). Those mobile apps which are beneficial to increase vocabulary and helps to learn languages are mostly preferred by people due to how they make their learning easy and enjoyable (Godwin-Jones, 2016). Thus, the “iDress app for weather” provides opportunities for the learners to increase their vocabulary and to sharpen their memory as well, which all are essential to make overall development in language learning.

**General Comments:** The iDress for weather app is very interesting and entertaining overall and is effectual in the teaching-learning process. It is helpful to make improvements in reading and speaking, sharpening the memory and learning by playing among students. The use of the app by early-mid primary school students helps them to learn English.
Reviewer: Harpreet

Stepping Stones- Daily Routines.

Operating System: IOS
Location: iTunes
Cost: $1.49

Description: The app “Stepping Stones-Daily Routines” (Shiny Things Software, 2017) gives a visual representation of daily routines. It provides the tasks/activities by breaking them into required number of steps to make them suitable for the use of the individual. The app provides the visual step with a script to prompt the user. To make the clarity while doing the tasks, the app provides instructions to add speaking, writing and visual prompts. Also, a visual timer is added on the screen of the app to know the partial or completed time by the users. It’s very easy to customise the app. To download a photo or visual representation the camera or photo gallery can be used. This app helps to increase flexibility in writing the language as it provides instructions which are useful for the appropriate individual use. Also, there is an overriding parental lock on the top of the screen which does not to allow saving changes.

Alignment with the UDL guideline: The “Stepping Stones Daily routines” application follows the Universal Design for learning guideline for, “Provide Multiple means of Engagement” as this app helps to increase the independence for every individual which is suitable for the individual needs of the student alignment checkpoint 8.1 “Heighten salience of goals and objectives” (CAST, 2014).

Curriculum area: “The Stepping Stones-Daily Routines” app provides visual representation using pictures which users can follow to complete daily routines promptly. In this app, daily routines recorded in small steps shows that what is required to complete the step. Whereas, these steps can be customised using a script which provides incidental learning for the users. However, the use of this app is different within the community. But people with intellectual disabilities, cognitive challenges and older people can use this app to get benefit from the assistive technology. Thus, the functioning of the daily routines reduces the anxiety of the user and provides stable behavioural conditions for every individual. Teachers can use this app for their physical education classes or for activity classes to achieve the aim for students of living healthy and hygienic.

How does the app meet the National Disability Standards? The app “The Stepping Stone-Daily Routines” fits with the National Disability Standards 3, which is “Individual Outcomes” (Department of Social Services, 2013). The use of the app supports and encourages partial or full individual participation by providing easy and manageable steps of completing activities and tasks suitable for a user, which are useful to reduce the need of external intervention. By using this app people get self-reliance that increase confidence level and personal growth, which is beneficial in many aspects of the life. Thus, the app provides better quality of life and provides more choices to the person to enjoy life.
How the app changes pedagogy (SAMR)? According to Schrock (2017), “The Stepping Stone-Daily Routines” is a pedagogy “Transformation” through “Redefinition”. There are the multiple steps which are required to do the functions promptly so that people can complete the activities or tasks on time. The visual and auditory representation of the app helps to make the routines successful and they play a huge role to complete the tasks and activities.

How the app encourages person centred planning? “The Stepping Stones -Daily routines” app is focused on a person-centred approach. The app provides relevant information, tasks and activities which are useful all through the day. These tasks and activities are first broken down into small steps and then done by using audio or text with pictures or photos provided by the app. Whereas, the visual representation can be a photo or a simple picture to clarify what people need to do to complete the task. The app has a timer option which encourages the users to do the steps promptly. Thus, users are the focus in this app. Also, to customise the app multiple modes are used within the system to get reviews from the users. Finally, it can be said that the app supports the users providing various paths which can be changed or added according to the personal use of the app.

What area of a 21st Century approach to Teaching/training does the app encourage (5C) “The Stepping Stones- Daily Routines” app enhance independence and personal growth using photos/pre-stored pictures and text which helps to continue daily routine successfully. These aspects of the app follow 21st century approach of ‘curation’ and ‘creativity’ (Carey, 2013). As the formation of the app is creative enough to customise the app it creates self-reliance and self-prompting to empower the individuals. These created paths of the app are stored for retrieval for later use (curation) to do the daily routines.

Evidence from the literature that the app is capable of the claims made: People with an intellectual disability obtain a greater and more positive outcome by using stable and predictable routines in their life (Vassos, and Carroll, 2016). If this routine cannot be understood by the individual, it can create a big challenge for their comprehension and engagement (Vassos, and Carroll, 2016). The meaningful and necessary transition between the tasks may be a challenge for some individuals. For example, the prompt use of the video requires accessibility and portability for the equipment (Kellems, Grigal, Unger, Simmons, Bauder and Williams, 2015). Moreover, the prompt use of the inclusive portable device with relevant and versatile user-friendly display has become the avenue of choice for many people (Chmiller and Anton, 2015). The use of assistive technology enhances greater skills, which are required to achieve self-determination and optimising engagement within their world (Morash-Macneil, Johnson, and Ryan, 2017).

General Comments: Overall, the app is very useful to remember the daily routines and how to do them step by step so that people can take care their selves hygienically. This is especially useful for people with disability who forget to do the things in routine so that they can take care their selves.
Reviewer: Harpreet  

**Hygiene Helper**

**Operating System:** IOS.

**Location:** App Store.

**Cost:** Free

**Description:** “Hygiene Helper” (Tiwahe Technology, 2016) is a very useful app to maintain short and long-term health benefits, which are essential in everyone’s life and are only possible due to developing proper hygiene habits. The app, “Hygiene Helper” helps to continue learning and practicing daily hygienic habits. The app provides information through educational modules using text and images about the related topics of the hygiene activities. The app provides morning and evening hygiene routines that can be checked all through the day and the users can calculate their progress level as well from the screen. Also, the app provides a reminder for the coming hygienic activities for the day. Finally, the app gives some helpful hints for each day which can be seen on the main screen.

**Alignment with the UDL guideline:** “Hygiene Helper” aligns with the first and third type of UDL guidelines; Provide Multiple Means of Engagement and Provide Multiple Means of Action and Expression (CAST, 2018). The app is much useful to increase self-regulation among the users. When people start to follow the instructions displayed by the app. After some time, they are able to remember all the hygienic activities. Also, the app displays the progress level of the users. Using this app people become more aware about how to keep themselves neat and clean all through the day. Similarly, the app fits with the third UDL guideline that people start to do action and expressions. As the app increases curiosity among the users with pictures and text it encourages discipline in their life. The app shows the hygienic activities step by step for the morning, noon, afternoon and night. Thus, people who have some difficulty remembering the activities due to impairments they can start to follow the activities guided by this app and it makes them feel free to remember all those activities.

**Curriculum area:** “Hygiene Helper” app is relevant to the curriculum that helps to develop life skills. The images and text provided by the app covers all the instructional tasks and activities which enables the users the develop their life skills. Secondary school students and young adults can use this app to prepare their selves to be independent in their future life. To cover the curriculum of the physical education, this app has a huge role as it provides opportunities to learn the ways of keeping health fit using hygienic routines.

**How does the app meet the National Disability Standards?** “Hygiene Helper” follows the National Disability Standard principle two, which is individual outcomes. The application helps individuals to fulfil their needs and tailor them. Therefore, helps to increase independence. (National Standards for Disability, 2013). The app is useful for people with Autism Spectrum Disorder or to help for variety of other challenges that cause a barrier to maintain healthy hygiene habits.
How the app changes pedagogy (SAMR) “Hygiene Helper” helps to enhance pedagogy of the teacher through Augmentation (Puentendura, 2013). The users of the app can transfer and connect their understanding through multiple functions which has increased their learning in many ways. The teacher can be the substitute for the students as he/she may suggest the similar things in the class likewise guided by the app. Using this app students can understand the classroom learning with the example of pictures and text from the app. Thus, the app can be used as a teaching aid by the teacher in the classroom. Consequently, this changed pedagogy will make it easier for the teacher to achieve the final goal of the lesson plan.

How the app encourages person centred planning. This application encourages person centred planning for example the use of the app allows teachers, organisations and carers to know every student individually. It helps to determine the memory level of every person. Thus, the displaying pictures and the text on the app encourages users to follow those activities which will keep them hygienic. So, the app is useful to guide every person how to do personal hygienic activities and thus focused on every individual’s needs and requirement to do self-care (Community Services Act, 2014).

What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? By using “Hygiene Helper” app people can be aligning with category of community (Carey, 2013). In other words, the app enables people to learn and develop hygienic skills which all are essential to living and participating in a community.

Evidence from the literature: The app is helping people with intellectual disability to make their living standard more independent (Shogren et al., 2015). The students with intellectual disabilities need support to assist them in individual functioning (Bouck and Joshi, 2016). This “Hygiene Helper” app provides step by step instructions to do daily personal hygiene skills and provides privacy using this app. This application demonstrates daily life skills via images and text on the screen of the app. As the students with intellectual disabilities usually struggle with memory retention and they need someone to support them. Thus, the images and the text explicit by this app give guidelines to support people with intellectual disabilities (Smith et al., 2015). The use of various strategies of planning and preparing to assist students with ID enables them to learn life skills to increase self-determination. IPads are proved assistive and engaged to achieve positive outcomes of learning (Zhang et al, 2015). The app provides game and quizzes related to the instructional content that help to increase the higher order thinking of the student providing additional practice to the students.

General Comments: Overall, the “Hygiene Helper” provides training to the students with disabilities to do their self-care and helps them to be independent for the daily routines. The images and the options on the app are the source of attractions for the users.
Reviewer: Harpreet

iGet cooking Vocabulary and Create Recipe

Operating System: Android

Location: App Store

Cost: $7.99

Description: “iGet cooking Vocabulary and Create Recipe” (I Get IT, 2016) is an app that provides photo sequences for the individuals who need support in understanding the things related to the kitchen and cooking. This application provides vocabulary photo books that includes “cooking supplies”, “kitchen appliances’ and “cooking actions” that are endless teaching opportunities for the development of speech and language. There is one blank recipe book which provides opportunities to create own recipe. All the pages of the app have titles and has flexibility of adding subtitles. The app allows the individuals to use pictures for variety of purposes for example expressing labels and receptive identification. Also, the app enables the users to keep a record of their daily routine recipes. This app allows for a person to stay at home alone for a few days and be able to prepare a meal.

Alignment with the UDL guideline: The app fits with the UDL guidelines as it provides multiple means of Engagement to motivate the learners and encourages multiple means of Action and Expression to achieve the strategic goal for the learners. The app motivates the learners to be engaged with their eating habits and how to cook their favourite recipes and with what utensils. The users start to follow the actions and expressions guided by the app Thus, this app is providing training to prepare the learners to acquire their final goal which obviously is eating.

Curriculum area: The app is useful for the secondary school students because after the high school they start to think to make life more independent and this app helps them to enjoy independent living. Moreover, this app is useful for the teachers to teach the students who are behind due to developmental delays or any intellectual disability.

How does the app meet the National Disability Standards? The use of this app meets all the requirements of National Disability Standards. This includes helping individuals with developmental delays such as autism spectrum disorder and PDD-NOS. On the other hand, teachers, parents, SLP’s and support professionals have appreciated its friendly design for all.

How the app strategy changes pedagogy (SAMR)? The app follows “SAMR” as it motivates for modification and augmentation. The achievement of these two goals with the help this app is making people enable to modify their skills and consequently user’s functional development is arising.

How the app encourages person centred planning? As the aim of the app to make the environment of kitchen more convenient for the users. So, the app is very useful for the people to be more independent in daily routines and increasing their knowledge about healthy cooking habits. The app provides photo book that motivates people to follow the daily kitchen activities. So, people
are becoming active and smart in doing daily chores. This application is useful for people with autism to be independent in cooking and eating. Therefore, this app enables people with disabilities to enjoy the life mentally and physically.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app is a source of interaction for the youngsters and adults. They can experiment new recipes and can share it with others. Also, the app provides an option where saved items can look later. Also, there is an option in the app where users can leave their comments. So, app is increasing connectivity among the world and is helping people to overcome from the loneliness.

**Evidence from the literature that the app is capable of the claims made:** Some studies reported that children with ASD usually have inefficiency to pay attention towards the process of work (Wynkoop, 2016). Whereas, one other research found that children with autism need visual supports (Knight, V., Sartini, E. and Spriggs, 2015). Thus, according to these researches visual support enables the children with ASD to fit with predict planned events, environments, realize expectations and helps to anticipate changes with the places. So, the visual schedule fulfils the needs of these children and helps them to manage the process of transition.

**General Comments:** The “iGet” app for eating is useful for people with or without disabilities to make their life more enjoyable and interesting. Various photos on the screen encourage everyone to use it. The app gives opportunities to the users to share their experiences with others as well. Moreover, this increases the English vocabulary of the students about the kitchen appliances and their uses. Overall, the app is useful for parents and the teachers to develop the English skills among the children and to be hygienic and healthy in their daily cooking and eating routines.
**Reviewer:** Harpreet  

**Self Care - App 29**

**Feel Safe.**

**Operating System:** IOS, Android  

**Location:** App store  

**Cost:** Free

**Description:** “Feel safe” (True Relationship and Reproductive Health, 2017) is designed to help young people between the age of 12-16 with ASD or mild intellectual disability. As the app consists of stories of various persons represented by pictures and text on the screen it explicitly explains what is right or wrong to do in a situation. This application develops etiquettes among the learner that how they can keep themselves safe in the daily life situations. The app provides numerous stories that explain the critical situations and helps readers with or without disabilities to take make best decisions in those circumstances. The children, young people and adults with disability face high risk of experiencing assault or sexual abuse. This “Feel Safe” app is developed in response to many of the requests from parents, carers, support staff, educators for the resource that helps to support protective behaviour against sexual abuse or assault. Thus, participants with disability or moderate learning needs can use app “Feel Safe” app to assist them.

**Alignment with the UDL guideline:** This application is useful to learn social skills by children with autism spectrum disorder or children with disabilities. Which completely align with the Universal Design for Learning (UDL) guidelines to the principle “Provide multiple means of representation” states that every learner is different in comprehending and perceiving information. There is not any unique mean of representation which could be best for all learners and provide appropriate options which are essential. Therefore, “Feel Safe” is a learning process provides visual stimulus learning in several ways including real life examples which is very suitable for the children with autism spectrum disorder or people with other developmental disabilities.

**Curriculum area:** The app is interactive through using photos and related text written on the photos which is associated with social thinking, behaviour and language related to daily social situations. It is a good resource to teach the students who have autism spectrum disorder in the class. The app is also beneficial for the individuals with language and communication disability including traumatic brain injury, asperser syndrome, Down’s syndrome, attentive deficit disorder or having other learning difficulties. Thus, this app suits students from primary to high school.

**How does the app meet the National Disability Standards?** This app follows the standard 3 among National Disability Standards which is’ ‘Individual Outcomes”. The app supports individuals to access the learning which is suitable for them. By providing photos and representing text it enables the learners with complex communication and language needs in performing social interaction. For example, using this app by people with autism and comprehend basic abilities
they become more social and thus it increases their interaction towards the community. Moreover, this app is relevantly useful for the teachers to teach social skills to the students with autism or the individuals with some disability. Therefore, this app aligns with the National Disability Standards in many ways.

**How the app changes pedagogy (SAMR)?** The use of the “Feel Safe” app is highly recommended for the significant impacts of pedagogical practice of the teachers on the students. The app can be used by iPad that helps to apply the Substitute Augmentation Modification Redefining (SAMR) in the classroom. For instance, teachers might use social key vocabulary and the students might have responded to the multiple-choice questions while using white boards or papers previously. However, the use of this app using iPad by the students as well as the teachers enables them to do the work in the efficient and facilitated way.

**How the app encourages person centred planning?** The “Feel Safe” app encourages person centered approach to the children with autism and a teacher can play a vital role to provide this to the students. This application is highly recommended to fulfill the diverse needs of the learner. As it helps them to increase ability levels and to use various learning styles of every learner. In addition, some additional features of the app help teachers to adjust the level of difficulty or to select options which are appropriate or fits with the real situation of the learner.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** As this is one of the fundamental purposes of 21st century education to enable all the learners to communicate and collaborate effectively. It seems very easy to fulfil it, however it is challenging for the diversity of learners for example communication and collaboration is not easy for the students with autism. This app provides a key system to use social vocabulary which includes photos and stories presenting real communication and social interaction through the real-life situations so that students can learn various social skills. Thus, the high technology provided by the app focuses to improve social interaction for those who have complex language and communication needs.

**Evidence from the literature that the app is capable of the claims made:** The app which is specially designed to teach appropriate social skills for adults and children with developmental disability or intellectual disability, Autism, Down’s syndrome and Asperser’s Syndrome, Cerebral Palsy are more recommended by the public (Farmer, 2014). The visual support helps children to mix with the environment and helps them to fit with anticipate changes and to predict planned events. Thus, photos, characters and related text help to manage the process of work and to prepare the environment for them.

**General Comments:** From a personal view point, this app is useful to enhance the social skills of a student. As the needs and abilities of every learner is different, this app presents each way of learning to increase the attention of the people when they face society or people outside.
Conclusion and Recommendations

Our group of apps have been selected using WHODAS 2.0, Domain 3, Self-Care – hygiene, dressing, eating and staying alone. We have reviewed apps that can help support and further the education of ‘Self Care’ for people with a disability, their families and their carers. Apps have been appraised using Universal Design for Learning, the National Standards for Disability, Person Centredness Approaches, SAMR, curriculum relevancy, cost factors and through the exploration of scholarly journals and articles surrounding their successful use.

These reviews are designed to support the exploration of apps available against guidelines known to be essential for the increased development and education of people with disabilities. It is hoped that the review of these apps will lead to ongoing digital discussions about how these apps work with different disabilities and how they can lead to improvements in design and functionality. Although there are so many great apps available presently, DeLozier and Rhodes (2017) suggest that we need to focus on the best learning outcomes that result from the purposeful use of these apps.

Four of the main factors required for the successful use of ICT for people with disabilities are: ease of use, education, affordability and relevancy (Daems et al., 2011). This eBook offers a way to establish these factors in a relevant, consistent and engaging format as it is made available both digitally and in hard copy.

For teachers who wish to engage and instruct people with disabilities through ICT, it is imperative that they continue exploration of assistive tools, hardware and software to find the most appropriate tools for the individuals they are working with. Alongside this, they must use the knowledge of pedagogical approaches that best facilitates the differentiated learning of ICT (Daems et al., 2011). Ongoing digital discussion and exploration of these and other apps can also be made through a Facebook site known as ‘inclusive ICT’ and this is currently available as a public group.
References


Useful Links


**Calm (IOS)** - https://itunes.apple.com/au/app/calm/id571800810?mt=8


UDL Guidelines - http://www.udlcenter.org

Getting along

Interacting with other people

Hanan Molaahmadi
Linda Waters
Kumbudzani Leopard
Margaret Ling
Elisha Obsioma
Jesse Dwyer
## Apps for functional group: Getting along

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Introduction

In this section the applications are focused on educating and helping individuals with difficulties in getting along with other people. WHODAS 2.0 defines 'people' are individuals or groups whom are intimate or know the person well, or don’t know them at all (Chatterji, Kostanjsek, Rehm and Ustun, 2010). This includes but is not limited to spouses, partners, family members, close friends or strangers. Domain 4 looks at the difficulties some might have due to health conditions within the areas of dealing with people unknown to them, maintaining a friendship, getting along with people who are close to you, making new friends and sexual activities (Chatterji et al., 2010).

Many disabilities can often make it difficult to create or maintain relationships (Lindsay and McPherson, 2011). Researchers have found that people with disabilities often have limited social networks and this restricts opportunities to build social capital (Davies et al., 2015). This means that people with a disability can use these apps to help them enhance their social skills and grow their social capital. Growing social capital, individuals are more positive and willing to engage in social activities (Lindsay and McPherson, 2011). Building support through social networks, community connections and resources remains one of the most frequently identified goals of people with disabilities (Davies et al., 2015).

People who are blind or have low vision are often at a disadvantage socially to their fully sighted peers (Ely, 2014). They often miss the social cues that others engage with. These cues allow people to learn and develop their social skills. The development of social skills and subsequent making and maintaining of friendships is an area of development in students that often needs support (Ely, 2014).

The use of Tablets and iPads holds unique motivational capabilities for learning. One reason is that the medium itself is motivating and educational games have a built-in reward system, leading to increased appropriate behaviours, focus and reports of enjoyment (Klein, 2018; Anderson and Sorensen, 2017). Learning and socialisation can be developed through the act of 'play'; there are many research papers that address this link. iPads and Tablets are one device where this platform is used (Fengfeng, 2009). The accessibility options provided by the iPhone and similar products are paramount in increasing the engagement of people who are blind or have low vision (Robinson, Braimah - Avery, Chun, Pusateri and Jay 2017). iPads and Tablets provide social engagement and education by using alternatives to printed text such as audio descriptions and the use of the human voice for both input and output of information.
Patook

**Operating System:** iOS and Android

**Location:** Apple App Store and Google Play

**Cost:** Free

**Description:** Patook is an application that allows people with or without disabilities to interact with each other and make new friends. Patook is strictly an application for making friends and not a dating application. This application has developed a smart method that automatically detects if someone is trying to flirt with another individual, which then instantly blocks their message and the application then bans the user instantly. Patook allows its users to state their likes, dislikes, and interests which then groups you with people you may be compatible to build a friendship with. Additionally, this application can be set so you are able to connect with people in your neighbourhood locally and instantly as you are able to send them a message and connect with them. This application takes the security of individuals very seriously which means that people with a disability will be able to use this application without feeling like people will take advantage of them as any flirty messages will be blocked instantly and will not reach the private messages. Lastly, if you dislike someone and do not wish to become friends, you are able to swipe that person and decline their offer. Two people are usually matched due to their traits, likes and interests.

**Alignment with the UDL guideline:** This application aligns with the UDL guideline, as it has multiple ways of representation. This application allows its users to successfully use this application in different languages both written and verbally (checkpoint 2.4). Patook also offers many other ways of customizing the display of information as mentioned in the checkpoint 1.1. This application has many different fonts, colours and pictures which can help individuals engage with the application better. According to checkpoint 1.2, alternative auditory information is also essential as it can impact the way a piece of information is received. Therefore, this application provides various sound effects for notification and other actions within the application. This can allow people with vision impairments to also use this app (Cast, 2018).

**Curriculum area:** Overall, this application has been created to allow people within our communities to create friendships and grow their social capital. Patook can allow people with intellectual disabilities, and developmental disorders such as autism to grow their social capital. This application requires their users to be over the age of 17 as it may share mature themes with its users. This application will allow its users to communicate with one another and understand relationships. People with a disability often can become vulnerable on the internet as people may take advantage of their disability and treat them differently (Jobling, Moni, and Nolan, 2000). This application will assist people with a disability to communicate with others more successfully as people are unable to send them an inappropriate message such as flirtatious messages. It has been evident that people with a disability are often left isolated and are unable to be a part of our community. With the assistance of this app people with a disability might
maintain positive social interactions which improves their quality of life. According to Bassett and Moore (2013) social interactions with people a disability to gain the encouragements and the independence to grow and communicate with their communities.

**How does the app meet the National Disability Standards?** This application complies with 3 National standards for Disability services. It gives its users the right to freedom and expression as it allows for individuals to express their mind and share information they like about themselves with their friends. It also utilises Standard 2: Participation and Inclusion, as it allows individuals to find friends, create relationships and it also promotes their inclusion within their local community. Additionally, Patook also allows users to give the developers of the applications feedback and provide any complaints if needed. This application has a strong set of policies which enables users to feel safe when using this application and to provide critical feedback if required.

**How the app changes pedagogy (SAMR)?** Patook may be used by teachers in a high school setting as it can assist people to connect with one another. Therefore, this application aligns with the category of Enhancement. This is due to the enhancement it can provide to people’s social lives.

**How the app encourages person centred planning?** This application fits into 2 of the person-centeredness categories. These are the beliefs and values underpinning social inclusion; the main aim of this application is to promote social inclusion and build relationships. Secondly, a partnership with people is also the other category that this application aligns with as it allows people to make decisions and create partnerships.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Patook allows individuals to collaborate, connect and communicate with one another. It allows individuals to communicate with people in their communities build relationships with them and collaborate as well.

**Evidence from the literature that the app is capable of the claims made:** Jobling, Moni and Nolan (2000) state that social interactions are the most vital part of our everyday lives. It is essential for human beings to have social interaction and create friendships as it allows people to communicate and grow as individuals (Bassett and Moore, 2013). Therefore, this application was intended to create new friendships and help individuals communicate with others in a secure place.

**General Comments:** As a developmental educator, Patook can be a very informative and supportive application. This application will allow a developmental educator to support individuals in creating new friends and guide them to associate with like-minded people in a secure environment.
Reviewer: Hanan Molaahmadi

Getting along - App 2

Meetup

Operating System: iOS, Android

Location: Apple app store and Google play

Cost: Free to download but requires monthly subscriptions

Description: Meetup is a social app designed for people with and without a disability. This application intended to bring people closer together in a more interactive approach. Meetup is an application which allows people from thousands of cities and countries to participate in social activities that they would like to participate in real life. Meetup is organised around one simple idea; allowing people to explore, teach and learn the things that matter to them and get together with like-minded people. For example, people run marathons thanks to running meetups, because at meetups people welcome each other. They talk about activities and mentor each other and provide support while chasing each other’s life goals. Some popular meetups on the app include mother meetup groups, fitness meetup groups and sporting groups and even hiking groups. Career and networking groups for career support, dog meetup groups for therapeutic benefits and social meetup groups where new friends can be made. There is also a group for “new in to own” where new people in cities can meet up and feel welcomed and comfortable settling into their new home plus many more active are available.

Alignment with the UDL guideline: Meetup aligns with the UDL guidelines as it provides multiple means of engagement and representation. This application allows individuals to interact with people that all love similar things. This application provides users with a wide range of resources that can allow them to create things. For example, if there is a meetup group that is interested in carpentry, the application will provide them with a space to put their ideas together and then it will also provide the group with videos, pictures and written instructions to allow them to complete a project. This means that this application aligns with checkpoint 1.3 as it provides different means of visual representations. Additionally, this application also allows individuals to have auditory means of communication which also aligns with checkpoint 1.2. Lastly, meetup allows its users to upload their own images, voice recordings and even video recordings (UDL, 2014a).

Curriculum area: This application is made to assist people over the age of 12. It can assist children over the age of 12 to interact with other children that have similar interests to them. This application aligns with the curriculum as can support children gain various skills. These skills include social communication, independence, building relationships, maintaining relationships and working with in a group of people. This application allows people to grow their interests and meet new people at the same time. This application provides a collaborative space for individuals from all over the world, to bring their ideas together and work as a team in a collaborative environment (Costa and Anderson, 2017).
How does the app meet the National Disability Standards? Meetup aligns with the National disability Standards as it assists people with a disability to participate and engage with people with in their community, and worldwide. This application enables the users to gain the confidence to interact with people as they are interacting with people that may think alike to them. Meetup is a fun and entertaining application and allows all individuals, with or without a disability to engage with their community. This means that a person with a disability will be less likely to be judged or feel isolated, as they are also able to engage in all of the activities that everyone else is able to do.

How the app changes pedagogy (SAMR)? Meetup is an application that modifies the way we communicate and know social media as. This application has modified the means of social media as it implements many other techniques to allow people to connect. Therefore, it meets the modification and transformation category in the SAMR.

How the app encourages person centred planning? This application encourages person centeredness depending on how it used by an individual. Additionally, this application can align to the tailored support to the person, and social inclusion.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Meetup supports all areas of the 5C’s such as community - as individuals are able to become a part of a community of likeminded people, collaboration - individuals are able to share their ideas in various forms, creativity - users are able to make creative posts or even create a project together and curation - which is also available as the application keeps a progressive report of all of the activities in the real time in a time log.

Evidence from the literature that the app is capable of the claims made: This application allows people to communicate, assist, mentor and peruse new goals in life. Uyeki (2012), states that it is essential for people to be able to work together as a collaborative group as it allows us to become more independent. People with a disability are often put in group homes where they are forced to socialise with people they have nothing in common with (Uyeki, 2012). With the assistance of this application many people with a disability may find people just like them, who will like things that they are interested in.

General Comments: This application is a great tool for developmental educators as they are able to assist their clients in becoming a part of community groups as well as gain new interests.
**Reviewer:** Hanan Molaahmadi

**Getting along - App 3**

**Frendi - Special Needs Family**

**Operating System:** iOS and Android

**Location:** Apple App Store and Google Play

**Cost:** Free

**Description:** Friendi is an application that allows individuals with special needs to connect with families and others, based on shared and specific interests of their family members. For example: Video games, favorite parks, sports such as football and basketball, movies and many other similar interests among everyone. Friendi, is an application designed for individuals with unique personalities and interests. The application focuses on the unique differences, and interests that make somebody with special needs truly special and amazing. Friendi brings families together through events and causes, the application allows everybody using the application to promote popular events and attend them. Friendi also exposes parents to appropriate service providers whom cater to the interests of their family member. Friendi also makes communicating with necessary service providers simple and comfortable so it is as easy as chatting with a friend through messenger. The application provides options to view service details, promotions, photos, news updates and much more. Friendi receives funding by many service providers who support individuals with special needs and their families, ensuring this application is easy for everyone to access.

**Alignment with the UDL guideline:** Friendi is an application that aligns with the UDL guideline. This application allows for users to upload images and videos of themselves doing things they enjoy. This then allows other parents to see if their child will be compatible with the other child. This app allows children with various disabilities to participate as it provides different auditory controls and a various range of visual controls including video and voice recording. Lastly, Friendi is an application that can be used in various languages such as English, Japanese, Chinese, Spanish, German and Polish. This allows for migrants from different countries that have recently arrived in the country to also use the application without any issues.

**Curriculum area:** This application is made to assist people over the age of 4. The user of the app, however, must be over the age of 12. It can assist children over the age of 4 to interact with other children that have similar interests to them with the assistance of their parents. This application aligns with the curriculum as it can support children gain various skills. These skills include social communication, independence, building relationships, maintaining relationships and working within a group of people. This application allows people to grow their interests and meet new people at the same time. This application provides a collaborative space for individuals from all over the world, to bring their ideas together and work as a team in a collaborative environment (Costa and Anderson, 2017).

**How does the app meet the National Disability Standards?** Friendi incorporates the Standard 1 - rights, Standard 2 – participation and inclusion, as well as the Standard 4 – feedback and complaints.
By participating in this program, parents can receive information about other children that have the same interests as their child, as well as accessing support and strategies from other parents. This does not only help the child with a disability to participate within the community but also allows their parents to get support and have other parents like them to speak to. Lastly, like most applications, users can provide feedback and complaints for the application to the developer which will allow the developers to develop the application and make better versions of it.

**How the app changes pedagogy (SAMR)?** This application can benefit children with a disability, parents and caregivers. This application fits into the SAMR as it has transformed a social communication application but modified so that parents who have children with a disability are able to use them to assist their children.

**How the app encourages person centred planning?** This application successfully aligns with person-centeredness planning as it focuses on each child individually. Each child is placed in a group of 3 children based on their interest such as children who are obsessed with a particular television show.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Frendi supports 4 areas of the 5Cs such as community, collaboration and creativity. This is due to this application being so highly collaborative between so many people, being a part of a community of children and adult with similar experiences as well as coming up with creative idea to help your children interact with other children.

**Evidence from the literature that the app is capable of the claims made:** Bigby and Frawley (2010) mention that the most common way to allow children with a disability to communicate with one another is to ensure that they are enjoying their activities. Meaning the activity, they are engaging in must be something they are interested in, which will also support them to interact with the other children participating with this application. As mentioned, this application has the means of networking between parents and discovering other children their child may want to become friends with.

**General Comments:** As a developmental educator, you are working with children with a disability most of the time. According to Bigby and Frawley (2010), one of the most common challenges children with disabilities face is not having the required skills to make new friends. This application allows a developmental educator to inform parents of this application where they can connect their children with other children based on their interests. The application also allows the parents to share any challenges they are having as a parent with their child or any professional. This application provides parents a great foundation which will allow them to find their child a friend in the community.
**Reviewer:** Hanan Molaahmadi  
**Getting along - App 4**

**We3**

**Operating System:** iOS and Android

**Location:** Apple App Store and Google Play

**Cost:** Free

**Description:** We3 is an application where people with a disability have the ability to meet compatible people. We3 is a friendship application. We3 changed names recently from Me3, however it's the same friendship app. On this application you swipe cards about your personality, hobbies, values and skills. We3 will then add the user to a team of 3 compatible people of the same gender, revealing their shared personality traits, mutual interests and goals that they have in common. The We3 application features private profiles, with a person’s profile never being public. We3 is exclusively for friendship with users of the same gender, not a dating app. Only users of the application who match with you can see you. We3 producers also used the help of psychometricians and personality experts, to develop 32 personalities for more accurate matches. The application will also send an SMS when a group match is available making it the fastest way for a person with a disability to meet new people and make new friends. The application We3 is also completely free, with no payments required to message or use the application, making it easy and affordable for everyone to use, including people with low income looking to meet new friends.

**Alignment with the UDL guideline:** This application aligns with the UDL guidelines as it has been created for the means of engagement. This We3 provides individuals to engage with one another for friendship. However, the benefit of this application is that individuals can feel secure using this as all profiles are never public and only people that have been matched with you due to your preferences will be able to see your information, and only if you agree to it. This is such an important point for people with a disability. We have seen that people with a disability get their private identities stolen on the internet (Anderson and Costa, 2017). This application in aligned to checkpoints 7.2, 8.3 and 9.2.

**Curriculum area:** This application does assist individuals in different environments to interact with each other. Therefore, it can help students gain skills in regards to meeting new people and understanding the different behaviours associated with meeting a new person.

**How does the app meet the National Disability Standards?** We3 complies with the National Disability Standards as it gives it users “rights”, “participation and inclusion”, and allows feedback and complaints. This application promotes participation and inclusion as it has been created to improve relationship building in people’s lives whether they have a disability or not.

**How the app changes pedagogy (SAMR)?** This application has modified the normal way people communicate and enhances relationship building. Additionally, it also has transformed the social networking apps and made a more interactive way to connect with others near you. It helps individual make lifelong friendships.
How the app encourages person centred planning? This application does encourage person centeredness to an extent, depending on how the application is used. It looks at each person individually and allows them to only connect with other individuals that have the same interests. Additionally, We3 is quite different as is it groups people into groups of three and this encourages them to communicate more effectively among themselves, rather than matching two people together.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This application encourages the 5C’s as it allows individuals to collaborate in different ways such as private messaging, and group messaging. It allows individuals to be a part of the community as it puts three people together based on their interests. We3 also allows members to be creative, meaning they can send each other hand written messages as well as images and voice messages. Lastly, they are also able to be creative in this application as it allows them to use different forms of communication between the three of them.

Evidence from the literature that the app is capable of the claims made: According to Jobling, Moni and Nolan (2000) people with a disability do not often get a chance to interact with other individuals without a disability. We3 allows people with or without disabilities to connect in group of three, meaning there are no stereotypes and all individuals can be a part of this application and can find friends.

General Comments: As a developmental educator it is essential to make sure your clients are not socially isolated. With the assistance of this application a developmental educator will be able to get their client out and support them in creating new friends. Additionally, a user with a disability, depending on their diagnosis, may need some support or guidance with some aspects of this application as it requires a connection between three people which can get confusing.
**Reviewer:** Hanan Molaahmadi

**Getting along - App 5**

**Glimmer**

**Operating System:** iOS, Android

**Location:** Apple App Store and Google Play

**Cost:** Free

**Description:** Glimmer is a social application designed for people with a disability, this is a social and relationship orientated application. This application provides a place for people with disabilities to use and connect with each other. The application is simple to use, safe, fun and strictly judge free, creating an ideal application for people with a disability to meet friends and potentially start a relationship. This app specifically aims to reduce the number of people with a disability who have difficulties making new friends. Glimmer helps individuals match with others who have similar interests and life goals and all details are private until somebody matches. The Glimmer application is completely free but also offers a Glimmer Advance which requires a cost. This makes the base application for people who want it for casual use free, and for those who can afford it, there is also a more advanced option for committed users.

**Alignment with the UDL guideline:** This application aligns with the UDL guidelines as it has been created for the means of engagement and participation. With the assistance of this application, an individual with a disability can interact with others whether they are looking to meet a new friend or looking for a partner. This application also allows individuals to use this application as a dating application. This makes this application quite different to others as this one does focus on matching similar people for dating purposes as well. It provides different means of auditory information processing as well as being able to use this application in many other languages other than English. Additionally, this application has many different means of visual representation as well, as users are able to engage with other by pictures, written information, and videos.

**Curriculum area:** This application meets the category of social interactions within a curriculum as it allows people over the age of 17 to engage socially with other individuals whilst gaining skills. This application may help individuals meet new people. It can help reduce pressure in the friendships within their school community as it can be used in a way where you can restrict your matches to be a local group of three.

**How does the app meet the National Disability Standards?** Standards 2 and 3 comply with the details of this application. This is due to this application allowing individuals to participate in activities and have control with who they interact with.

**How the app changes pedagogy (SAMR)?** This application aligns with SAMR as it has modified and transformed the way individuals can communicate with each other over the phone. This application allows you to network with other people in a fun interactive way.
How the app encourages person centred planning? Glimmer encourages person-centeredness as it allows its users to make various choices of their own. Meaning that they can swipe if they dislike someone they are matched with according to their similarities or whether they are happy to communicate with them and create a relationship. Additionally, they are also given a choice of whether they are looking for just a friendship or looking for a partner. According to Uyeki (2012), making choices is crucial to human beings and many people with a disability are often left with other people making their choices. Therefore, it is beneficial that this application allows you to make your own choices.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Glimmer encourages all 5C’s as it allows individuals to collaborate with each other in various ways such as video messaging and written messages. Additionally, this application allows users to communicate within the community and collaborate as a group, as group chat is possible, as well as group video calls. Lastly, creativity and curation is also used as conversations are all recorded within the application where users are able to access them whenever they need, as well as the means of creativity through the way they communicate.

Evidence from the literature that the app is capable of the claims made: Glimmer is an application that benefits members in many ways. As mentioned by Uyeki (2012), for people with a disability, it is essential to be able to choose their partners carefully, as many individuals can sometimes take advantage of their disability. This application allows individuals to understand who the person is they are matched with first before they can interact with them in any way.

General Comments: Glimmer seems to be an application which will help developmental educators. This application will be helpful to clients with a disability as it can help them build and maintain relationships. This can include friendships or looking for a boyfriend or girlfriend. However, with an application like this, a person with a disability may be very vulnerable therefore it is essential they receive proper education about dating prior to using the app.
Reviewer: Linda Waters

Getting along - App 6

Let’s Be Social PRO

**Operating System:** IOS

**Location:** App Store

**Cost:** Free: $14.99

**Description:** Let’s Be Social PRO is to help teach children social skills with their communication skills. This app has been designed for kindergarten to high school children, where the content can be used for individuals who have special needs. The content can help children diagnosed with Autism Spectrum Disorder, developmental delays, hearing difficulties and Social/Emotional disabilities. The app will help with making friends, apologizing, helping a friend, understanding a joke, playing at a friend’s house, hurting a friend’s feelings, and using a filter. The app provides 40 written lessons and 5 videos lessons or the ability to create customised lessons to teach and reinforce how to create and maintain social relationships. The ability to customise gives the users the ability to teach in the moments through the ability to edit any lessons, use own images and recording your voice to help maintain a friendship.

**Alignment with the UDL guideline:** Let’s Be Social PRO aligns with UDL Guidelines to provide multiple means of engagement and representation. Providing text and video lessons the user is accessing alternatives forms of auditory information (1.2), the use of transcripts or auditory files enhance the images (UDL 2014a). The programmed and customised lessons provide users with an alternative form of visual information (1.3), the text descriptions for all images and auditory cues to help with key concepts (UDL 2014a). The Illustration use multiple media approaches (2.5) because it provides text, audio and videos or the user can upload their own photos (UDL 2014a). The app has utilised optimised access (4.2) through the use of touch-screen capabilities and the use of predictive text when using the keyboard (UDL 2014b).

**Curriculum area:** The app is made to assist children with social skills and can be used to focus on maintaining a friendship. Aligning it to the Australian Curriculum this app supports learning and achievement with Personal and Social Capabilities, specifically in the area of social awareness social and self-management (Personal and Social Capability). Within each area, the app will assist with expressing emotions appropriately, understanding relationships, working collaboratively, negotiating and resolving conflict and communicating (Personal and Social Capability). The app also supports learning and achievement with Ethical Understanding, specifically in the area of understanding ethical concepts and issues, reasoning in decision making and actions and exploring values, rights and responsibilities (Ethical Understanding). Within each area, the app will assist with recognising ethical concepts, exploring ethical concepts in context, reasons for making ethical decisions, consider consequences, examine values, explore rights and responsibilities and consider points of view (Ethical Understanding).
How does the app meet the National Disability Standards? The app aligns with the National Disability Standards to facilitate and foster a child to gain meaningful connections with family, friends, and carers (standard 2) within a safe environment at school or home (National n.d.). The teaching and practicing of knowledge and skills for getting along will facilitate participation in the broader community in adulthood.

How the app changes pedagogy (SAMR)? This app can be used by teachers to enhance a child’s learning through the transformation of the app and aligns with SAMR under the heading modification (Candance, 2013). The user can make modifications and redesign parts of their learning by placing their own photos into the lessons. For the teacher, the app offers opportunities to modify lessons or content to teach to the person and ‘in the moment’.

How the app encourages person centred planning? Let’s Be Social aligns with person-cantered planning as it allows the professional (teacher, carer, therapist) to support the user by taking them through relevant lessons. Gosse, Griffiths, Owen and Feldman (2017) states that increase individualisation of supports helps accomplish personal objectives and improve quality of life. This can be done through the programmed written or video lessons or the professional has the ability customise the lessons. With older students, there is an opportunity for teacher and student to set goals around lessons provided by the app.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs) This app encourages Connectivity and Creativity (Carey, 2013). The user can import their own photos and audio they may have taken during a social situation or have set up in the classroom. This creates the lesson to be more meaningful and allows the user to make connections with ease. The app uses Connectivity within the use of the camera app and video app.

Evidence from the literature that the app is capable of the claims made: There is no peer-reviewed literature on this app but there is literature to suggest that apps like this may assist “disability groups” as using an iPad is less socially threatening than face-to-face interactions, provides a low-risk setting to practice skills and can mitigate difficulties with social communications (Klein, 2018). This gives a child the energy and time to devote more cognitive resources to learning that would have otherwise been taken up with understanding social interactions that they are trying to learn (Klein, 2018). Morgan (2010) states that it is important for children to be exposed to a variety of different models of behaviour as the children work on their social skills. This will help children generalise the learned behaviour or skill. The most effective instructions in social skills education are during teachable moments or within settings where the behaviours normally occur (Morgan 2010). The flexibility of the app gives the students the best opportunity to transfer the behaviour or skill taught.

General Comments: This app is a great tool for teachers to utilise when teaching Personal and Social Capabilities and Ethical Understandings. It provides users with an interesting and relevant way to explore maintaining a friendship and social skills. This app can also provide support to become more independent and confident in social situations.
Reviewer: Linda Waters  

Getting along - App 7

**Peppy Pals Farm: Social Skills**

**Operating System:** IOS

**Location:** iTunes Store

**Cost:** Free: $5.99

**Description:** Peppy Pals Farm: Social Skills is designed for children to learn about emotions, social skills, and friendship. Children recognise, understand, manage, explore and communicate emotions with the focus of the app on visual without text or language. This makes the app suitable for children worldwide and for children with special needs diagnoses such as Autism Spectrum Disorder and Attention Deficit Hyperactively Disorder. The app contains various mini-games where the child helps the animal characters in various situations. The app also lets parents partake through discussions and questions about the games the children are playing.

**Alignment with the UDL guideline:** Peppy Pals Farm: Social Skills aligns with UDL Guidelines and provides means of engagement. The app provides the user with illustrations through multimedia (2.5) in the form of mini-games (UDL 2014a). The mini-games and scenarios map allows the user to play the game using a touch screen (4.2) to optimise player interaction (UDL 2014b).

**Curriculum area:** Let’s Be Social PRO is made to assist children with social skills and can be used to focus on maintaining a friendship. Aligning it to the Australian Curriculum this app supports learning and achievement with personal and social capabilities, specifically in the area of social awareness and management and self-management (*Personal and Social Capability*). Within each area, the app will assist with expressing emotions appropriately, understanding relationships, working collaboratively, negotiating and resolving conflict and communicating effectively (*Personal and Social Capability*). The app also supports learning and achievement with Ethical Understanding, specifically in the area of understanding exploring rights, reasoning in decision making and actions (*Ethical Understanding*). Within each area, the app will assist with exploring ethical concepts in context, consider consequences and explore rights and responsibilities (*Ethical Understanding*).

**How does the app meet the National Disability Standards?** The app aligns with the National Disability Standards to facilitate and foster a child to gain meaningful connections with family, friends and carers (standard 2) within a safe environment at school or home (National n.d.). The teaching and practicing of knowledge and skills for getting along will facilitate participation in the border community in adulthood.

**How the app changes pedagogy (SAMR)?** Peppy Pals Farm can be used by teachers to enhance a child’s learning through the enhancement of the app and aligns with SAMR under the heading augmentation (Candance, 2013). The app provides stories and situations in a visual format as a substitute for story books. This gives the user more functionality by using a touch screen to choose the game they want to play and playing the game.
How the app encourages person centred planning? The user is able to independently use the app and then discuss with teacher and or peers. This means that the user can participate with the app at their pace and revisit any areas where there is confusion.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs): This app is aligned with Connectivity (Carey 2013). The app allows the user the ability to independently work through the different mini-games and situations that have to use the internet and video capabilities. The user will use the ability of the iPad to store their games.

Evidence from the literature that the app is capable of the claims made: Literature suggests that apps like this may assist individuals with a disability, as using an iPad is less socially threatening than face-to-face interactions, provides a low-risk setting to practice skills and can mitigate difficulties with social communications (Klein, 2018). This gives a child the energy and time to devote more cognitive resources to learning that would have otherwise been taken up with understanding social interactions that they are trying to learn (Klein, 2018). Morgan (2010) states that it is important for children to be exposed to a variety of different models of behaviour as the children work on their social skills. This will help children generalise the learned behaviour or skill. The most effective instructions in social skills education are during teachable moments or within settings where the behaviours normally occur (Morgan, 2010). The flexibility of the app gives the students the best opportunity to transfer the behaviour or skill taught.

General Comments: Peppy Pals Farm: Social Skills is fun and motivating app that teachers and parents can use to teach their child how to maintain a friendship and social skills. It is easy to use and made for your children to play and explore different emotional situations.
**The Social Express 2**

**Operating System:** IOS

**Location:** iTunes Store

**Cost:** Free and membership, 1 month $14.99 or 1 year $69.99

**Description:** The Social Express 2 is designed for children and young adults to learn social misconceptions and challenges. The app is designed to teach and manage social situations to help children develop and maintain a friendship. The app is available free or paid membership. To develop meaningful relationships the app provides animated, interactive lessons focused on many social skills. The core concepts have been based on the work of Michelle Gracia and her Social Thinking curriculum to provide cognitive behavioural techniques and visual strategies. The purchased membership includes Webisodes, progress reports, grade levelled quizzes, assessments, flexible teaching plans, eBooks, user guide and the clubhouse (a private social network). The app focuses on the importance of eye contact, read non-verbal social cues, identify feelings in others, be a part of a group, learn about the hidden rules with friends including what to talk about with friends and staying on topic when having a conversation.

**Alignment with the UDL guideline:** The Social Express 2 aligns with UDL Guidelines in various ways to provide multiple means of representation and engagement. The app allows for alternatives for visual and auditory information (1.2 and 1.3) (UDL 2014a). It does this by providing detailed text with images, the ability to listen to audio instead of reading selected text and provides thought bubbles to show the thinking behind the emotions. The thought bubbles present key concepts of the emotion through an illustration (2.5) (UDL 2014a). This app allows the user to use multiple media for communication (5.1) through the use of their private social network ‘The Clubhouse’(UDL 2014b). Pre and post assessments will help the user set appropriate goals and monitor their progress (6.1 and 6.4) (UDL 2014b).

**Curriculum area:** The app is made to assist children with social skills and can be used to focus on maintaining a friendship. Aligning it to the Australian Curriculum this app supports learning and achievement with personal and social capabilities, specifically around social awareness and management and self-management (*Personal and Social Capability*). Within each area, the app will assist with expressing emotions appropriately, understanding relationships, work collaboratively, negotiating and resolving conflict and communicating effectively (*Personal and Social Capability*). The app also supports learning and achievement with Ethical Understanding, specifically around understanding ethical concepts and issues, reasoning in decision making and actions and exploring values, rights and responsibilities (*Ethical Understanding*). Within each area, the app will assist with recognising ethical concepts, exploring ethical concepts in context, reasons for making ethical decisions, consider consequences of their actions, examine values, explore rights and responsibilities and consider points of view (*Ethical Understanding*).
How does the app meet the National Disability Standards? The app aligns with the National Disability Standards to facilitate and foster a child to gain meaningful connections with family, friends and carers (standard 2) within a safe environment at school or home (National n.d.). The teaching and practicing of knowledge and skills for getting along will facilitate participation in the border community in adulthood. The clubhouse, a private social network, allows the user to collaborate and open dialogues (standards 3) with others using this app (National n.d.). With the use of flexible lessons plans the user can lead and direct the support from the app (standard 3) (National n.d.). The app provides the user with feedback (Standard 4) in the form of progress reports and assessment features (National n.d.).

How the app changes pedagogy (SAMR)? This Social Express 2 can be used by teachers to enhance a child’s learning through the transformation of the app and aligns with SAMR under the heading modification (Candance, 2013). The app has redesigned parts of the task by making it available for collaboration. With access to a social network of people, it allows the ability to share progress and issues as they arise. The teacher can use flexible lesson plans to teach to the person.

How the app encourages person centred planning? Gosse, Griffiths, Owen, and Feldman (2017) states that increase individualisation of supports helps accomplish personal objectives and improve quality of life. In this app, the user can interact within the social situations being played out. The help of visual cues will help individuals become independent uses of this app especially if they have literacy issues.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages Connectivity and Collaboration (Carey, 2013). Through collaboration, the social network provided can assist with sharing of ideas between users. The app also uses connectivity the same way but between devices and the internet of things.

Evidence from the literature that the app is capable of the claims made: There are not peer literature on this app but there is literature to suggest that apps like this may assist “disability groups” as using an iPad is less socially threatening than face-to-face interactions, provides a low-risk setting to practice skills and can mitigate difficulties with social communications (Klein, 2018). This gives a child the energy and time to devote more cognitive resources to learning that would have otherwise been taken up with understanding social interactions that they are trying to learn (Klein, 2018). Morgan (2010) states that it is important for children to be exposed to a variety of different models of behaviour as the children work on their social skills. This will help children generalise the learned behaviour or skill. The most effective instructions in social skills education are during teachable moments or within settings where the behaviours normally occur (Morgan, 2010). The flexibility of the app gives the students the best opportunity to transfer the behaviour or skill taught.

General Comments: The Social Express 2 is an app that can be used by teachers in a primary setting. It provides the teacher with a wide range of support that will help design flexible lessons and teach their students how to maintain a friendship. The app provides structure and interesting lessons to encourage independence and confidence.
Social Perspective Taking

**Operating System:** iOS

**Location:** App Store and iTunes

**Cost:** $16.99

**Description:** Social Perspective Taking is designed for children through to adolescents with the focus on empathy and how to take the perspective of others. The app uses over 100 images along with corresponding thought and speech bubbles from various social scenarios. The user can relate to familiar settings to match up the bubbles where the facial expression, body language, and environmental content must be considered. When using this app, the user is required to move speech and thought bubbles onto an image and placing them with the correct representation of the bubble. It allows users to make some mistakes by only revealing the correct answer after two tries. The user's progress can be saved or emailed to their teachers, parents or therapists to keep track of the user developments.

**Alignment with the UDL guideline:** Social Perspective Taking aligns with UDL Guidelines provides multiple means of engagement and representation. This app has been set up to optimise access to this tool using touch screens (4.2) (UDL 2014b). The app allows for alternatives for visual information (1.3) (UDL 2014a). It does this by providing detailed text with images and provides thought and speech bubbles to match up this the social situation. Teachers, parents, and therapists can assist the user to set appropriate goals (6.1) and through this collaborative approach, it enhances the capacity for monitoring progress (6.4) (UDL 2014b).

**Curriculum area:** The app is made to assist children with social skills and can be used to focus on maintaining a friendship. Aligning it to the Australian Curriculum this app supports learning and achievement with personal and social capabilities, specifically around social awareness and management and self-management (Personal and Social Capability). Within each area, the app will assist with expressing emotions appropriately, understanding relationships, working collaboratively and communicating effectively (Personal and Social Capability). The app also supports learning and achievement with Ethical Understanding, specifically around understanding reasoning in decision making and actions (Ethical Understanding). Within each area, the app will assist with recognising ethical concepts, consider consequences, examine values and consider points of view (Ethical Understanding).

**How does the app meet the National Disability Standards?** The app aligns with the National Disability Standards to facilitate and foster a child to gain meaningful connections with family, friends, and carers (standard 2) within a safe environment at school or home (National n.d.). The teaching and practicing of knowledge and skills for getting along will facilitate participation in the border community in adulthood. The ability to save and email results to professionals and family members allows added support for the user (standard 3). The input from others can help assist the user leading and directing their support (National n.d.).
How the app changes pedagogy (SAMR)? This app can be used by teachers to enhance a child’s learning through the transformation of the app and aligns with SAMR under the heading modification (Candance, 2013). The app has redesigned parts of the task by making the users progress available for collaboration through the ability to email progress.

How the app encourages person centred planning? Gosse, Griffiths, Owen and Feldman (2017) state that increase individualisation to improve quality of life through supports that help accomplish personal objectives. In this app, the user can interact within the social situations being played out. The help of visual cues will help individuals become independent uses of this app especially if they have literacy issues.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs) This app encourages Connectivity and Collaboration (Carey, 2013). The app also allows the connections between the user and professionals through sharing of knowledge and understandings. To for this to apply the technology must be connected and communicating with each aspect

Evidence from the literature that the app is capable of the claims made: There is no peer-reviewed literature on this app but there is literature to suggest that apps like this may assist “disability groups” as using an iPad is less socially threatening than face-to-face interactions, provides a low-risk setting to practice skills and can mitigate difficulties with social communications (Klein, 2018). This gives a child the energy and time to devote more cognitive resources to learning that would have otherwise been taken up with understanding social interactions that they are trying to learn (Klein, 2018). Morgan (2010) states that it is important for children to be exposed to a variety of different models of behaviour as the children work on their social skills. This will help children generalise the learned behaviour or skill. The most effective instructions in social skills education are during teachable moments or within settings where the behaviours normally occur (Morgan 2010). The flexibility of the app gives the students the best opportunity to transfer the behaviour or skill taught.

General Comments: Social Perspective Taking is a great tool for teachers in a primary setting. It provides an interactive interface in a safe environment to learn and practice the ability to maintain a friendship and social skills. The app can be used throughout a person’s life, giving them support to help read and understand social situations and then make decisions on how to integrate with friends.
**Reviewer:** Linda Waters

### Pictello

**Operating System:** IOS

**Location:** App Store

**Cost:** $30.00

**Description:** Pictello has been developed for children with Autism to engage in making visual storytelling. The app allows the user to create and share stories made from photos or videos along with some text that can be read aloud by or recorded audio or a Text to Speech voice. This app provides opportunities to teach social skills through student involvement when using the wizard to create stories and then playback their stories page by page or as a slideshow. The app allows the user to import own photos, short videos, and their own voice. Sharing of stories are easy and can be done several ways. The first is with other Pictello users for free, uploading to Dropbox or export to PDF to print. The ability to create visual stories can help users with maintaining friendships through documentation of interacting with friends or teaching new skills.

**Alignment with the UDL guideline:** Pictello aligns with UDL Guidelines in various ways provides multiple means of engagement and representation. The app allows for alternatives for visual and auditory information (1.2 and 1.3) (UDL 2014a). It provides the user opportunities to upload photos and video into their story, place text and or audio on the page to enhance the images. The ability to use pictures or video along with text and audio allows the learning to come from a multiple media approach to enhance learning (5.1) (UDL 2014b). The app also provides the ability to print and share stories as a PFD or Pictello story. The construction and composition of the pages use text to speech software to highlight the words as the audio plays (5.2) (UDL 2014b).

**Curriculum area:** The app is made to assist children with social skills and can be used to focus on maintaining a friendship. Aligning it to the Australian Curriculum this app supports learning and achievement with personal and social capabilities, specifically in the area of social awareness and management and self-management (**Personal and Social Capability**). Within each area, the app will assist with expressing emotions appropriately, understanding relationships, working collaboratively, negotiating and resolving conflict and communicating effectively (**Personal and Social Capability**). The app also supports learning and achievement with Ethical Understanding, specifically in the area of understanding ethical concepts and issues, reasoning when decision making, exploring values with responsibilities and rights (**Ethical Understanding**). Within each area, the app will assist with recognising ethical concepts, exploring ethical concepts in context, reasons for making ethical decisions, consider consequences, examine values, explore rights and responsibilities and consider points of view (**Ethical Understanding**).

**How does the app meet the National Disability Standards?** The app aligns with the National Disability Standards to facilitate and foster a child to gain meaningful connections with family, friends,
and carers (standard 2) within a safe environment at school or home (National n.d.). The teaching and practicing of knowledge and skills for getting along will facilitate participation in the border community in adulthood. With the ability to import personal photos, videos, and audio there is an emphasis on the user leading and directing their support and the ability to share stories allows for open dialogue between the user and others (standard 3) (National n.d.).

**How the app changes pedagogy (SAMR)?** This app can be used by teachers to enhance a child’s learning through the transformation of the app and aligns with SAMR under the heading modification (Candance, 2013). The app has redesigned parts of the task by making the users progress available for collaboration through the ability to email progress and print. The user takes control of the modifications and redesign parts of their learning by placing their own photos, videos and audio into the lessons. For the teacher the app offers opportunities to create stories or content to teach to the person and in the moment.

**How the app encourages person centred planning?** Gosse, Griffiths, Owen and Feldman (2017) states that increase individualisation helps accomplish quality of life through planning and achieving personal objectives. In this app, the user could interact within the social situations being played out. The help of visual cues will help individuals become independent users of this app especially if they have literacy issues.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app encourages Connectivity, Creativity, and Collaboration (Carey, 2013). Through collaboration, the user is able to create stories with the support of a family member or a teacher. The app also allows the connections between the user and professionals through sharing of knowledge and understandings. The user can import their own photos and audio they may have taken during a social situation or have set up in the classroom. This creates the lesson to be more meaningful and allows the user to make connections with ease.

**Evidence from the literature that the app is capable of the claims made:** There are not peer literature on this app but there is literature to suggest that apps like this may assist “disability groups” as using an iPad is less socially threatening than face-to-face interactions, provides a low-risk setting to practice skills and can mitigate difficulties with social communications (Klein, 2018). This gives a child the energy and time to devote more cognitive resources to learning that would have otherwise been taken up with understanding social interactions that they are trying to learn (Klein, 2018). Morgan (2010) states that it is important for children to be exposed to a variety of different models of behaviour as the children work on their social skills. This will help children generalise the learned behaviour or skill. The most effective instructions in social skills education are during teachable moments or within settings where the behaviours normally occur (Morgan, 2010). The flexibility of the app gives the students the best opportunity to transfer the behaviour or skill taught.

**General Comments:** Pictello is an app that teachers can utilise in a primary school setting. It provides a simple and easy to use interface and a safe environment to emphasise skills to maintain a friendship. The app can give the user the ability to work independently and can be collaboratively shared with others.
Reviewer: Kumbudzani Leopard

getting along - App 11

RodgerVoice

Operating System: iOS, Android

Location: App Store for iOS and Google Play

Cost: Free

Description: RogerVoice is an app that makes calls with subtitles from a real time transcription of the caller’s voice. The app uses the speech to text feature or automatic voice recognition and speech synthesis. When receiving calls, the app allows users to answer by speaking or through the text to speech feature. For the text to speech feature, the user activates a ‘wait, I am typing’ message which will automatically be sent to the caller. The app does not use a mobile carrier, instead a virtual number is assigned a user by RogerVoice. The call forwarding feature allows calls to be forwarded from the mobile carrier number to the app and from the app to the mobile carrier number. The app is compatible with Bluetooth, with which it directly connects with hearing aids that are equipped with Bluetooth. Languages recognised by the system are English, Italian, Spanish, Portuguese, French, German, Greek, and Japanese. Rodger Voice is suitable for people with hearing impairment levels ranging from hard of hearing to profound deafness, as well as people with difficulty speaking or aphasia. It is an app that breaks communication barriers between people with hearing impairment or aphasia and those close to them, hence facilitating closer relationships through communication. Users can call anyone, friends, family, colleagues and anyone they deal with on daily basis like health professionals and other service providers.

Alignment with the UDL guideline: RogerVoice is aligned with the UDL principle of multiple means of presentation and engagement (CAST, 2018). The app allows for user choice of language and the conversation can be saved for the user to revisit the transcript and get any information they missed during the conversation.

Curriculum area: The app can be used as an accommodation tool during instruction to facilitate communication between the teacher and the students if either of them are not conversant with sign language, especially in the case of young adults at tertiary education level who already have full vocabulary but have recently developed hard of hearing. The RodgerVoice is not suitable for all age groups because it requires the user to have a full vocabulary, to be able to read the transcript and type responses, which is often not found in young children at lower elementary education who are still developing.

How does the app meet the National Disability Standards? RodgerVoice enables people with hearing impairment and aphasia to have a voice in services and programs planned for them by service providers and care providers. The app also encourages independence as it enables the capabilities to make calls on their own and make appropriate arrangements for any service they want. According to Mansell and Beadle-Brown (2004), person-centred approaches are aimed to increase the capacities of people with disabilities to enable independent living as much as
possible, and person-centred approach must view people with disabilities as people who are capable as long as there is enough support provided. In person-centred approach people with disabilities are the ones individuals who determine the service design, planning, delivery and review according to their needs. The right to choice, independence and inclusion should be reflected in the planning of people with disabilities (Shah, 2006).

**How the app changes pedagogy (SAMR)?** RodgerVoice app plays a role of enhancement in the SAMR model through augmentation of communication of people with speech impediments. The app also plays the role of functional improvement and task redesign (Puentedura, 2014).

**How the app encourages person centred planning?** RodgerVoice allow users to stay in touch with care providers and other service providers. The users will be able to express themselves which helps service providers identify any form of change that needs to be done in terms of planning and implementation of person centred services (Dean, Siegert, and Taylor, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** RodgerVoice facilitates communication people between people with hearing impairment or people with aphasia, and those the deal with in their daily basis. Communication is fundamental for connectivity with service providers which then leads to community of service providers working together though collaboration (Nerantzi and Beckingham, 2015). The app also allows for curation, where important conversation can be saved by the user to be revisited later.

**Evidence from the literature that the app is capable of the claims made:** RodgerVoice has the potential to help individuals with hearing impairment by enabling them to have phone conversations with subtitles in real time. The app intercepts the voice on call and transcribes it (Dillet, 2014). RodgerVoice allows users to adjust text size and volume, switch between languages of choice covered by the app. The app can connect to the users’ hearing aids and headsets through Bluetooth. RogerVoice permits people with speech impairments to type their reply during their conversation that, through the text to speech feature are vocalised to the caller without hearing impairment (Jeannel, 2016). The connection between the app and the hearing aid through Bluetooth enables users, especially those with aphasia and mild hearing impairment to listen to the voice of the caller while reading the transcription.

**General Comments:** Rodger Voice is a very essential app for students new to hearing impairment before they can learn sign language as well as learners with aphasia. The app will enable communication between users and their peers, family members as well as school administrators to enable flow of discussions during collaboration meetings.
Reviewer: Kumbudzani Leopard

Samsung Look At Me

Operating System: Android
Location: Google Play
Cost: Free

Description: The Samsung Look At Me app is an interactive camera and is aimed at helping children from 7 years of age with autism read facial expressions and make eye contact during interactions with other people; simultaneously enhancing social skills and relationships. The app is compatible with most Samsung devices such as smart phones, cameras and tablets. The app enables children with autism make eye contact, read facial expressions, and express their emotions through gestures that are in the app. Samsung Look at Me uses smart devices camera function to enable children read moods and remember faces. The app allows children to capture themselves displaying several emotions and poses. To motivate the users to do better, the app has rewarding systems which are visual and acoustic, as well as a point based rewarding system. The feedback on the child’s activity enables parents to monitor their child’s progress.

Alignment with the UDL guideline: Samsung Look at Me is aligned to the UDL principle of multiple means of Engagement and multiple means of expression (CAST, 2018). It encourages users to be engaged with others as well as with the teacher by reading their facial expressions and making eye contact, as well as enabling the teacher and parent monitor and reflect on the user’s performance with. These are in line with UDL checkpoints 7.2, 8.3, 8.4, 9.2, 9.3. The app helps children with autism stay engaged through the motivation effects like the rewarding interactive missions that takes 12 to 20 minutes daily to keep users going on and on till they do better do better.

Curriculum area: Samsung Look At Me app can be used in learning environments to help in the interaction between the teacher, the user and other students and help learners develop social skills. The app helps the learner develop social skills by enabling eye contact during conversations, read emotional expression and eventually gaining the ability to perceive and express diverse emotions during interactions.

How does the app meet the National Disability Standards? The app encourages full participation by enabling users to interact with those close to them, service providers and the community. Samsung Look At Me enables the users to gain the ability to express themselves effectively by enhancing their ability to express their emotions. The app also allows for parents to monitor their child’s progress. This is aligned with the national disability standard of individualized outcomes, feedback that can be assessed and reviewed to build on the child’s strengths to enable achievement of set goals (ACT, 2018).

How the app changes pedagogy (SAMR)? Samsung Look At Me plays a role of transformation in the SAMR model (Puentedura, 2014). The app redefines the tasks of smartphones cameras and smart cameras. The cameras of the device don’t function only to take pictures but uses
scientifically proven missions to recognise facial expressions and enable users make eye contact with those they are interacting with and eventually developing social skills.

**How the app encourages person centred planning?** With the activity feedback from the app, service providers can use the information to monitor the child’s progress towards achievement of goals in the individualized plans. Which is necessary to plan and deliver interventions that are mindful and responsive to the needs of the and preferences of the client (Dean et al., 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** Samsung Look at Me enhances development of social skills by enabling users practice skills necessary for effective communication which is fundamental for connectivity. It is through connectivity that a community of learners, teachers, relatives and other service providers will be built towards a common goal of empowerment (Nerantzi and Beckingham, 2015). Samsung Look at Me records and stores the child’s activity, which is curation for later retrieval to allow for progress monitoring of social skill development.

**Evidence from the literature that the app is capable of the claims made:** The Look at Me app is aimed at helping develop communication skills in children with autism, with a view to strengthening relationships with people around them. The app was developed by Samsung in collaboration with scientific professionals. 60 % of the 20 children that were trained in the program displayed improved ability to make eye contact (Cardon, 2016). Families whose children use the app are connected and share experiences and their children’s progress. For many people who are affected by autism, making eye contact and social skills has been a challenge, nevertheless they have been found to be fond of digital devices, which inspired the development of the Samsung Look At Me app. The app was developed with the intention to enable facial recognition through smartphones and smart cameras (AutismSpeaks, 2018).

**General Comments:** Samsung Look at Me could be useful in facilitation of optimum quality of life opportunities for children with autism since it allows for progress monitoring. The developmental educators will be able to use the feedback from the app to monitor the child for achievement of social skills, which is a skill competence essential for optimal quality of life.
Reviewer: Kumbudzani Leopard  

**Touch Voice +**

**Operating System:** iOS, Android  
**Location:** Google Play Store and Apple Store  
**Cost:** $31.99AU

**Description:** Touch Voice+ is an app for people with speech impairment. The app helps facilitate communication between people with unarticulated or weak speech. This include people with medical conditions like Stroke, ALS, Traumatic Brain Injury, Brain Tumour, Cerebral Palsy, Multiple Sclerosis, Ataxia, Dysarthria, Laryngeal Cancer, Selective Mutism, Parkinson's and more. People with such conditions encounter frustrations trying to communicate with family, friends, care providers and loved ones, people at home and in hospitals. Touch Voice + uses natural human sounding speech synthesis and runs on smart devices and computers. The app displays auto speaking buttons that gives a voice immediately upon touch with little input, which makes it easier for people with motor impairments and finger dexterity challenges. Devices with larger screens are recommended for ease of target of displayed speech buttons. The app is available in English and Spanish with customised male, female and child speech voices. Touch Voice+ has more than 4,100 words, phrases from 37 common discussion types, and a button that allows for pause and resuming the dialogue.

**Alignment with the UDL guideline:** Touch Voice+ app is aligned with UDL principle of multiple means of presentation through images and voice to allow for ease of perception. The app also allows for multiple means of expression by enable people with speech impairment express themselves regardless of their speech impairment (CAST, 2018). Touch Voice has array of images that give users speaking capability, allow for expressions of expressions and general living needs, notifying pain levels to care givers at home and hospitals. Under the UDL principle of multiple means of presentation the app allows users to use images and different customizes speech voices in both English and Spanish with ease of access speech buttons and options of phrases from 37 common discussion types. This is aligned with checkpoints 1.1, 1.2, 1.3, 2.1, 2.4 and 3.3. Under the UDL principle of multiple means of action and expression, Touch Voice+ also allows for manipulation like pausing and resuming and provides for alternative means for selection and response with the option of yes or no assigned to each speech button and multiple media of text and images. This is aligned to checkpoints 4.1, 4.2 and 5.1 (CAST, 2018).

**Curriculum area:** Touch Voice uses a combination of image and phrases which can assist in language development for both children and adults. With such features, the app promotes building of literacy through associations.

**How does the app meet the National Disability Standards?** From the six revised National Standards for disability service providers, Touch Voice allows users to express their needs and preferences to help services providers focus plan for services from the client’s perspective. In that way, the app promotes individual rights to freedom of expression, autonomy. The app also promotes
participation and inclusion of the users in different situations like with families, friends, caregivers and other services providers working together towards promoting opportunities for people with disabilities (ACT, 2018).

**How the app changes pedagogy (SAMR)?** Touch Voice+ fits in the top half of the SAMR model of Puentedura (2014) The app moves into transformative tasks, creating new opportunities of communication for people with speech difficulties as the only possible way of facilitating their ability to communicate.

**How the app encourages person centred planning?** In the person centred approach, service providers have to know and take the client’s perspective, needs and preferences. And these must be communicated by the client (Dean et al., 2012). The app enables users communicate to make their perspectives, preferences and needs known to service providers to enable planning and delivery of services that responds to the patients’ unique needs and preferences with flexibility.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)** Touch Voice is an Augmentative Alternative Communication that can be in any common communication scenario or situation for people with natural speech challenges to create multiway communication during a dialogue. The app therefore encourages communication and collaboration of the 5Cs model framework stated in Nerantzi and Beckingham (2015).

**Evidence from the literature that the app is capable of the claims made:** The app has not been reviewed before, therefore no evidence has been found from the literature.

**General Comments:** Touch Voice is a very vital app that can break commutation barriers between users and enables maintenance of closer relationships with mutual understanding between the users and those close to them like teachers and care givers. It enables better communication that promote care, empowerment and recovery.
Talkitt

Operating System: iOS, Android
Location: Google Play Store and Apple Store
Cost: Free

Description: Talkitt is developed as a communication solution for people with communication difficulties of all age groups. These include people with motor, speech and language disorder like those with cerebral palsy, autism, brain damage, Parkinson’s and others. The app transforms incomprehensible speech to comprehensible speech using the user’s voice in any language spoken by the user. Talkitt first recognizes the user’s voice and use it create their personal speech patterns and dictionary, which are then used when translating the user’s speech from incomprehensible to comprehensible allowing users with speech difficulties express themselves and participate in social activities. The app is compatible with smart devices like smartphones, tablets, iPhone, iPad, laptops and glasses.

Alignment with the UDL guideline: The app enables collaboration and community between the users with speech impairment and their teachers or other learners as with the help of the app, they are able understand each other. This is aligned with UDL principle of multiple means of engagement by recruiting user interests indicated in checkpoint 8.3 (CAST, 2018). The app also optimizes individual choice by allowing for choice of language and because it is runs in different devices, it allows for use in in different situations and settings. This is aligned with UDL principle of multiple means of engagement checkpoint 7.1 (CAST, 2018). Talkitt allows for use in any language spoken by users. Based on that, the app is aligned with checkpoint 2.4 of UDL principle of multiple means of representation. Talkitt is also aligned with the UDL principle of multiple means of action and expression by provision of options for expression and communication (CAST, 2018). With smart devices users with communication can always type on devices to communicate, but with Talkitt users can are able to communicate using their natural voice recognised and transformed by the app as an option of communication.

Curriculum area: Talkitt enhances development of social skills for users of all ages with communication impairment. With Talkitt, users can express themselves, have fun with friends in social settings like classroom, home and social meetings. The app can also support curriculum access where learners can use the app for reading comprehension.

How does the app meet the National Disability Standards? Talkitt allows people with speech impairments ability to express themselves to caregivers and other service providers. Therefore, the app meets the National Disability Service Standards for people with disabilities by promote their right to freedom of expression, self-determination and decision making should be promoted (ACT, 2018).

How the app changes pedagogy (SAMR)? The app plays a role of augmentation from the SAMR model in Puentedura (2014), where the user’s natural voice is used to synthesize an understandable
speech. The app learns the user’s voice and create their vocabulary dictionary which is then used to translate the user’s incomprehensible speech. In that way the task of speech synthesis is redesigned to match the user's natural voice. This feature of the app aligns with the modification level of the SAMR model Puenteedura (2014).

**How the app encourages person centred planning?** Talkitt app enables users to freely express their needs and preferences to caregivers and service providers, which are used to guide the planning of the services of the person at the centre of the program. According to ADHC (2009, p. 13) “a person-centred approach focuses on Focuses on individual’s unique interests and preferences”. Therefore, Talkitt facilitates collaboration meetings and promote their effectiveness the users will be fully engaged in all the meetings.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)** Talkitt enables users to engage with other people like family members, friends, relatives and service providers both at home and school. In that way it encourages communication which maximizes engagement and effectiveness of collaboration of the 5CS framework model (Nerantzi and Beckingham, 2015).

**Evidence from the literature that the app is capable of the claims made:** Talkitt was developed by Weissberg after consulting with speech therapists to solve the problem of speech impairment. The app operates by creating a dictionary of sounds which are then associated with words. When the user speaks a word, it captured and associated with these words in the app and translated to understandable speech. The app runs on smartphones and tablets (Jaffe, 2014).

**General Comments:** Talkitt is an innovative device meant to change lives of people with speech impairment by bridging the communication gap between them and their loved ones and reduce frustrations of struggling with self-expression. The app gives users a voice allowing them to be understood, thus strengthening their relationships between users and their loved ones. The app can be used in different settings including home and school as a communication tool between users and their educators, as well as supporting curriculum access for learners.
Reviewers: Kumbudzani Leopard  Getting along - App 15

Proloquo2go

Operating System: System: IOS

Location: Apple store

Cost: AU$ 399.99

Description: Proloquo2go is an Augmented and Alternative communication (AAC) app that promotes language development for people with communication difficulties. With ExpressivePower™ feature, the app combines unique features to enable communication in an expressive way. Text to speech feature is combined with special emotive expressions and sounds and does not need the user to learn and insert codes in the text. The voices in the text to speech feature were co-created by an inspiring voice and speech solutions provider, the Acapella Group. Text to Speech voices that were co-developed with Acapela Group include a range of expressive recordings of things children often say. In addition, the common sounds often emulated by children during playtime are recorded by the child voice talents. These expressions symbols and sounds with the right tone greatly help users to communicate with full multi-lingual support and with emotions. Ability to express oneself is very important to everyone, and with Proloquo2go for people with communication difficulties like autism spectrum disorder, cerebral palsy, Down syndrome, developmental disabilities, apraxia, stroke, and traumatic brain injury will be able to successfully communicate. The app has easy access to actions like copy and paste, changing from one to the other and search.

Alignment with the UDL guideline: Proloquo2go is aligned with the first principle of UDL guideline by providing for multiple means of representation. The app provides for options of perception where a combination of text, sound and images are used. These are indicated by checkpoints 1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, and 3.4. (CAST, 2018). This is because Proloquo2go allows for expressions that enable different forms of communication like informing, explaining, presenting, educating, telling stories, raising an alarm, notifying and entertaining. This makes the app suitable for use in different settings like at school, work and home where users need to communicate with other people using different languages and emotions. The app is also aligned with the UDL principle of providing multiple means of action and expression indicated by checkpoints 5.1 and 5.2 (CAST, 2018). Since the app enable communication for users it aligns with the UDL principle of providing multiple means of engagement indicated by checkpoints 7.1, 7.2, 8.3, 9.1 and 9.3 (CAST, 2018).

Curriculum area: Proloquo2go is aimed at supporting language development in all users from beginners to advanced catering for a wide range of fine –motor, visual and cognitive skills.

How does the app meet the National Disability Standards? Proloquo2go meets the National Disability Standards of Individual outcomes (ACT, 2018). The app puts into consideration the differences in individuals in terms of perception and comprehension of information. It is available in English, French, Spanish and Dutch and features both adults and children voices. These features allow
enough flexibility to meet the needs of individual users in terms of different languages, expressions, tones, emotions and symbols. The app has accessibility features that allows users to choose a button and customise the voice that fits the mood, the volume, speech rate for each button.

**How the app changes pedagogy (SAMR)?** Proloquo2go is aligned with the enhancement task of the SAMR model (Puentedura, 2014). The app performs an augmentative role by enhancing communication and ensuring communication skills development.

**How the app encourages person centred planning?** When organising assistance for people with disabilities, where the service user has the right to make choices, proloquo2go will enable communication of users to express their choices especially in higher education learning environments. The app will facilitate communication between the service user the service providers and allow for planning and evaluation of planned services based on the opinions, preferences and needs communicated by the user (Dean et al., 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Creativity, communication, collaboration, cooperation, and critical thinking have gained a lot of attention in the 21st century approach and remain central to personalized learning. The app facilitates a modest and regular communication between the teacher and the student as a communication tool. Communication are essential for student development as it allows students to articulate their understanding through open discussion, proloquo2go encourages peer to peer engagement for students with communication difficulties as well as the educators. It is through communication that collaboration, critical thinking, community, connectivity and creativity are developed (Nerantzi and Beckingham, 2015). With communication skills, students can engage in activities that facilitate collaboration, critical thinking, community, connectivity and creativity. The app facilitates connection and instant sharing of information, views, feelings, needs and wants with peers, educators and mentors.

**Evidence from the literature that the app is capable of the claims made:** Proloquo2go has been found to be a very effective intervention tool in enhancing communication skills for children with Autism Spectrum Disorder. Krcek (2015) Conducted a study with an objective “to determine the effectiveness of using Proloquo2Go in teaching labelling, requesting, and verbal completion (fill-in-the-blank) tasks during ABA therapy to children with ASD” (p.6). The app, as an intervention communication tool, was found to be useful in enhancing communication skills in children with Autism Spectrum Disorder proven by high scores achieved by participants in requesting, labelling, and verbal completion.

**General Comments:** Proloquo2go is a very essential communication app for children, teens and adults with communication difficulties, making it useful in all educational settings from lower education to higher education. With the features it has people with communication difficulties will be able interact with caregivers and educators as the app will enable them to read, notify, explain, tell stories, alarm, notify, and entertain.
Seeing AI

Operating System: IOS
Location: iTunes Store
Cost: Free

Description: Seeing AI (artificial intelligence) is an app that has been designed for use by people who are blind or have low vision. It allows the user to access an audible description of what’s around them. It will give an audio description of the person in front of the user, this person's appearance details can then be saved in order for the user to then have them identified at a later date. It will even describe the emotions a person is expressing on their face. Seeing AI can identify and read passages of text, which the app reads as soon as the device is pointed at it, unlike many apps preceding AI in which the user has to hold the camera still to capture a picture and then direct the app to read the text. It reads both printed and handwritten text. Seeing AI will even guide the user, via audio as to how to capture the page in front of them. Seeing AI will scan bar codes and provide an audio description of the product and it will provide a beeping sound to help the user locate the bar code. Seeing AI will identify cash money. It will also describe the general scene in front of the user (this feature is still in a trial stage but is nonetheless very impressive). Seeing AI also has a built-in colour detector function which has previously only been offered in apps that are considered by some to be expensive.

Alignment with the UDL guideline: Seeing AI aligns with many of the UDL guidelines, namely those associated with providing multiple means of representation. Seeing AI offers ways of customizing the display of information (1.1) for people who are blind or have low vision and therefore cannot rely on the visual sight to access the app. The app audibly guides the user by recognising what the user is trying to do and providing audio prompts as to how to do it. Its visual presentation is uncluttered with high contrast; such presentation that maximise access for a person who is blind or has low vision. As this app is aimed at being used by people who have low vision or are blind, it does not require the user to read information with their eyes, rather listen to the information being presented and act upon it. Seeing AI consistently offers alternatives for visual information (1.3) by providing audio descriptions of the world around the user. Support decoding of text, mathematical notation, and symbols (2.3), Provide options for Comprehension (3) Activate or supply background knowledge (3.1) and Guide information processing and visualization (3.3) are also aligned (CAST, 2018).

Curriculum area: Seeing AI can be used in the Expanded Core Curriculum (for students who are blind or have low vision) areas of Independent Living; shopping and money, and Social Interaction: making friends and dealing with new people (SVRC, n.d.). The app recognises and audibly describes cash, therefore assisting the user whilst shopping and with recognising the money they are using. The app describes people around the user, their profiles can be saved which can then allow the user to future audio descriptions within that context, for example: “Mark the shop keeper is standing at the register”. The user, who ordinarily might not be able to visually
recognise that Mark, someone they have dealt with several times, is the person at the register. They can then confidently approach Mark with a greeting and further social interaction. This app can be used to support students of all ages.

**How does the app meet the National Disability Standards?** Seeing AI meets the National Disability Standards; Standard two: Participation and Inclusion by giving people who are blind or have low vision audio descriptions of the world around them that enable such participation and inclusion. Users can use the app to support their participation in everyday activities such as shopping (dealing with money and scanning barcodes) and visiting unknown places (having the new scene described to them). The app supports inclusion by giving the user access to audio descriptions of the people around them and telling them when they are approaching a known person. Therefore, the user can interact more confidently in these social occasions.

**How the app changes pedagogy (SAMR)?** Seeing AI fits in to the transformation section of the SAMR model as it is redefining in nature.

**How the app encourages person centred planning?** Seeing AI can be used in varying and individual ways depending on the needs of the user. The type of voice and the speed at which it is spoken can be changed to suit the needs and preferences of the user. The large, high contrast and bold text allow for maximum access by a person who is blind or has low vision. As the app learns and stores the visual description of each person the user has asked it to, a bank of audio descriptions is created, specific to the user. Kind of like a new age address book.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Seeing AI encourages the strands of connectivity and curation from the 5Cs. Seeing AI supports the user to independently recognise the people, things and places around them. It gives the user control over their environment by giving them audio access to it, which replaces the access lost as a consequence of blindness or low vision. When in receipt of this information, the user is more empowered and confident in dealing and communicating within the space, therefore connecting with their environment in an independent way. Seeing AI stores and curates its information, specifically its information on the people the user sees frequently. It saves this information after learning it, in order to be retrieved at a later stage by the user, when needed.

**Evidence from the literature that the app is capable of the claims made:** People who are blind or have low vision often miss out on the intricacies of their environment that are easily accessed by fully sighted people (Robinson, Braimah-Avery, Chun, Pusateri and Jay, 2017). Translating a visual image into an audio description is an effective way of increasing access, especially for people who are blind or have low vision (Walczak and Fryer, 2017).

**General Comments:** Seeing AI can be used by teachers and educators to support students with low vision or blindness to access print, orientation and mobility awareness and in teaching about money, barcodes and social engagement.
TapSpeak Sequence

**Operating System:** IOS

**Location:** iTunes, App Store

**Cost:** $29.99

**Description:** TapSpeak Sequence is an app designed to support children with disabilities and those experiencing communications difficulties to speak. Message sequences can be created and saved to be used again. Messages can be made using pictures and/or voice. Pictures can be the user’s own photographs, drawings and/or the images provided by the app. Children can use this app to cue themselves in to a conversation when they have something to say. This might be in the context of a classroom and in one on one personal conversations. It can be used for storytelling and for whole group activities such as singing. TapSpeak sequence can be used by children with low vision or who are blind as it makes good use of both high contrast and bold visuals and boasts excellent auditory options.

**Alignment with the UDL guideline:** TapSpeak Sequence aligns with the several of the UDL guidelines:

- Provides options for Recruiting Interest (7), specifically the Optimize individual choice and autonomy (7.1) Optimize relevance, value, and authenticity (7.2) subsections. Illustrate through multiple media (2.5) Provide options for Expression and Communication (5) Use multiple media for communication (5.1) Use multiple tools for construction and composition (5.2) Build fluencies with graduated levels of support for practice and performance (5.3) Provide options for Physical Action (4) vary the methods for response and navigation (4.1) (CAST, 2018).

**Curriculum area:** This app supports the language for interaction sub section of the English strand of the Australian Curriculum. It supports students to 1) understand that language can be used to explore ways of expressing needs, likes and dislikes and 2) to understand the use of vocabulary in familiar contexts related to everyday experiences, personal interests and topics taught at school. These strands come form the Foundation year of the Australian Curriculum, however the app could be used by children of all ages who enjoy the simple and engaging nature of it. This app also supports the social interaction strand of the Expanded Core Curriculum (for students who are blind or have low vision) (SVRC, n.d.).

**How does the app meet the National Disability Standards?** This app encourages differentiation and individuality for people by meeting Standard Two: Participation and Inclusion. It allows students to express themselves and participate in class activities and express themselves in ways that best suit their needs and capabilities.

**How the app changes pedagogy (SAMR)?** TapSpeak Sequence redefines how the student participates in class lessons, how they communicate with others and how they show their understanding of what’s been taught. Instead of a student showing they have learnt how to sing “Mary had a Little Lamb” by vocally singing the next section when it’s their turn, a student using this app can
press the corresponding tile on the iPad and have the iPad sing their section, perhaps even in their pre-recorded voice. This aligns with the transformation section of SAMR.

**How the app encourages person centred planning?** Everything about this app is person/user centred. It is entirely malleable in its presentation and it allows for recording of voices and uploading of personal drawings and photos.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)** TapSpeak Sequence encourages Connectivity; the user connects through the app to the lessons being taught in the classroom and to his/her peers by using the app to express themselves. Collaboration; With “Family Sharing” set up, up to six family members can use this app. Creativity; the user and support staff can use the app to create sequences of expressions individual to the specific user. Curation; information in the form of pictures, diagrams and photos are curated in this app for later use.

**Evidence from the literature that the app is capable of the claims made:** This app supports the principles of ACC (Augmentative and Alternative Communication). Ostvik, Ytterhus and Balandin (2016) suggest that apps that enable the use of ACC could enhance friendships between children by giving children with disability a platform for communication with their peers. The “Family Sharing” function of this app allows for multiple members of the family to be involved in its use. As discussed by Sievers, Trembath and Westerveld (2018), the engagement of ACC by the student’s family members can be one predictor of its success.

**General Comments:** TapSpeak Sequence can be used in the classroom to help support children with disabilities to communicate. It can be personalised in using the own child’s photographs and drawings to promote true and authentic engagement and communication. Students can use Tap Speak Sequence in class sharing situations, where they may have something to say and add to the discussion but may not be able to do that verbally. Students can also use the app to express their needs and wants, by using the expressive sequencing function to communicate.
**Reviewer:** Margaret Ling

**Getting along - App 18**

**TalkBox Voice Messenger**

**Operating System:** Android

**Location:** Google Play Store

**Cost:** Free

**Description:** Talk Box Voice Messenger is an app that allows for the sending and receiving of voice messages. It is designed to be simple and easy to use. It boasts Push to Talk (PTT) capabilities, making it highly accessible for people who are blind or have low vision. You can also share videos, pictures, text and locations through this app. You can post voice messages to social media platforms such as Face Book and Twitter, as well as send personal voice messages to one other recipient or a pre-determined group. Conversation history is also recorded.

**Alignment with the UDL guideline:** TalkBox Voice Messenger aligns with the UDL guidelines in the following ways: Provide multiple means of Engagement - Provide options for Recruiting Interest (7), specifically Optimize individual choice and autonomy (7.1) – the user can choose the format the message will be sent in. Provide options for Sustaining Effort and Persistence (8), specifically Foster collaboration and community (8.3). Provide multiple means of Representation - Offer ways of customizing the display of information (1.1) Offer alternatives for visual information (1.3) Provide options for Expression and Communication (5) Use multiple media for communication (5.1) Use multiple tools for construction and composition (5.2) (CAST, 2018).

**Curriculum area:** This app meets the Social Interaction section of the Expanded Core Curriculum (for students who are blind or have low vision) by offering alternative ways of accessing social interactions and expressing one’s self (SVRC, n.d.).

**How does the app meet the National Disability Standards?** This app meets standards 2: Participation and Inclusion and 3: Individual Outcomes of the National Disability Standards. This app gives the user control over how he/she has contact with family, friends and community.

**How the app changes pedagogy (SAMR)?** This app modifies how we once sent permanent messages; only through printed text. It allows for messages to be sent via voice, to be delivered to the recipient much like a text message, then read at the recipient’s leisure (as opposed to having a live phone conversation). TalkBox Voice Messenger falls into the transformation section of the SAMR model.

**How the app encourages person centred planning?** This app can be used in varying ways depending on what the needs and capabilities of the user are. Messages can be sent through voice, text, picture or video.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app encourages all of the 5Cs: Connectivity – the app allows for connection to others through the sharing of messages, pictures, videos and locations. Community and Collaboration – group chat
can be created, fostering a sense of connecting and sharing within a community. Creativity – the expression of thought via voice. Curation – conversations are recorded to allow for retrieval at a later stage.

**Evidence from the literature that the app is capable of the claims made:** As discussed by Rodrigues, Montague, Nicolau and Guerreiro (2015), people who are blind or have low vision can be at a disadvantage when using smartphones to send messages. Having to visually navigate a phone, especially those with a smaller screen can be difficult, and especially so if wanting to send a text message and trying to use the small keyboard to do so. Talk Box Voice Messenger aims to limit these frustrations by providing the voice to voice function. Its push to talk feature allows for maximum ease of use by providing a large, button on the screen to push when you are ready to speak. Voykinska, Azenkot, Wu and Leshed (2016) discuss the importance of this, suggesting that a “de cluttered” screen can completely change the accessibility for a person who is blind or has low vision.

**General Comments:** This app can be used by a wide range of people. Its applications for people with disabilities, namely print disability and those who are blind or have low vision are significant. Also, it is worth noting that there are most likely many people in the community who may prefer this method of sending messages over the more traditional text type. Older people who may not feel adept nor want to become proficient at navigating a smart phone may prefer this simpler, straightforward approach. In the classroom this app might be used between student and teacher and by student to student. Many teachers now use their own phones in their classroom and therefore this app, with its ability to be used on a phone or tablet may well prove a valuable tool for communication between students and teachers.
Reviewer: Margaret Ling  Getting along - App 19

**Vorail**

**Operating System:** IOS

**Location:** iTunes Store

**Cost:** Free

**Description:** Vorail is a social networking app that uses voice instead of text. It encourages a question and answer format, with all posts known as “questions” however they can be comments, musings, thoughts etc. Uses report it to be similar in functionality to Face Book, but a lot more user friendly, especially for people who are blind or have low vision.

**Alignment with the UDL guideline:** Provide options for Sustaining Effort and Persistence (8): Vary demands and resources to optimize challenge (8.2) Foster collaboration and community (8.3) Provide options for Perception (1) Offer ways of customizing the display of information (1.1) Offer alternatives for visual information (1.3) Provide options for Expression and Communication (5) Use multiple media for communication (5.1) Use multiple tools for construction and composition (5.2) (CAST, 2018).

**Curriculum area:** Vorail meets the area of Social Skills in the Expanded Core Curriculum (for students who are blind or have low vision). As it is an app for people 17 years or older, the app is aimed at young adults. Whilst the ECC is targeted at young people of school age, the social interaction has a continuing focus throughout life (SVRC, n.d.). Vorail could support anyone over the age of 17 years who is seeking to make friends through non-traditional (print) social media.

**How does the app meet the National Disability Standards?** Vorail encourages use by people with low vision and in fact anyone who might be having trouble reading print. Standard 2: Participation and Inclusion - I have the right to participate in my chosen community and I also have the right to decide how I have contact with family, friends and community is supported by this app. Standard 3: Individual Outcomes - I use services and supports which build on my strengths and support me to reach my life goals is also supported.

**How the app changes pedagogy (SAMR)?** Vorail modifies the way in which we have previously known social media to work; through text. It meets the Transformation section of the SAMR model.

**How the app encourages person centred planning?** It is up to the individual how to approach this app and how to sculpt it in to their own preferences that reflect their interests and capabilities. The posts (or “questions”) are completely driven by the individual. So too, are the replies (or “answers”). From here, an online community of like-minded people is created, and new friendships forged.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** This app supports all areas of the SCs: Connectivity – users can connect to favourite sites and people. Community – users are connected to likeminded people. Collaboration – users can be sharing
ideas and data with others through their posts. Creativity – users can “write” their questions using their own voice. Curation – retrieval of information and previous posts is possible.

**Evidence from the literature that the app is capable of the claims made:** Jun Hu and Rauterberg (2015) suggest that people who are blind or have low vision engage with social media in different ways to people who are fully sighted. People who are blind or have low vision are more likely to passively receive information via social media and less likely to actively engage via posting (Jun Hu and Rauterberg, 2015). One reason for this different type of engagement, according to Jun Hu and Rauterberg (2015) is the difficulties faced regarding usability. The appearance of social media sites and the visual requirements typically necessary of these sites often limits access for a person who is blind or has low vision. As reported by David Flament, Manager of Adaptive Technology for Second Sense: Beyond Vision Loss, the Vorail app is specifically designed for people who are blind or have low vision. As the app uses voice rather than print, it offers a uniquely personal social media platform. People who are blind or have low vision can often not access photos, videos and text within social media sites in the same way as people who are fully sighted. In addition to the increased accessibility provided via using voice rather than print, Vorail is presented in an uncluttered, visually simple way. This is an important way of providing access for people with low vision or who are blind (Hope, 2018).

**General Comments:** This app has many uses across many different individuals. Like the functionality of the previous app, TalkBox Voice Messenger, this app can be used by people who are blind or have low vision as a replacement to the traditional social media apps which require the use of printed text. It is an authentic way of social networking via the internet as its use of voice enhances the personalisation of the app. It can be used by people wanting to make friends or extend their social circle. Users have control over when they might add in to a conversation, providing a safe space to simply listen should the user want to.
Reviewer: Margaret Ling

Clementine Wants to Know

Operating System: iOS

Location: iTunes app Store

Cost: Free

Description: Clementine Wants to Know is an interactive sexual education app designed for children. It follows 6 year old Clementine, an only child who is about to become a big sister. Clementine seeks to find the answers to questions such as “what are the differences between men and women / boys and girls?” and “where do babies come from?” It’s highly interactive, with the user participating in every stage of the app – from sending the sperm cells down to the egg, to cutting the umbilical cord after birth. It’s aimed at all children aged 5-12, and its clear and engaging graphics and great audio make it a very good app for children who are blind or have low vision.

Alignment with the UDL guideline: Provide options for Recruiting Interest (7) Optimize relevance, value, and authenticity (7.2) Provide options for Language and Symbols (2) Provide options for Comprehension (3) Highlight patterns, critical features, big ideas, and relationships (3.2) Illustrate through multiple media (2.5) (CAST, 2018).

Curriculum area: This app supports the Relationships and Sexuality section of the Australian Curriculum. Specifically, this app relates to the sub strands of parts of the body and how the body changes as they grow (Foundation to Year 2,) and reproduction and sexual health (from Year 3 to Year 10). It also aligns with the social interaction section of the Expanded Core Curriculum (for students who are blind or have low vision) (SVRC, n.d.).

How does the app meet the National Disability Standards? Through providing active participation and engagement of the user this app meets the Participation and Inclusion (2) section of the National Disability Standards.

How the app changes pedagogy (SAMR)? This app augments how we have traditional learnt sex education, through providing an interactive activity on a technological platform. It therefore sits in the Enhancement section of the SAMR model.

How the app encourages person centred planning? Clementine Wants to Know encourages person centred planning by allowing the user to navigate through the app at their own pace and by allowing repetition of the activities, should the user need more practice in or engagement with that area.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages the area of Creativity as it employs varied and enjoyable ways for the user to engage and participate. The provision of activities and the feedback given to the user once completed support creativity.
Evidence from the literature that the app is capable of the claims made: As discussed by Kelly, Wild, Ryan and Blackburn (2015), students who are blind or have low vision are at a disadvantage when only exposed to non-interactive delivery of sex education. These students do not have the same visual access as students who are fully sighted. Without sensory options, these students may miss out on the full, authentic learning possible via a program inclusive of sensory and tactile options (Kelly, Wild, Ryan and Blackburn, 2015). Kapperman and Kelly (2013) suggest that simply talking to students about sex education is not enough. Students need active engagement for the learning to stay with them. Students who are blind or have low vision need additional access to hands on learning activities when being taught sexual education. The more interactive a lesson on sexual education, the more likely it is that the student will retain what is taught (Kapperman and Kelly, 2013). Clementine Wants to Know is highly interactive, encouraging the user to move with Clementine on her journey and in fact, not proceeding until the user does so. It is fun and visually engaging with simple, bright graphics designed to engage a young audience.

General Comments: This app can be used by any child aged around 5 – 12. It has applications for children older than that age range, especially if the younger presentation and useability suits. It can be used in the teaching context to support the normal delivery of sexual education. It can be used by the whole class or just by those students the teacher feels it will benefit. It has application for use at home as well. It can be used by parent and child together, as a supporting tool for the parent/s’ own delivery of sexual education. It can be used to introduce the topic, as a fun and non-threatening approach to sex education, with the view of evoking questions from the child for further discussion, or it can be used as a post delivery of sex education tool to consolidate what has been taught.
**Reviewer:** Elisha Obsioma

**Getting along - App 21**

**My Sex Doctor Lite**

**Operating System:** IOS

**Location:** iTunes App Store

**Cost:** Free

**Description:** The ‘My Sex Doctor Lite’ app is recommended to be accessible for children of 12 years of age and up. The app discloses its age appropriate content that covers information regarding sexual health with information from puberty to pregnancy. ‘My Sex Doctor Lite’ has a built-in dictionary in the app that discusses over 500 terms. The app requires no internet access once downloaded on the IOS device.

**Alignment with the UDL guideline:** The ‘My Sex Doctor Lite’ app aligns two UDL guidelines. The app optimises individual choice and autonomy (UDL Guideline 7.1) whereas the user is provided with autonomy on what they choose to learn about on this app. The second, use multiple media for communication (UDL Guideline 5.1) as the use of social media and the interactive tools on this app provide the user with a wider range to express themselves (UDL Guideline 5.1).

**Curriculum area:** The ‘My Sex Doctor Lite’ app aligns with the NSW Curriculum: Personal Development, Health and Physical Education, K-10 Syllabus (Board of Studies NSW, 2018). Specifically, the life skills ‘Healthy, Safe and Active Lifestyles unit. However, teaching and learning of this unit requires the teaching, learning activities and resources to be age and stage appropriate for the students. The app states are for children ages 12 and up on the lite app. This app could assist with learning with planning and using health practices such as assisting in the protection against STIs and unwanted pregnancies.

**How does the app meet the National Disability Standards?** The ‘My Sex Doctor Lite’ app supports people with disability by giving them rights (National Standard 1) by giving people with disabilities the opportunity to actively learn through apps.

**How the app changes pedagogy (SAMR)?** The ‘My Sex Doctor Lite’ app augments how individuals learning on sexual health, providing users with an interactive informative education via technology. Therefore, according to the SAMR model, the app enhancers learning.

**How the app encourages person centred planning?** The ‘My Sex Doctor Lite’ app focuses on a person-centred approach such as the individual user’s interests and preferences of the user, for example, learning about sexual health and how to keep healthy that is relevant for the user.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** The ‘My Sex Doctor Lite’ app is very limited with regards to encouraging the use of SCs of learning through technology. The app assists learning with the last C, curation. The app provides a place where students or young adults can retrieve these resources now or later.
Evidence from the literature that the app is capable of the claims made: A systematic review conducted by Free, Phillips, Galli, Watson, Felix, Edwards, and Cornford (2013) looked at the effectiveness of mobile technology and education regarding individual’s health. As a popular technology, mobile phones can interact with consumers and engage them in learning about their health and when to consult a doctor.

General Comments: The ‘My Sex Doctor Lite’ app is suitable for users between the ages of 12 and up. The app can be used in an educational context to support the learning of healthy relationships and sexual education. The app can be used by the teacher as a resource for information, or an interactive tool for the whole class or for individual use.
Sexual Health Guide

Operating System: IOS
Location: iTunes App Store
Cost: Free

Description: The ‘Sexual Health Guide’ is an app that allows their users to explore and find information and advice on sexual health. Users can search the app or go through a list of topics that users may find informative to their sexual health. Topics that are covered, for example, include: safe sex, male and female sexual problems, STIs, sexual orientation, methods of contraception and myths about sex. The app is like a little pocket book of information regarding sexual health.

Alignment with the UDL guideline: The ‘Sexual Health Guide’ app aligns with two UDL Guidelines. The app Clarifies vocabulary and symbols (UDL Guideline 2.1) by giving users a description of words they may find hard to understand. The app optimises individual choice and autonomy (UDL guideline 7.1) whereas the user is provided with autonomy on what they choose to learn about on this app regarding their sexual health.

Curriculum area: The ‘Sexual Health Guide’ app aligns with the NSW Curriculum: Personal Development, Health and Physical Education, K-10 Syllabus (Board of Studies NSW, 2018). Specifically, the life skills ‘Healthy, Safe and Active Lifestyles unit. However, teaching and learning of this unit requires the teaching, learning activities and resources to be age and stage appropriate for the students. Some of the content may not be age appropriate for students in years 7 to 10, however, some information in this app could give students information that aligns with the curriculum.

How does the app meet the National Disability Standards? The ‘Sexual Health Guide’ app supports people with disability by giving them rights (National Standard 1) by giving people with disabilities the opportunity to actively learn through apps.

How the app changes pedagogy (SAMR)? The ‘Sexual Health Guide’ app augments how individuals learning on sexual health, providing users with an interactive informative education via technology. Therefore, according to the SAMR model, the app enhances learning on sexual health.

How the app encourages person centred planning? The ‘Sexual Health Guide’ app focuses on a person-centred approach such as the individual user’s interests and preferences, for example, their sexual preference through social inclusion. The app also gives the user authority, control and power over their sexual lifestyles and health.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The ‘Sexual Health Guide’ app is very limited with regards to encouraging the use of 5Cs of learning.
through technology. The app assists learning with the last C, curation. The app provides a place where students or young adults can retrieve these resources now or later.

**Evidence from the literature that the app is capable of the claims made:** Now, more than ever over the course of history mobile technologies have been integrated into young adolescent’s lives during school (Levine, 2011). Teachers using technology in a student-centred classroom is the norm as technology can assist all levels of learners with different learning needs. For example, teachers can use text-to-voice applications on iPads to support learners who have visual impairments (Levine, 2011).

**General Comments:** The ‘Sexual Health Guide’ app is suitable for older high school users. The app can be used in an educational context to support the learning of healthy relationships and sexual education. The app can be used by the teacher as a resource for information, or an interactive tool for the whole class or for individual use.
Reviewer: Elisha Obsioma

Getting along - App 23

Health Ed Buddy

Operating System: iOS

Location: iTunes App Store

Cost: $2.99

Description: The ‘Health Ed Buddy’ app is an educational and resourceful app that covers information regarding food choices, keeping fit, and the effects of tobacco and alcohol use. With over 37 different topics of lessons, this app is even promoted by science teachers. This app has in-depth lessons, quizzes, videos and flash cards that support learning about keeping the user healthy. The app discusses it was designed to help support teachers as a resource for learning in the classroom.

Alignment with the UDL guideline: The ‘Health Ed Buddy’ app aligns with several UDL guidelines. The app offers ways of customising the display of information (UDL Guideline 1.1) by offering the user learning tools such as videos, texts to read, auditory information, quizzes and flash cards. The app offers alternatives for visual information (UDL Guideline 1.3) by offering auditory cues instead of text or videos. The app clarifies vocabulary and symbols (UDL Guideline 2.1) by supporting the learner with important definitions of key words. The app also optimises relevance, value and authenticity (UDL Guideline 7.2) by allowing the user to participate in vary activities that are relevant to the user.

Curriculum area: The ‘Health Ed Buddy’ app aligns with the NSW Curriculum: Personal Development, Health and Physical Education, K-10 Syllabus (Board of Studies NSW, 2018). Specifically, the life skills ‘Healthy, Safe and Active Lifestyles unit. Looking closely at learning about food and physical lifestyles. The students can use this app to support their understanding in how to stay healthy, safe and active.

How does the app meet the National Disability Standards? The ‘Health Ed Buddy’ app supports people with disability by giving them rights (National Standard 1) by giving people with disabilities the opportunity to actively learn through apps.

How the app changes pedagogy (SAMR)? The ‘Health Ed Buddy’ app augments how individuals learning on healthy lifestyle choices, providing users with an interactive informative education via technology. Therefore, according to the SAMR model, the app enhancers learning on personal health.

How the app encourages person centred planning? The ‘Health Ed Buddy’ app focuses on a person-centred approach such as the individual user’s interests and preferences, for example, learning about healthy lifestyles that are relevant to the user.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The ‘Health Ed Buddy’ app is very limited with regards to encouraging the use of 5Cs of learning
through technology. The app assists learning with the last C, curation. The app provides a place where students or young adults can retrieve these resources now or later.

**Evidence from the literature that the app is capable of the claims made:** Levine (2011) recommends that professionals in the health industry should give detailed health information through apps instead of books, as technology is highly used by their target audience and this could be an appropriate and effective way to interact with youth.

**General Comments:** The ‘Health Ed Buddy’ app is suitable for users between the ages of 12 and up. The app can be used in an educational context to support the learning of healthy lifestyles with food and exercise. The app can be used by the teacher as a resource for information, or an interactive tool for the whole class or for individual use.
**Reviewer:** Elisha Obsioma

**Getting along - App 24**

**SexPositive**

**Operating System:** IOS

**Location:** iTunes App Store

**Cost:** Free

**Description:** The ‘SexPositive’ app allows men and women over the age of 18 to find love or sexual interests online through this apple app. The app promotes strong values in being positive, sincere, intense, reciprocal, healthy and safe. ‘SexPositive’ app deem themselves to contribute to positive sexual engagement, finding people on common grounds for mature, safe sexual encounters. The app allows its users to enter the app as a guest or with a login and share your sexual fantasies.

**Alignment with the UDL guideline:** The ‘SexPositive’ app aligns with one UDL guideline as this app is more for creating communities than learning. The app offers its users the ability to customise the display of information (UDL Guideline 1.1) by allowing users to create a profile that allows other people to interact with them and their profiles.

**Curriculum area:** The ‘SexPositive’ app does not align with any curriculum for primary or high school students as it is not age or stage appropriate. The app is a dating tool for sexual encounters for post-high school students over the age of 18 and is not suitable for school context or learning.

**How does the app meet the National Disability Standards?** The ‘SexPositive’ app supports people with disability by giving them rights (National Standard 1) by promoting their expression of freedom to create personalised profiles on the app. The app also supports participation and inclusion (National Standard 2) by providing opportunities to participate in their local community online.

**How the app changes pedagogy (SAMR)?** The ‘SexPositive’ app augments how individuals meet other individuals for sexual encounters, providing users with an interactive platform for meeting new people via technology. Therefore, according to the SAMR model, the app enhancers the chances of meeting new people for sexual encounters.

**How the app encourages person centred planning?** The ‘SexPositive’ app focuses on a person-centred approach such as the individual user’s interests and preferences, for example, their sexual preference through social inclusion. The app also gives the user authority, control and power over their social life.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The ‘SexPositive’ app is very limited with regards to encouraging the use of 5Cs of learning through technology from an educational point of view. However, this app allows users to connect to other people close to their location and create a community of people who are like-minded to express themselves.
Evidence from the literature that the app is capable of the claims made: Choi, Wong and Fong (2018) suggest that individuals who are online dating app users with a disability are more likely to be sexually abuse by a perpetrator than non-users. To support online users, more prevention methods through education need to be undertaken with people who are more likely to be targeted, such as people with disability (Choi, Wong and Fong, 2018)

General Comments: I do not believe this app could be useful to developmental educators or teachers as this is a dating app and not appropriate in the school context. However, a community service dedicated to supporting young adults with disabilities and using online dating apps, may benefit
**Reviewer:** Elisha Obsioma  
**Getting along - App 25**

**Only Women**

**Operating System:** IOS

**Location:** iTunes App Store and Play Store

**Cost:** Free or $9.99 monthly subscription for add-ons

**Description:** The ‘Only Women’ app allows women of all ages, cultures and backgrounds to find other like-minded women to reach out and form friendships or love interests. The app also works as an online dating tool for women to find women. ‘Only Women’ allows all women to create profiles that allow users to express their true selves and create a profile that reflects themselves and their personality. Real time communication and finding other women in the similar locations is a feature that they promote. The app is free; however, users can purchase premium membership that allows users to ‘unlock’ features that they do not disclose.

**Alignment with the UDL guideline:** The ‘Only Women’ app aligns with one UDL guideline as this app is more for creating communities than learning. The app offers its users the ability to customise the display of information (UDL Guideline 1.1) by allowing users to create a profile that allows other people to interact with them and their profiles.

**Curriculum area:** The ‘Only Women’ app does not align with any curriculum for primary or high school students as it is not age or stage appropriate. The app is a dating tool for post-high school students and is not suitable for school context or learning.

**How does the app meet the National Disability Standards?** The ‘Only Women’ app supports people with disability by giving them Rights (National Standard 1) by promoting their expression of freedom of sexuality to create personalised profiles on the app. The app also supports participation and inclusion (National Standard 2) by providing opportunities to participate in their local community online.

**How the app changes pedagogy (SAMR)?** The ‘Only Women’ app augments how individuals meet other women for sexual encounters, providing users with an interactive platform via technology. Therefore, according to the SAMR model, the app enhances the chances of meeting new people for sexual encounters.

**How the app encourages person centred planning?** The ‘Only Women’ app focuses on a person-centred approach such as the individual user’s interests and preferences, for example, their sexual preference through social inclusion. The app also gives the user authority, control and power over their social life.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The ‘Only woman’ app is very limited with regards to encouraging the use of 5Cs of learning through technology from an educational point of view. However, this app allows users to connect to
other people close to their location and create a community of people who are like-minded to express themselves.

**Evidence from the literature that the app is capable of the claims made:** Current research suggests that many people with disability are finding it difficult to find romantic or sexual partners with similar preferences (Miller, Chen, Glover-Graf, and Kranz, 2009; Wiegerink, Roebroeck, Donkervoort, Stam, and Cohen-Kettenis, 2006 as cited in Mazur, 2016). Online dating creates opportunities for people with disabilities to find others who they might not have met in their local community giving them more chances to find someone (Mazur, 2016).

**General Comments:** I do not believe this app could be useful to developmental educators or teachers as this is a dating app and not appropriate in the school context. However, a community service dedicated to supporting young adults with disabilities and using online dating apps, may benefit from supporting individuals during online communication.
Staying Safe and Safer Strangers

Operating System: iOS

Location: Apple Store

Cost: $2.99

Description: The app is focused on the concept of building community safety using social story telling. The app has two stories, the first story focuses on how to decrease stranger danger and make situations safer this also includes when lost in an unknown building. The other story focuses on what strategies and actions one needs to take if they are lost or disoriented. The main focus of the app is to help train social cues on selecting safer strangers when asking for help by identifying safe options such as police officers, check-u clerks, librarians or paramedics. The app is aware that knowing good community safety skills can be difficult for any child and focused on the issue. There focus was to create an application that uses visual support through social stories to coach these community safety skills. These stories use precise information on safety skills to ensure that children with special needs can more effectively and gain good community navigation.

Alignment with the UDL guideline: The application is presented through Three different modalities, including vision, hearing and touch. The app allows the user to not only read the social story but they can also select to have the story read to them. The can also select which story they want to listen to and repeat sections if necessary before moving on to the next phase of a story. The application also has great visual representations of concepts such as safer strangers and safe buildings. This is in congruency with section 2.0 of the Universal Design for Learning (UDL) guidelines. As the app is providing different content formats to cater for the perception of the user.

It is also allowing for information to be adjustable and giving choice to the user on how they want to learn the information. For the application asks the user if they would like the story to read to them or if they would like to read it them self (button display). This feature is also fulfilling the curriculum UDL guideline of 1.2 offering alternatives for auditory information, 1.3 offering alternatives for visual information. The apps real world application is congruent with section 4.0 of the UDL guidelines as it provides options and information for users to take physical action (making safe decisions) and there for helping to build good community skills. The use of social stories meets the guidelines of 5.1 using multiple media for communication. The app is using storytelling to learn good community skills, this story is present in many ways using pictures, audio and written word and visual cues such as arrows pointing to identify safer strangers.

Curriculum area: the application is suitable for children with autism between 4 years to 8 years of age. Children with autism can often have difficulties understanding how others may be feeling or what emotions they might be experiencing. This app can help them form conversation and
connect with others as well as build strong relationships at school or in the community e.g. school excursions.

**How does the app meet the National Disability Standards?** The application meets standards 2 as it helps provide meaningful participation and active inclusion in society through prompting the ability to navigate the community. The application is focused on helping the individual to deal with people who may not be known as well as new situations they have not experienced. The app is also meeting part 3 of the standard which is meeting individual’s outcomes, achieved through the application helping the individual to move towards the goal of developing social skills, so that they can form positive relationships in school and when out in the community.

**How the app changes pedagogy (SAMR)?** This app supplements how we traditionally learn community skills. It is acting as a direct substitute to enhance learning experience for young children with autism on the topic of good community skills. Therefore, this app sits within the augmentation section of the SAMR model under Enhancement.

**How the app encourages person centred planning?** This app encourages person centred learning through allowing the individual to select how they would like to access the information of the social story (audio, visual and written). This allows them to make an informed decision that to be able to learn in their own preferred format based on their own personal learning style.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This application encourages creativity through manipulation of data to present information in such that it can be understood and implement in a new way. It is taking information and presenting in a social story that caters for multiple learning styles (visual, audio, written).

**Evidence from the literature that the app is capable of the claims made:** Social stories were first conceptualised by Gray (1994) and has been implemented by many professionals to address a wide range for issues to change behaviour in social situations. In a study conducted by Gregg, (2017), it was found that using social stories to support dealing with challenging behaviors and communication, were affective. This study also showed that social stories were effective when teachers or educators create scripted stories based on the needs of the children in their classroom, (Gregg, 2017).

**General Comments:** This application could be implemented through a weekly training program under the watchful eye of a developmental educator in the community or school setting. The child could use the app under supervision of the developmental educator and become more independent in the situation as they progress through experience.
**Reviewer:** Jesse Dwyer

**Getting along - App 27**

**Touch and Learn-Emotions**

**Operating System:** IOS

**Location:** Apple App store

**Cost:** $1.99

**Description:** The application provides a safe way for children to practice the recognition of emotions in others. The application is used as an educational tool for young children with autism spectrum disorder. It also helps children with any developmental delays learn about how to read another person’s body language, facial expression and feelings. This is achieved through pattern recognition, the app itself uses pictures accompanied by audio guides to help the user try to identify which child in a group of photos is displaying the emotion in question. The app is also controllable and changeable. It allows for parents or teachers to customise options as well as change images to personalise the experience. Individual emotions can also be turned on or off to introduce one new emotion at a time. New emotions can also be added by teachers and parents to help children understand new emotions as they develop. The app has over 100 engaging photos that act as a library for users to explore. The app is simple to use and has voice programming so that a known person’s voice can be used to describe an emotion or ask a question to make it relatable to the child using the application.

**Alignment with the UDL guideline:** The application is congruent with 1.1 Offering ways of customising the display of information through images that represent emotions that can be personalised (changed to images of people that the user knows). For example, a teacher or parent could use their own face in learning examples. They could also source their own images and easily implement them into the app to convey emotions. The application also allows for voice customisation when speaking about the situation and questioning what emotions individuals in the picture are feeling. This also complies with section 1.2 providing options for language through changing the voice of the person in the application, (voice can be changed to a person the user recognises). The personalised learning that the application allows for really satisfies section 7.1 as the applications potential for personalisation allows the user to feel connected to the task as if the situation is directly related to them. This is because the people displaying the emotions in the scenario are close friends, family or teachers. This same feature of the application also relates to guiding the information processing, visualisation and manipulation of knowledge so that in can be useable in real world situation. This is aligned with section 3.3 of the Universal Design for Learning Guidelines.

**Curriculum area:** This app would be suitable for children in early intervention aged between 6 to possible 10 years old. This is because as the person ages, emotions becoming more complex and may become difficult to portray through the application. This program could best be implemented by a parent at home or a teacher in the class room. The applications focus is helping individuals understand the emotions of others to engage in meaningful conversation.
How does the app meet the National Disability Standards? The application is prompting a person centered safe way to gain understanding of other emotions. It meets the standards through helping the individual to reach outcomes, participate and engage in learning to build towards skills that will help them form quality relationships. The app is not breaching any rights of the individual as meets the service management control requirements as the application can be changed, modified and managed by teachers or developmental educators to suit the child’s demands.

How the app changes pedagogy (SAMR)? The application has completely redesigned the task of recognising emotions in others. This has been achieved by creating a platform that allows individuals with autism spectrum disorder to engage in practice of a task that they will directly face daily (identifying human emotions). This was once only possible through face to face interaction with a person, the application has modified emotional recognition by transforming the task through technology, there for it sits in the modification section of the SAMR model.

How the app encourages person centred planning? The application encourages person centred planning through allowing the pictures and voices that represent the emotions to be customised to not only implement language that the user understands, but to also make the situation relevant to them by using voices, pictures that the user is familiar with e.g. parent/teacher.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The application encourages curation through creating an organised resource library of images and voices that represent emotions so that the user can engage further in the learning process.

Evidence from the literature that the app is capable of the claims made: Berggren, Fletcher-Watson, Milenkovic, Marschik, Bolte and Jonsson, (2018) in a systematic review of the literature surrounding emotional recognition training in autism spectrum disorder, found that several studies suggest that training may improve emotional recognition. Ibid, (2018) also suggest that it is still very unknown to what extent training in this area may translate into real world situations in daily life. In regard to the application the personalisation of the voices and faces to display emotions in the application, are the same voices, faces that the user has close relationships with in the real world. This could perhaps improve the application of emotional recognition training for individuals with autism spectrum disorder.

General Comments: This app could be useful to teachers and developmental educators through the implementation of an emotional training program with supervision in the classroom setting. They can also customise the application so that is is tailored for the individual whom they are working with.
Model Me Going Places 2

Operating System: IOS
Location: Apple app store
Cost: $9.99

Description: This app uses visual teaching tools to help the learner simulate and understand challenging social situations in the community. The app has a simple design and is easy to use, its locations for social navigation include going to the hairdressers, the shopping centre, the doctors, the playground, grocery store and restaurants. The app has touch features including a back, forward and home button. Users can choose to view the images in a slide show or to manually advance the learning, so they can stop and think about different parts of the situation. Each photo has a descriptive text as well as a narration feature. The app has been designed for children and teenagers with autism spectrum disorder to be able to cope with new environments and meet new people. The app uses images to show the appropriate modelling behaviour in these environments.

Alignment with the UDL guideline: The application is congruent with section 2.5 illustrating through multiple media, as each lesson that the application provides is fully narrated, supported by images and text. This is also in line with 1.1 providing options for perception, 1.3 offering alternatives for visual information, 1.2 offering alternatives for audio information. The information presented is usable real-world knowledge that is given through explicit prompts for each step in a sequential process, to help create new understandings. This is congruent with section 3.3 guiding the information processing, visualisation and manipulation and section 4.1 providing options for physical action. The platform creates prompts so that users can stop and think before they select and decide the correct action in the social situation, this is congruent with section 6.2 support planning and strategy development. This feature of the application also fits with section 9.2 facilitating personal coping skills through using real life situations through simulation to demonstrate coping skills in different environments.

Curriculum area: The app is helpful for teaching appropriate behavior in the community setting when meeting new people in new environments. The application would be very helpful when going on class excursions, learning about appropriate behavior in the community as well as dealing with new experiences and people.

How does the app meet the National Disability Standards? Upholds the rights of the individual by not limiting their actions in the community but rather guiding their behavior, so they can cope with new environment that consist of new people. The app is working with the user to prepare them for new stimulus in the environment, so they do not get overwhelmed by new people or places and can participate e.g. class excursions. This is also congruent with section 2
participation and inclusion as they are learning how to become an active member of the community and feel safe/confident in new environments.

**How the app changes pedagogy (SAMR)?** Community operation could only once be done by experiencing the situation, for example going to see a doctor. That same situation can now be practices and strategies can be put in place and personalised using technology. Therefore, this application has significantly enhanced the learning process and acts a direct substitute for real life experience through technology. The app sits in the Augmentation section of the SAMR model.

**How the app encourages person centred planning?** The application encourages person centred learning through being able to navigate photos one by one to stop and think about the learning, the app also narrates every situation for audio learning. Users have a choice of the destination they wish to explore; the images and narration express what they can expect in the situation and how they can model their behavior in that environment.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The application serves as a curation of data where individuals can go and learn specific skills that are organised into different categories and group together into subcategories, these can be accessed and easily found at any time.

**Evidence from the literature that the app is capable of the claims made:** In a study conducted by Diamond, (2018), it was suggested that multiple avenues for solving problems throughout the school environment may benefit elementary children with autism spectrum disorder. Ibid, (2018) found that students need multiple ways to practice solving a problem and the steps broken down of solving the problem. This application is breaking down the problem of learning social skills and community navigation into step by step customisable process that allows for learning through multiple media forms. Diamond, (2018), also suggested that visual support during routine and planned activities to teach problem solving process, support the development of self confidence among children with autism spectrum disorder.

**General Comments:** This application could be used by teachers and developmental educators in the classroom setting to work through lessons with children with Autism spectrum disorder. It could also be used in the community for navigation, for example the individual could work through a lesson on community navigation with the Development educator than they could implement this into a real-life setting implementing the learn strategies to cope with dealing with new experiences and people.
Social Adventures

Operating System: IOS

Location: Apple App store

Cost: $7.99

Description: Social adventures is an educational application that provides teachers, parents and other professionals with a library of social skills training activities for children with autism spectrum disorder. The application was designed for you children aged 3 to 13 years of age with social skills training needs. This includes but not limited to individuals with Autism spectrum disorder, ADHD, sensory processing disorder and social anxiety. It was designed to help people who needs social skills training build confidence in their social environment so that they can develop positive relationships with others around them.

The application addresses a range of social situations including;

- Teaching how to initiate social interactions
- Maintaining conversations with people
- How to be an advocate
- How to negotiate
- Understanding non-verbal language (body language, facial expression)
- Understanding how to negotiate personal space
- Understanding Humour.

The app includes over 80 activities that can be used in a group setting, classroom, one on one. It gives the user clear, simple instructions that are easy to follow (this also includes a separate section for the person implementing the program). The program uses visual descriptive pictures that can be used for role play and flash cards. Overall the app provides an 8-week program that teachers and educators can use to develop social skills in the person they are working with.

Alignment with the UDL guideline: Section of the Universal Design for Learning suggests that providing options for comprehension is important as the ability to transform information into useable knowledge is an active process. The application not only provides accessible information on social skill for the person who needs them, it is also providing a platform for educators, teachers and parents to practically engage with the individual. This is so they can actively create a learning process that transforms the learned information into usable applied knowledge for the real world. This is also congruent with section 3. 4 transfer and generalisation, 3.2 highlighting patterns, critical features. Big ideas and relationships. Section 5. 2 multiple tools for construction and composition, 5.3 build fluencies with graduated levels of support for practice and performance and 7.2 optimizing relevance, value and authenticity through varying activities/sources of information so that they can be personalised and put into context for the learner.
**Curriculum area:** This application is very useful in teaching children how to react in social situations with other children in the classroom or even with teachers. The activities can be done in small groups or one on one for extra support for the individual.

**How does the app meet the National Disability Standards?** The application encourages individual outcomes through building the social skills that can be assessed, reviewed and changed to meet the needs of the individual. This is encouraging building meaningful relationships with the individual's peers, teachers and anyone who they engage with socially, this aspect of the application fulfills the participation and inclusion aspect of the standards.

**How the app changes pedagogy (SAMR)?** The application has created enhancements in the teaching process of social skills through augmentation. The application acts as a direct substitute for improvement of social skills with more functional practical application through learning the lessons of the 8-week program and implementing them with the teacher, parent or professional.

**How the app encourages person centred planning?** The user is at the center of the decision-making process as to what they want to learn. whilst using the app, outside helpers such as teachers and parents guide the learning. The app uses multiple forms of media (visual, audio and text) to deliver lessons. It also has a separate section for parents and teachers on how to deliver the lesson in best possible way based on how the child learns (one on one, group, classroom).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The Social Adventures app encourages curation as it is a collection of resources to help improves social interaction skills. It has over 80 lesson activities that can be used in a group, one on one or in the classroom.

**Evidence from the literature that the app is capable of the claims made:** Jonsson, Olsson, Coco, Gorling, Flygare, Rade, and Bolte (2018), suggest Interventions that address the challenge of social communication and social interaction across multiple context, should aim at providing skills that allows individuals to gain self-confidence and control over their social lives. The app uses social skills training and provides strategies for social activities combining the two points, this helps to build understanding and confidence. Social adventure is providing a resource for a training program to be implemented b teachers to help build self-confidence in a person-centered approach which is a valuable tool for young people struggling with social skills development.

**General Comments:** The application could be used as a direct tool for teachers and developmental educators to assist young people with autism spectrum disorder. It can be used to learn the necessary social skills to feel confident and engaged in social situation. This could help the Developmental educator or teacher address the child’s social isolation or inability to connect with others. The application also has a separate section to teach the person the best way possible to deliver the information through person centred learning.
Social Quest

Operating System: IOS

Location: Apple App store

Cost: $24.99

Description: The application aims to develop language understanding and expression in a variety of different social situations. Social quests is aimed at upper middle school aged children and high school children, (12 years to 18 years) The theme of the app is to solve problems and complete social quests where users navigate around different locations within the online world (problems linked to the real world) and earn rewards for becoming competent in these social environments. These real-world situations include solving social problems in the home, school and community along with a using question to promote positive social communication. The app addresses a large variety of social skills including taking different perspectives, maintaining conversation, interpreting other people’s reactions, taking turns in conversational speaking, problem solving and understanding humour in different social context. Users earn visual rewards as positive reinforcement when they advance to different levels of becoming competent in the online social situations.

The app has been designed to help users identify appropriate and inappropriate responses to social situations. This exposes them to respond to social situations from a variety of different locations including the home, school, gym, grocery store, mall, restraint, neighborhoods, movie theatres, doctors/dentist. There are more than 800 questions that will be asked through the different activates(quests), multiple locations and users can create their own avatar character. Users also have their own data card that represents their learning, this can then be printed or emailed to teachers, parent or developmental educators to interpret the data.

Alignment with the UDL guideline: The application is aligned with the UDL guidelines through 1.1 providing alternatives for auditory information. 1.3 providing alternatives for visual information. Section 2.5 illustrating through multiple media (audio, pictures, text and symbols). Allows for maximum transfer of virtual learning to real world leaning which is in align with section 3.4. aligned with section 5.1 using multiple media for communication as well as 5.2 using multiple media for construction and composition as the application is using gameplay to prompt learning of social skills.

Curriculum area: The application can be used and monitored by the teachers so that they can give feedback on how social skills are improving and what areas the individual still need to work on. This is accomplished through the application creating a data graph that displays social strengths and weaknesses that can be emailed to teachers and developmental educators.

How does the app meet the National Disability Standards? The application is promoting the development of social skills through the common interest of technology. This development can
be tracked, assessed and effectively managed to make sure individual outcomes for social
development are maximised. The application also allows for teachers to give regular feedback
and identify areas of social development that need improvement to help the individual move
forward. The application is also not breaching any of the rights to achieve social skills
development, it is promoting active participation and engagement to build social confidence
and work towards inclusion in society (building social skills/confidence).

**How the app changes pedagogy (SAMR)?** The Application is creating significant task redesign for
learning social skills. It is using game play and technology to create a learning platform to
achieve this. Social skill lessons have been redesigned as quests to create engagement through
game play thus transforming the learning process. Therefore, the application sits under the
modification section under transformation in the SAMR model.

**How the app encourages person centered planning?** The application promotes personal centered
learning through the game play. The user must use self-discovery to find their own teachings
through completing quests that are based around social learnings. This is achieved through
numerous modalities including image, audio narration, text and speech. Peers who are using
the app are also encouraged to discuss their learnings during class to promote learnings from
each other.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs):** The
application is utilising creativity through combining gameplay in an online realm to prompt
learning and teaching about social skills. The application is using the curation of multiple social
learnings organized through an online map of the game where individual users must explore to
complete quests about social learning. This is also joining people with the common interest of
needing to improve social skills and achieving the goal together in a classroom setting, which
encourages community.

**Evidence from the literature that the app is capable of the claims made:** The application uses social
story telling which has been shown to be an affective teaching tool with children with autism,
as suggested in a review of the effectiveness of Social Story telling conducted by Karal and Wolfe
(2018). The application specifically uses real world situations to implement social story telling
with the goal of social learning for the user. Users can gain rewards in the form of visual icons
for completing quests. This acts as positive reinforcement for learning of social skills as they
progress throughout the app. This reward system can increase motivation for learning, solving
problems and progression as evident in a study conducted by Sun, Chen and Chu (2018), on
reward mechanisms and problem-solving behaviors in game play.

**General Comments:** This application could be used in a group setting during class time. Once students
have discussed the game, they could the talk about what they have learnt and how to
implement it. Teachers can also monitor progress as the game allows for the data of students
learning to be exported via email.
Conclusion and Recommendations

Everyone needs to and deserves a chance to get along and interact with other people. Social interactions are one of the most important parts of people’s daily lives (Jobling, Moni and Nolan, 2000). For post-school aged individuals with disabilities, such as adults, are often isolated with no form of social communication in face-to-face situations, and social interactions are often unable to occur without the assistance of support in the form of technology (Walter, 2016).

Apps such as ‘Next door’, ‘Meetup’, ‘Friendi app’, Me3’, and ‘Glimmer’ can be utilised for individuals with disabilities, enabling them to make new friendships within their communities or outside of their communities. It is our recommendation, through meeting National Disability Standards, aligning with UDL guidelines, and being person-centred, that these apps support individuals with disabilities to make new friendships and should be utilised.

‘Let’s Be Social; Social Skill Development’, ‘Peppy Pals Farm’, ‘The Social Express I I’, ‘Social perspective taking’ and ‘Pictell’ apps allow for individuals with disabilities to maintain friendships through the use of technology. It is our recommendation, through meeting National Disability Standards, aligning with UDL guidelines, and being person-centred, that these apps support individuals with disabilities to maintain friendships and should be utilised.

Getting along with people who are close to you can be taken for granted. Communication is a key part in socialisation and getting our wants and needs. Apps such as Proloquo2go’, ‘RogerVoice’, ‘Touch Voice’, ‘Talkit’, and ‘Samsung Look at me’ support individuals with require support to communicate with other people. It is our recommendation, through meeting National Disability Standards, aligning with UDL guidelines, and being person-centred, that these apps support individuals with disabilities to communicate with other people and should be utilised.

Apps such as ‘Seeing AI’, ‘TapSpeak Sequence’, ‘TalkBox Voice Messenger’, ‘Vorail’ and ‘Clementine Wants to Know’ support individuals who are blind or have low vision. These apps cover multiple aspects such as dealing with unknown people, maintaining friendships, communicating with known people, making new friends and sexual activity. It is our recommendation, through meeting National Disability Standards, aligning with UDL guidelines, and being person-centred, that these apps support individuals who are blind or have low vision and should be utilised.

Sexual activities can be supported through technology for individuals with disabilities. Apps such as ‘My sex doctor’, ‘Sexual Health Guide’, ‘Health Ed Buddy’, ‘SexPositive’ and ‘Only Women’ can support individuals’ wants and needs for education on healthy lifestyles and a way to meet and communicate with others. It is our recommendation, through meeting National Disability Standards, aligning with UDL guidelines, and being person-centred, that these apps support individuals with disabilities and should be utilised.

Technology can be used for appropriately and inclusively to gain information, educate oneself, create and maintain our own communities, and communicate effectively. The applications discussed above, allow all individuals inclusive rights to discover themselves and other people online.
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Life activities

day-to-day activities

Sandy Malkin
Berti Soli Dima Malingara
Anthony
Helene Mackay
Gibrilla Jalloh
Margaret O'Connell
Apps for functional group: Life activities

Reviewer

Sandy Malkin
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2. Our Home
3. Lotsa Helping Hands
4. iGet... Cooking Vocabulary and Create Recipe photo Sequence Books – Social Skills Stories
5. First Year

Berti Soli Dima Malingara
6. Food Network
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17. Conversational Social Stories and simple PECS communication Tool

Gibrilla Jalloh
18. Visual Reading-Special Education
19. Cuedin-Autism Early intervention
20. Key word sign Australia-Auslan Resource
21. Pocket Book Easy Budget Planner
22. Wunderlist

Margaret O’Connell
23. Auslan Tutor Key Signs
24. Headspace: Meditation and Mindfulness
Introduction

The domain of Life Activities in the World Health Organisation Disability Assessment Schedule 2.0 (WHODAS 2.0) consists of activities that are completed on a day to day basis (World Health Organisation, 2010). These activities include the roles of student, employee and homemaker.

The United Nations Convention on the Rights of Persons with Disabilities states that individuals with disabilities have the right to engage in all areas of “social participation that are required for citizenship” (Darcy, Maxwell and Green, 2016, p.497). This social participation encompasses the roles of student, employee and homemaker. In 2015, according to the Australian Bureau of Statistics (ABS), 83.2% of working aged individuals were employed, compared to 53.4% of this same age group with the addition of a disability (Australian Bureau of Statistic, 2016). As 15% of the world’s population identifies as having a disability, ensuring people with these additional challenges are provided with the opportunity to be financially independent is beneficial for their country’s economy in addition to promoting their dignity and autonomy (Raja, 2016; Ayres, Mechling and Sansosti, 2013).

According to the ABS, in 2009 74% of people identifying as having a disability were living with other people (Australian Bureau of Statistics, 2011). This same organisation reported that in 2012 less than 7% of individuals with an intellectual disability were living alone (Australian Bureau of Statistics, 2014). With the introduction of the National Disability Insurance Scheme it will be interesting to determine the effect this has on these future statistics.

Utilizing technology has the potential to increase skill acquisition to provide opportunities for employment and to live independently (Ayres, Mechling, and Sansosti, 2013). The development of Information and Communication Technology (ICT) is resulting in people with disabilities having increasing opportunity to reach their chosen goals in the areas of further education, obtaining employment and developing life skills (Broadband Commission for Digital Development et al. 2013).

The importance of mobile technology in the form of smart phones and tablets has become increasingly beneficial for people with disabilities (Ellis and Goggin, 2015). The development of free or low-cost applications (apps) for these smart devices also has the potential to be utilised by people with disabilities to their advantage (Broadband Commission for Digital Development, et al., 2013).

Outlined in this section are a variety of apps that can be used by people with disabilities for increasing their ability to participate in the areas of education, work, and household management (Domain 5 of the WHODAS). Apps can be utilised to assist with development of skills, to enable independent initiation and completion of tasks and to foster collaboration with family/friends/ co-workers/support workers to achieve successful outcomes.

The Apps outlined in this section have been researched and assessed according to their application based on certain criteria: (i) alignment with Universal Design for Learning guidelines, (ii) the National Disability Standards, (iii) person centred planning, (iv) Substitution, Augmentation, Modification and Redefinition (SAMR) (v) Whether the apps provide learners with any aspect of connectivity, community, collaboration, creation and curation.
Seeing AI

**Operating System:** iOS 10.0 or later

**Location:** iTunes Store

**Cost:** Free

**Description:** Seeing AI has been designed to assist those with a visual impairment by narrating the surroundings, people and objects within their environment. Using the selected Apple device, the app enables the individual to recognise familiar people, currency, colour, facial expressions, and environments by providing auditory descriptions. Seeing AI enables individuals with visual impairment to locate information (e.g. Barcodes on groceries, text on menus, handwritten messages) via audio guidance. This information is then translated immediately to speech using Apple’s Voiceover feature. Seeing AI can also be used to translate information in other applications such as Mail, Photos, and social media platforms. Individuals who have literacy difficulties (e.g. due to dyslexia or intellectual disability) may additionally benefit from Seeing AI with translation of written text into audio, for ease of understanding. The rate of speech can be varied to assist with auditory processing speeds of the individual.

**Alignment with the UDL guideline:** Seeing AI aligns with the UDL guideline of provision of alternatives for visual information (1.3) by providing audio translation of visual material (e.g. signage in public buildings, price tags on purchases). This alternate form of representation can assist both people who have a vision impairment, and people who have trouble with literacy (CAST, 2018).

**Curriculum area:** Seeing AI could be used as a platform for the curriculum area of life skills – domestic household tasks, work and/or study, and is an appropriate tool for completion of these activities by all age groups. In a work and/or schooling environment Seeing AI could be advantageous for such tasks as negotiating unfamiliar settings; identifying and locating colleagues or friends; gaining feedback on physical characteristics of individuals meeting for the first time; judging facial expressions to adapt communication style accordingly and following written instructions. In a domestic household setting Seeing AI can assist with such tasks as locating groceries within a home pantry or supermarket; identifying washing instructions and colour of clothing; following recipes for meal preparation; paying household utility bills; and determining monetary denominations when purchasing goods.

**How does the app meet the National Disability Standards?** Seeing AI assists people with disabilities via the National Disability Standards of Participation and Inclusion (National Standard 2) and Individual Outcomes (National Standard 3). The app enables increased autonomy in the roles of homemaker, student and employee (Standards 2.1 and 2.2) by providing auditory narration of the immediate environment plus converting text to speech to access community resources (e.g. Public transport timetables, event proceedings). The app enables individuals to use their
identified strengths while assisting the user to achieve their individual goals (Standard 3.1) (National Standards for Disability Services, 2013).

**How the app changes pedagogy (SAMR)?** Seeing AI can transform learning experiences by either augmentation or redefinition of life skill tasks, depending on the task the user is completing. For interpretation of text documents, Seeing AI could be considered a form of augmentation as the task remains the same with the technology providing additional forms of media (eg. Auditory feedback versus sensory feedback via Braille). The facial and environmental recognition features though could not have previously been completed independently without the development of such technology. It could therefore be considered what Huynh (2018) considers to be both an enhancement and a transformation of the learning experience.

**How the app encourages person centred planning?** Seeing AI can be used at an individual level to achieve specific outcomes/goals using the mainstream technology of a smart device. Seeing AI provides the opportunity to shift the power from a service provider assisting the individual in tasks, to the person with the disability completing activities within the community independently. The user can identify individual goals they wish to achieve with the use of this technology, the importance of this individualisation for achievement of outcomes is reported by Barker, Sealey, Polley, Mervin and Comans (2016).

**What area of a 21st Century approach to teaching/training does the app encourage (5Cs)?** Seeing AI encourages the approaches of connectivity between varied devices (iPhone/iPad/iPod) - the app also capable of use in conjunction with such applications as Mail. Community is encouraged by enabling the individual with a visual impairment to explore their local environment and interact with family/friends and strangers, with additional confidence in 'reading' facial expressions. The ability to translate digital images (photos) from social media sites such as Facebook also assists in participation in the online community that is becoming increasingly important today (Jung Oh, Ozkaya, LaRose, 2014).

**Evidence from the literature that the app is capable of the claims made:** Only one review of the Seeing AI is available. This review found “One thing that sets Seeing AI apart from other assistive apps is the number of features that it combines” (Woodbridge, 2017). Woodbridge (2017) found positive elements of the app included: the ability to use a variety of features without having to swap between apps; the text reader translates visual information immediately and does not require a photo to be taken prior to interpretation; auditory feedback to locate text and bar codes; and video tutorials and written instructions are available for each feature (Woodbridge, 2017).

**General Comments:** Seeing AI can be used by developmental educators to enhance independent living skills for individuals with visual impairment and/or literacy difficulties within the home and local community. Tasks should be chosen based on an individual's identified goals and could include such activities as: negotiating unfamiliar environments, accessing public transport, locating goods in shopping centres, following recipes, translating laundry instructions, determining items on menus, 'reading' greeting cards and personal messages, and meeting family and friends within crowded venues.
Reviewer: Sandy Malkin

Our Home

Operating System: iOS 7 and later, Android 4.1 and up

Location: iTunes store, Google Play store

Cost: Free

Description: Our Home assists in the scheduled organization of homemaking duties that need to be completed as part of household routines. The app can be downloaded on multiple devices by all family/household members, such that information regarding tasks needing completion and who is allocated to do so can be seen by all. A reward point system for completion of duties can be incorporated as an incentive for participation, with family members selecting the bonus being offered (eg. Family movie night, dinner at a favourite restaurant). It includes a family calendar to co-ordinate all members’ appointments/social events to assist with collaboration. A shared grocery list can be utilized for all household members to contribute to the list and delete items when purchased. Reminder notifications can be established, and messages sent between users.

Alignment with the UDL guideline: Our Home app aligns with the Universal Design of Learning (UDL) Guideline of offering alternatives for auditory information (Guideline 1.2) by incorporating visual representation of activities to be completed, in addition to written notifications received via text to device of choice. The app also aligns with UDL Guideline 8 – Providing Options for Sustaining Effort and Persistence by encouraging goal directed behaviour, grading the tasks via levels of complexity, and encouraging communication and collaboration with other household members to ensure household duties are completed (Guidelines, 8.1, 8.2 and 8.3) (CAST, 2018).

Curriculum area: Our Home can be used for the curriculum area of development of independent living skills - meal preparation, cleaning, laundry, gardening, and shopping. Life skills required to complete these routines within a family or communal living arrangement include sharing, responsibility, initiative, organisation, goal directed behaviour and motivation. The app is suitable for all age groups, as tasks can be varied according to expectations regarding the number and complexity of tasks to be completed. Tasks can be graded by moving from subcomponents of a task (eg. Make bed, hang up clothes, pick up toys from the floor) and gradually built up to larger encompassing duties (eg. Clean your room).

How does the app meet the National Disability Standards? Our Home encourages active participation in the valued role of homemaker (National Disability Standard 2.1), with incentives incorporated in the form of family rewards. Connecting with family members and communities (eg. Housemates) via collaborative communication meets Standard 2.2 of the National Disability Standards (National Standards for Disability Services, 2013).
How the app changes pedagogy (SAMR)? Our Home app encourages collaboration between household members to ensure the effective completion of domestic duties. This collaborative forum in addition to the use of multimedia platforms via technology, has enhanced the learning experience as discussed by Huynh (2018) in the form of modification.

How the app encourages person centred planning? Our Home enables participation and responsibility at a person-centred level as tasks can be chosen according to personal preference, with consideration of the individual’s physical and cognitive ability taken into consideration. Ratti, Hassiotis, Crabtree, Deb, Gallagher and Unwin (2016) report that individuals with intellectual disability have increased participation in activities when person centred planning is utilised. The level of supervision and guidance can be modified as required and chores can be graded to encourage goal orientated performance, with individualised personal incentives built into the application.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Our Home encourages the approaches of connectivity and collaboration. The application can be used by multiple household members, utilising a variety of devices (smart phone, iPad). Notifications of daily tasks allocated are received via text messages to remind individuals of their daily duties. As all involved parties can access the information in real time, information is current (eg. Which items have been purchased on shopping list). Members of the household can message via text to each other to co-ordinate or negotiate changes regarding responsibilities.

Evidence from the literature that the app is capable of the claims made: Our Home was produced in 2014 such that no literature related to this application or similar could be located. Parents of children with disabilities report that they expect their children to complete a similar number of chores as their non-disabled siblings, as they believe participation is important for fostering family cohesion and preparation for transitioning to living independently (Dunn, Coster, Orsmond, and Cohn, 2009). Not including children with disabilities in the expectation to complete household chores indicates that they are not able to perform a valued family role (Luther, 2001). It is evident from this literature that parents value inclusivity of their children with disabilities in completion of household chores. Our home provides a platform for families to use to enable participation in the co-ordination of domestic tasks, promoting connectivity and collaboration.

General Comments: Our Home can be used by developmental educators and teachers to encourage active participation by students in family household chores. It provides a platform for instilling the qualities of sharing, responsibility, and development of independent living skills (eg. Cleaning, laundry, household maintenance).
Reviewer: Sandy Malkin  Life Activities - App 3

Lotsa Helping Hands

Operating System: iOS 9.0 or later
Location: iTunes app store
Cost: Free

Description: Lotsa Helping Hands is designed to assist with the co-ordination of care for someone in need. The app can be utilised to organise a community of support for an individual, developing a network to assist with practical requirements in addition to provision of emotional support. The co-ordinator creates a support group, invites individuals to engage in the network, and posts requests for assistance as required (eg. Transport to a medical appointment, meal to be delivered to the home, care of children). Lotsa Helping Hands provides a central point of communication regarding the status of the individual’s health and wellbeing (including the ability to add photos and blog posts) and enables well wishes to be sent to one location for access by the person or family concerned. The app also has an information section that can be used for storing up to date health details about the individual in the event volunteers are required to access this data (eg. Medications, support contacts).

Alignment with the UDL guideline: Lotsa Helping Hands aligns with the Universal Design for Learning (UDL) guidelines of facilitating management of information and resources (6.3) and fostering collaboration and communication (8.3) to co-ordinate the provision of care and services for an individual with a disability. The app also promotes decision making and autonomy (UDL Guideline 7.1) by enabling the person requiring support control over who, where and how the assistance is to be received. If Lotsa Helping Hands is used as a tool to foster community service contribution by a person with a disability, providing choice as to how they would like to assist others in need also meets this UDL Guideline (7.1).

Curriculum area: Lotsa Helping Hands can assist in the curriculum area of life skills - civics and citizenship. Encouraging inclusiveness in providing support to someone experiencing a challenging time in their life can be utilised as a learning tool for development of empathy, the importance of teamwork and community, and organisational or planning skills. It is suitable for all age groups – children through to adults, with the level of supervision required for involvement graded according to age and cognitive capacity.

How does the app meet the National Disability Standards? Lotsa Helping Hands encourages participation and inclusion – whether being the person at the centre of the established community, or one of the community members assisting another (Standards 2.2 and 2.4). For the person receiving the support, it creates the opportunity for individual outcomes (Standard 3.1) (National Standards for Disability Services, 2013). The National Disability Insurance Scheme (NDIS) is based around a similar concept as Lots Helping Hands, where the participant is encouraged and assisted (if required) to identify their individual goals, draw on available
support networks, and outsource services that their immediate family and friends are unable to provide (Walsh and Johnson, 2013).

**How the app changes pedagogy (SAMR)?** Lotsa Helping Hands has the potential to transform the learning experience via modification of a task with the use of technology (Huynh, 2018). Prior to development of such applications the task of co-ordinating care for an individual with support needs would have involved paper/electronic timetables with individual communication via telephone, email, or in person. A single person would have been responsible for responding to individual emails to ensure a co-ordinated service. Using Lotsa Helping Hands enables a collaborative approach to establish and manage support networks.

**How the app encourages person centred planning?** Lotsa Helping Hands is designed to create an individualised support system based around a person’s specific needs. It is an application that could be incorporated by a NDIS planner, enabling the participant to identify individual goals and take control of co-ordinating their support network. If being used as a resource for developing the life skill of community service, the teacher or support worker can encourage the volunteer to identify tasks they could perform to assist an individual in need (eg. Watering garden, walking pets), matching these to their physical and cognitive capabilities.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Lotsa Helping Hands encourages community and collaboration. The app enables a network of volunteers to provide a community of support for the individual requiring assistance. The application can be logged into by multiple parties (organiser and volunteers) from varied devices (iPhone, iPad, iPod touch), providing a platform for a collaborative approach to provision of support, with all information available in real time for everyone involved.

**Evidence from the literature that the app is capable of the claims made:** Lotsa Helping Hands has been identified in several studies as being successfully utilised to support individuals with a disability and their families (Couture, 2012; Halloran, 2016; Gartell and Rothblum, 2014). Toseland, Haigler, and Monahan (2011) suggest that the Lotsa Helping Hands app could be used to collaborate with educational institutions to disseminate relevant health information related to specific diagnosis (eg. Spinal cord injury, intellectual handicap).

**General Comments:** With the rollout of the NDIS across Australia, once an individual with a disability is deemed eligible to access the service, an individualised support plan is formulated with the participant to establish their lifestyle goals (Reddihough, Meehan, Stott, and Delacy, 2016). Lotsa Helping Hands could be an instrumental tool for collaboration in assisting an individual to reach their identified goals by provision of choice and autonomy over organising their preferred supports. Lotsa Helping Hands can also be used by teachers and developmental educators to impart the importance of community service in the form of assisting others in need.
Reviewer: Sandy Malkin

i Get. - Cooking Vocabulary and Recipe Photo Sequencing Books

Operating System: iOS 7.1 or later

Location: iTunes App Store

Cost: $7.99 AU

Description: i Get... Cooking Vocabulary and Create Recipe Photo Sequencing Book provides simplified instructions in the form of a photo book to assist with basic meal preparation tasks. It enables individuals with a disability and their support workers/family to create a photographic instruction manual on preparation of the end user’s favourite recipes. It is separated into 4 sections – collecting ingredients, collecting cooking supplies, preparing the food, and cleaning up post meal preparation. It consists of a variety of preloaded pages identifying cooking supplies, appliances, kitchen utensils, and cooking definitions (eg. Mixing, blending) which can be incorporated with additional individualised media (photos and auditory cues). Steps required to complete the specific meal preparation task can be sequenced to achieve a successful outcome.

Alignment with the UDL guideline: i Get Cooking provides multiple means of representation to enhance learner understanding. The photo book can be customised to suit the individual’s preferred means of perception and incorporates both visual (written and pictorial) and auditory stimulation (Universal Design for Learning (UDL) Guidelines 1.1, 1.2, 1.3, and 2.5). As the individual can choose personal recipes they would like included, and assist in production of the sequential book, i Get cooking also meets UDL Guideline 7.1 of encouraging autonomy and decision making.

Curriculum area: i Get Cooking can be utilised to develop the learning area of independent living skills (meal preparation) – to develop knowledge of cooking terminology/appliances with the outcome of independent meal preparation. It encourages the skills of planning, sequencing, safety, decision making, and independence. The app is appropriate for 4+ years through to adults and can be adapted to suit those requiring additional support in the area of meal preparation secondary to intellectual or learning disability.

How does the app meet the National Disability Standards? i Get Cooking meets the National Disability Standards of individual rights (1.4) by enabling an individual with a disability (intellectual or learning disability) to complete a task that might be considered hazardous (ie. due to sharp objects and hot appliances). By using graded visual and verbal strategies to enable participation in this task, potential restrictions are reduced. This ability to modify the complexity of the tasks builds on the individual’s prior knowledge and pre-existing skill set whilst addressing identified goals, this being in line with Standard 3.1 (National Standards for Disability Services, 2013).
How the app changes pedagogy (SAMR)? I Get Cooking can enhance the learning experience via the use of technology. Prior to availability of such applications, developing a multimedia recipe book would have involved support workers photographing individual steps with written explanation of terminology and processes. With access to preloaded digital material and the ability to incorporate customised images and explanations, I Get Cooking can be classified as a modification (as described by Huynh, 2018) to the learning experience.

How the app encourages person centred planning? I Get Cooking can be customised in several ways to ensure the app is relevant and individualised to the person with a disability. Photos can be included of the individual in their own environment using their own utensils and appliances to enhance familiarity; recipes can be collated based on individual preference of foods; complexity of instructions can be modified according to user’s cognitive and physical capabilities; and difficulty of tasks can be adjusted as knowledge and skill acquisition improves.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? I Get Cooking encourages the area of creativity by providing opportunity for individualised resource development. The app has utilised multimedia platforms to enable the person with a disability, and/or their support worker to create a resource that is relevant and customisable to the end user.

Evidence from the literature that the app is capable of the claims made: I Get Cooking was published in 2013 and as yet there have been no scholarly articles published with reference to this specific application. Autism Speaks – an organisation devoted to promoting solutions for individuals and their families living with this disability – describes the app as "A wonderful teaching tool for individuals learning their personal information for the first time and those with developmental delays such as language impairment, ADHD, auditory processing disorders, PDD-NOS, autism and down syndrome" (Autism Speaks, 2018). Duttlinger, Ayres, Bevill-Davis, and Douglas (2012) report that individuals involved in compiling their own photo sequencing books demonstrated improved ability to complete tasks independently and in the correct order (which is an important skill in meal preparation). Mechling, Ayres, Foster and Bryant (2013) completed a study comparing development of cooking skills using commercially available versus custom made digital media, with custom made resources leading to a higher competence level for participants.

General Comments: I Get Cooking can be incorporated into a learning tool by developmental educators via providing opportunity for creativity and expression of the student in the style and design of the photo sequencing book utilizing a variety of digital media. Language development, visual recognition and matching of items, sequencing of tasks, following instructions, and demonstrating safe working skills are all educational goals that can be incorporated in tasks utilising this application. As I Get Cooking was developed in America it is important that educators ensure the terminology used within the preloaded pages is relevant in an Australian context, or it may need to be altered accordingly.
First Year

Operating System: iOS 5.5.1 or later
Location: iTunes Store
Cost: Free with In-App purchases

Description: First Year enables tracking of a baby's daily routine via entering of information regarding feeding routines, nappy changes, and sleep cycles, in addition to recording developmental milestones and important events (e.g., illnesses). It enables busy parents to view their baby's progress with limited need for detailed input of information. Simple taps of the device's smart screen enable recording of times and types of feeds (e.g., breast milk, formula, solids), bladder and bowel habits, and times and duration of sleep patterns. Information regarding routine can be viewed in a daily, weekly and monthly format to determine trends and potential areas of concern. Updates and photos can be shared between family, friends, and caregivers for continuity of care, in addition to enabling medical information to be recorded for transference to health professionals. Journal entries with photographs can be recorded to develop an album to celebrate family memories and shared via such platforms as Facebook and Twitter.

First Year free download enables the user to record up to 100 entries. The full version enabling unlimited recording can be purchased for $4.99 with an additional $2.99 providing the ability to download the journal in a PDF format.

Alignment with the UDL guideline: First Year aligns with Universal Design for Learning (UDL) Guideline 3.2 as enables the user to identify patterns/routines of an infant's schedule and the relationship between this information (e.g., feeding routine corresponding with increase sleep duration). It assists the user to determine critical aspects of a baby's care (e.g., provides guidelines as to how to recognise dehydration, constipation and signs of illness). The app also aligns with UDL Guideline 3.4 of maximising transfer of knowledge/skills, as it provides memory aids in the form of checklists, progress charts, a note taking section for advice required, and inclusion of a photographic journal to assist with recall of special moments.

Curriculum area: First Year can be utilised to assist in the area of independent living skills related to caring for an infant. Opportunities exist to develop skills of organisation, planning, problem solving, decision making, and interaction with health professionals. It is an appropriate application to be used by individuals of parenting age with an intellectual disability.

How does the app meet the National Disability Standards? First Year meets the National Disability Standard 1.4 by providing a tool to reduce restrictions on a parent with an intellectual disability. It provides a platform for support workers to monitor the health and well-being of a child whilst not being physically present. The application can be used to harness an individual's strengths (e.g., ability to record information within the app) to assist the individual achieve their life goal.
of raising a child with minimal supervision from outside services (Standard 3.1) (National Standards for Disability Services, 2013).

How the app changes pedagogy (SAMR)? First Year transforms learning by providing a platform for a collaborative approach to child rearing. The use of the app substitutes previous methods of recording information related to an infant’s routine (eg. paper and pen charts/timetables) and enables support workers or family to check the status of the child’s routine in real time. Modification (as identified by Huynh, 2018) to the new parent’s method of learning this role has been achieved via this opportunity to collaborate with external services and supports.

How the app encourages person centred planning? First Year is designed to be tailored to record the daily routine of each infant. It can be customised to incorporate activities deemed important to include in an infant’s development (eg. time spent on their stomach to increase head control, play and interaction time with the parent). Utilising the application enables new parents with an intellectual disability to receive the level of support they require according to their strengths, prior knowledge and skill set. The degree of supervision and collaboration can be modified based on performance and development.

What area of a 21st Century approach to teaching/training does the app encourage (5Cs)? First Year encourages connectivity and collaboration for teaching a new parent the skills of caring for an infant. Entering information into the application via an iPad or iPhone which can then be viewed instantly by those within the new parent’s support network demonstrates the importance of real time connectivity. The application provides opportunity for collaboration between the new parent, support workers or family, and health professionals to ensure the wellbeing of the infant. Support workers can contact the parent when information is not recorded as expected (eg. there is an extended time between feeds or nappy changes).

Evidence from the literature that the app is capable of the claims made: First Year was published in 2014 and literature searches located no specific evidence related to such applications. Alexius and Hollander (2014) report that many health care professionals believe children of parents with an intellectual disability are inherently at risk, particularly if not receiving appropriate social supports. This is further supported by Meppelder, Hodes, Kef, and Shuengel (2015), stating that parents with a diagnosis of intellectual disability are vulnerable to high levels of stress, particularly if they have limited access to support networks. Feldman, Varghese, Ramsay and Rajska (2002) reported that parents with intellectual disability are more likely to succeed in the parenting role when supports and services are tailored to meet the individual’s learning style. First Year can be utilized as a tool to incorporate the educational method that optimizes the performance of the new parent, whilst providing a support network.

General Comments: First Year is an application that would be useful for developmental educators working with new or expectant parents with intellectual disability. The app can be used to educate this client group regarding the importance of recording accurate information about their new baby’s daily routine and milestones. Including family members and support networks within this process is also important to ensure that the new parent is aware of the potential assistance that is available for them if required.
Reviewer: Berti Soli Dima Malingara  Life Activities - App 6

Food Network

Operating System: IOS 9.0 or later, Android 4.1 and up

Location: iTunes store and Google play store

Cost: Free

Description: Food Network is an app that helps people to cook simple food from a TV show, ordinary people and some famous Chefs’ recipes such as Alton Brown, Giada De Laurentiis, Ree Drummond, Guy Fieri, Boby Flay and so on. There are several benefits of this app; Firstly, this app provides a tutorial step by step guide to cook over 70,000 recipes and provides notification of recipes every day. Secondly, it allows the user to create their own recipes and save it. Thirdly, it gives the user opportunity to share recipes via text, email, notes, Pinterest, Facebook and Twitter. The strong message of this app is to support everyone to believe that cooking is easy, and everyone can do it as good as the professionals. Another thing that is interesting with this app is the user can experience being a real chef by using Augmented Reality without making their hands dirty or needing to clean the dishes. It means that children/teenagers/people with a physical disability do not need to pay for cooking classes. They can do it from home.

Alignment with the UDL guideline: The Food Network app aligns with UDL guidelines of 1, 4 and 5. Guideline 1 provide option of perception. This app aligns with guideline 1.1 offering ways of customising the display of information, such as zoom in and zoom out the pictures. Moreover, this app provides auditory information (guideline 1.2), for example the user can hear a person explain the process step by step to cook. Guideline 1.3 provide visual information, for example this app provides pictures and video of the ingredients, process of cooking and how to serve the meal. This makes it easy for the user to follow the instruction. It covers principle 1 of UDL: to provide multiple means of representation. This app also aligns with guideline 4 (provide options for physical action). The user can navigate the phone and move their body. (4.1) use assistive technology, such as smart phone (4.2). Lastly, This App matches with Guideline 5 (provide options for expression and communication) because it allows the user to create new recipes, send recipes to their family and friends and provide comments on their friends’ recipes that have been posted via text, email, notes, Pinterest, Facebook and Twitter. This app also provides Augmented Reality.

Curriculum area: Food Network could be used in life skills area such as domestic household tasks, work or study. This app will particularly benefit students in high school but is suitable for people of all ages. The app can be used at home to prepare family meals every day. In school, the teacher can use it to develop students’ skills in cooking or develop students’ entrepreneurial skills. In the work environment, Food Network consumers can use it to create fabulous recipes and set up a culinary business. This app suitable for children grade 4 elementary school to senior high school.
How does the app meet the National Disability Standards? This app meets 6 of the National Disability Standards where the users have the right to do what they like such as cooking independently and contributing to their family and community by sending their recipes via social media for other people to use. The user also can help themselves to prepare their meal and they can complain or give feedback to the app service. The app provides daily notification, so the user can be updated with the latest upgrades. The company provides a support service to answer any queries or concerns.

How the app changes pedagogy (SAMR)? Food Network is part of transformation, substitution for a cooking class course. The users do not need to spend money and time to go to cooking courses. This app also can be part of modification. In the past, people used recipe books that are expensive; but the app is free to use.

How the app encourages person centred planning. Food Network encourages children with disability who enjoy cooking. It can become a serious leisure for them and they can develop their skill and create a job for themselves in the future.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Food network encourage the 5Cs, starting from a connection to the app and other users. Then the user becomes part of the Food Network community by sharing their activity while cooking and their new recipes through social media such as Facebook to their family and friends. Working collaboratively members of the Food Network community can create new and improved recipes (creative). The new recipes can be stored their phone (curation).

Evidence from the literature that the app is capable of the claims made: According to Vea (2013), people with disability have a right to access leisure and a right to participate in a community. One activity related to leisure is cooking. Cooking helps people with disability enjoy their life. Besides, social networking such as Facebook has benefits for children and teenagers, including enhancing their education, supporting their personality, giving those opportunities to explore their identity and increasing their sense of community and belonging (Burns, 2011).

General Comments: Food Network is recommended for developmental educators or teachers because this app will help people to build their confidence, be more creative and encourages them to participate in family and community. It is possible to help students develop their own culinary business.
Talking Calculator

Operating System: IOS

Location: Itunes App Store

Cost: $2.99

Description: Talking Calculator has all the functions one would expect from a calculator, with the simple yet powerful addition of speech. The interface can be adjusted between ‘standard’ and ‘ultra-simple’. The app also offers a ‘formula’ mode which automatically accounts for the order of operations. A ‘Paper log’ feature time stamps calculations and allows for review and email. Talking Calculator has a built-in recording feature that allows the user to record custom voices in only five minutes. The app supports VoiceOver and Switch Control users and offers customisable display modes to accommodate all levels of vision. If the user requires a more advanced calculator there is a Talking Scientific Calculator ($7.99) offered by the same developer.

Alignment with the UDL guideline: Talking Calculator offers a customisable display and alternatives for auditory and visual information, which adheres to UDL guideline ‘1: Provide options for perception’ (UDL Guidelines, 2014). Compatibility with VoiceOver and Switch Control addresses UDL guideline 4.2 ‘Optimize access to tools and assistive technologies’ (UDL Guidelines, 2014).

Curriculum area: Talking Calculator is suitable for students studying Science, Technology, Engineering and Mathematics (STEM). The ability to adjust the complexity of functions means Talking Calculator is suitable for use by primary aged students through to post-secondary students.

How does the app meet the National Disability Standards? Standard two of the National Standards for Disability (2013) addresses Participation and Inclusion. Talking Calculator supports this by providing features which allow users with low vision, blindness and dyslexia to access a calculator. Talking Calculator allows students who would be unable to use a conventional calculator to engage in educational tasks which would otherwise be unavailable to them, allowing them to participate in a broader range of STEM activities. Any app which can facilitate greater inclusion is a useful tool for adhering to the Disability Standards.

How the app changes pedagogy (SAMR)? Talking Calculator improves pedagogy through Augmentation. The standard features of a calculator are functionally improved by the addition of features which make them more accessible, and the addition of answer sharing which adds a capability not available on standard calculators.

How the app encourages person centred planning? Talking Calculator allows a facilitator to provide person centred planning by providing a tool which can be tailored to suit the goals of the student. Talking Calculator is a valuable tool for a facilitator to build on the interests and strengths of students who have an interest in the field of STEM.
What area of a 21st Century approach to teaching/training does the app encourage (5Cs)? The feature which stands out for Talking Calculator with regards to the 5Cs is the ability to email sums directly from the app. This feature enables both Community and Collaboration as it joins like-minded people and allows them to share data (Carey 2013).

Evidence from the literature that the app is capable of the claims made: There have been no studies using this specific app, however there is a body of literature which supports the use of talking calculators. A 2006 study showed that use of talking calculators improved students’ understanding of math concepts significantly (Ferrel, 2006). A smaller study which only involved three students showed a less significant effect size. This study used a calculator which required voice input and was reported to be very difficult to use. All three participants reported that they enjoyed the sense of independence which the app provided (Bouck, Flanagan, Joshi, Sheikh, and Schleppenbach, 2011). This is significant considering that the poor functionality of the technology would have been frustrating, but the participants still felt empowered by the new level of access. When weighing the results of these two studies it is important to note that Bouck et al. (2011) was considerably smaller than the study conducted by Ferrel (2006) and Ferrel used a device which is more analogous to the Talking Calculator app. Given that a larger more relevant study showed that there was a positive effect, the app should be considered to have potential for providing a positive experience to students with low/no vision.

General Comments: This app enables developmental educators and teachers to provide an inclusive learning environment for students with low/no vision and dyslexia. It provides access to topics which require the use of complicated mathematical equations for students who are not able to use a conventional calculator. To provide an inclusive classroom, materials which enable blind and sighted students to collaborate must be available (Leuders, 2016). Collaboration, teamwork and partnership are identified as important factors for inclusion in the classroom for blind students, along with ensuring that the student is supported by additional material to suit their needs (Davis and Hopwood, 2002). There has been little research done into the effectiveness of such an application, but there are significant potential benefits which are at least intuitively justifiable. Given that the app has a very low price and has such potential to benefit, it is worth purchasing for a classroom toolkit despite the lack of empirical evidence for its use.
Reviewer: Anthony Menheere

Life Activities - App 8

Bitsboard

**Operating System:** IOS

**Location:** Apple iTunes Store

**Cost:** Free (in app purchases)

**Description:** Bitsboard is a platform for 25 mini-games which can be customised and dynamically adapted to suit a large range of topics and ability levels. Dynamically adapted refers to the app’s built-in algorithm which tracks the users answers and adjusts the difficulty accordingly. The app contains tens of thousands of pre-made flashcards and the ability to create new custom flashcards for use in the mini-games. This means that Bitsboard can be adapted for studying any topic. Bitsboard can track the progress of multiple different users and users can be grouped into ‘class’ groups which are assigned work by a teacher. The Pro version unlocks access to a larger array of flash cards and more options for customisation which are aimed at providing greater functionality to an educator with multiple students.

**Alignment with the UDL guideline:** Bitsboard’s customisable nature makes it an excellent example of UDL guideline 7: ‘Provide options for recruiting interest’ (UDL Guidelines, 2014). The app allows the individual to tailor the app to their specific needs, which is an optimisation of choice and relevance. Flashcards can be sorted into sets which allow the work to be accurately targeted to a topic and minimise distractions.

**Curriculum area:** Bitsboard is suitable for all areas of the curriculum. The app allows the user to customise content which means it is adaptable to any subject. The app is suitable for children and adults.

**How does the app meet the National Disability Standards?** Standard three, Individual Outcomes, emphasises the importance of services which cater to individual life goals. (National Standards for Disability Services, 2013). Bitsboard supports Individual Outcomes through features such as dynamic difficulty levels and a high degree of content customisability. Customisability refers to the ability to adjust both content and display to suit the needs of the user. Bitsboard supports Participation and Inclusion through compatibility with Switch Control and high contrast mode. Although suitable for people with low vision, the app does not support VoiceOver and would not be suitable for a student who relies on that feature.

**How the app changes pedagogy (SAMR)?** Bitsboard improves pedagogy through augmentation of physical flashcard systems. The app is a direct substitute for creating and using physical flashcards. The app improves on the traditional flash card system by having automatic difficulty adjustment, multiple games and progress tracking.

**How the app encourages person centred planning?** Bitsboard allows a teacher to target the specific needs of the student through the customisation of content and the difficulty of the algorithm.
The former ensures content is relevant to the learner while the latter ensures tasks are both challenging and achievable. This constitutes the sort of individualised and creative support which is characteristic of person centred approaches (NSW Department of Ageing Disability and Home Care, 2009).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Bitsboard encourages Creativity. The task of converting information into flashcards for use in the app is a creative manipulation of data and images which fits the definition of Creativity in the 5Cs (Carey 2013). The ability to share flashcards and custom boards between users could also be viewed as a form of Collaboration.

**Evidence from the literature that the app is capable of the claims made:** The flexibility of Bitsboard as an educational tool is reflected in the literature. May (2013) describes the use of Bitsboard as a tool for supporting students with Autism Spectrum Disorder (ASD) to recognise visual social cues such as body language. Hagenbach (2017) identifies Bitsboard as a useful tool in physical education, describing a game which involves a relay style race in which students must answer quiz questions before running back to their position. Primarily, research has been focussed on the use of Bitsboard as a tool for developing language (Hanks, 2013). Bitsboard has been shown to be effective in this area, however Mykyta and Zhou (2017) caution that the community generated nature of Bitsboard can mean that much of the content is not effectively designed to achieve the purported task. Bitsboard is recognised by Bentrop (2014) as being an accessible app for students who are deaf or hard of hearing.

**General Comments:** Bitsboard’s graphic design and games are aimed at younger audiences but the app is still useful as a study tool for any age group. Teachers and developmental educators could employ Bitsboard as a tool for making revision and retention of facts more enjoyable and engaging for students. An example of a possible use would be to create an ‘exam set’ of cards for students that allow them to be sure they are revising the correct material for the exam. In this scenario Bitsboard’s ability to recognise where students struggle and focus on that area provides a particularly powerful benefit for revising a topic, ensuring that effort is not wasted, and that students’ capabilities are being extended. For younger students, Bitsboard provides an entertaining way to learn graphemes and sight words, which transcends the word-list memorisation of less tech-savvy classrooms.
**Reviewer:** Anthony Menheere  
**Life Activities - App 9**

**Istudiez Lite - Legendary Planner**

**Operating System:** iOS, Android

**Location:** Itunes App Store, Googleplay

**Cost:** Free (Pro: $3.69)

**Description:** Istudiez is an organisation and progress tracking app designed for students. Once the user inputs their study details into Istudiez, the app will notify them of upcoming classes and assessments, allow them to add summaries to finished activities and allow them to track their results. The Lite version restricts the number of semesters, courses, classes/exams, assignments, instructors and holiday periods which can be tracked at once. These limitations would not prevent the app from being functional enough for a university student to manage their semester. A user who tried the Lite version would gain an accurate enough impression of the app’s capabilities to decide if the Pro version was worth buying.

**Alignment with the UDL guideline:** Istudiez adheres to UDL guideline 6: ‘Provide options for executive functions’ (UDL Guidelines, 2014). A teacher or facilitator would be able to use the app to help students plan and organise their workflow, which addresses checkpoints 6.1 and 6.2. Istudiez’ results tracking, and graphing allows the user to track and visualise their progress which addresses checkpoint 6.4 (UDL Guidelines, 2014).

**Curriculum area:** Istudiez’ would be suitable for any area of the curriculum because it focuses on improving organisation and planning, which is beneficial to a student regardless of the topic they are studying. Because the app uses graphing features and percentages it is possible high-school aged students and older would be able to use the app more effectively. It could also be possible to introduce the app to younger audiences and use the statistical features as part of their Numeracy curriculum.

**How does the app meet the National Disability Standards?** Individual Outcomes is the National Disability Standard which centres around individual choice, strength and goals (National Standards for Disability Services, 2013). Istudiez can support Individual Outcomes by providing a tool for tracking individual goals. Students whose disability affects their ability to focus, plan and schedule could be supported to independently manage their time by using Istudiez as a study tool. The Istudiez app lacks features such as high-contrast and switch control, which means it is not accessible for people with vision impairments. Standard 4 specifies the use of feedback to continuously improve (National Standards for Disability Services, 2013). The Istudiez website does have an open request for feedback which is an example of standard 4 and could be used to advocate for improved accessibility features.

**How the app changes pedagogy (SAMR)?** Istudiez improves pedagogy through augmentation. The app is a direct substitute for a paper organiser and has several functional improvements.
Automatic reminder notifications are a significant improvement on a paper organiser as they remove the need to constantly re-read previous entries. Additionally, Istudiez can hold as much information as the user feels is pertinent to any task, whereas the amount of information which a physical organiser can hold is limited by its size.

**How the app encourages person centred planning?** Istudiez enables a student to monitor their own schedule and academic progress. This gives them power and control, which is a key quality of person centred planning (NSW Department of Ageing Disability and Home Care, 2009).

**What area of a 21st Century approach to teaching/training does the app encourage (5Cs)?** Istudiez is a form of Curation. The app is used to collect, and store various data related to the student’s education, with features specifically designed to retrieve the data closer to a time when it is relevant. This is Curation, albeit for a specific type of data.

**Evidence from the literature that the app is capable of the claims made:** There are no studies which involve the use of Istudiez. Green, Hughes and Ryan (2011) point out that there is mounting evidence of a need for effective time management interventions for people with intellectual disabilities. They also point out that there are relatively few studies which examine the effectiveness of specific interventions, despite the studies that do exist returning positive results. Planners have been suggested to be an effective intervention for students with ASD to assist with reminding them of upcoming due dates and exams (Schecter, 2017) which supports the use of Istudiez as an educational tool for those students. Similarly, academic success is positively correlated with time management skills in students with ADHD (Kaminski, Turnock, Rosen and Laster 2006) so it is likely Istudiez would be effective at helping them achieve greater academic success.

**General Comments:** Teachers and developmental educators will be familiar with the task of constantly reminding their students of a due date or upcoming event. This app not only empowers students to organise their own time, it frees the educator from a duty which then allows them to put effort into other areas of the class. Istudiez can also be used to visually represent students’ achievement over time, allowing an educator to track progress and support students where needs arise. The ability to monitor their own timetable and progress has potential to motivate students and help them to develop independence.
**Reviewer:** Anthony Menheere  
**Life Activities - App 10**

**Asana: Organize tasks and work**

**Operating System:** IOS, Android

**Location:** Apple iTunes store, Googleplay

**Cost:** Free ($9.99/month for Premium)

**Description:** Asana is an organisation app with emphasis on team work. The free version allows a team of up to 15 people to manage an unlimited number of projects and tasks and supports in-app chat. Premium supports unlimited team members, private teams within teams and admin controls which would be useful to a teacher or group leader. The app enables a student or teacher to better organise tasks so they may study and work efficiently towards achieving their educational goals.

**Alignment with the UDL guideline:** Asana adequately addresses UDL guideline 6: ‘Provide options for executive functions’ (UDL Guidelines, 2014). Because the app is collaborative, a teacher or team member can guide the goal setting progress remotely from within their own app (checkpoint 6.1 and 6.2.) Asana is also a strong example of UDL guideline 8: ‘Provide options for sustaining effort and persistence’ (UDL Guidelines, 2014) because it focuses attention on objectives, enables collaboration and provides a mechanism for feedback.

**Curriculum area:** Asana is suitable for supporting an individual in any curriculum area. A teacher can use the app to set up a progression of tasks to ensure students follow a scaffolded set of activities and provide insight and feedback at each stage. Because of its collaborative nature it is particularly well suited to any activity which involves group work. A student would need to be a reasonably competent reader to use the app, but there is no specific age that this app would not be suitable for.

**How does the app meet the National Disability Standards?** Asana supports Participation and Inclusion through compatibility with VoiceOver, large font and a custom display designed to improve the experience of users with colour blindness. The app allows teachers to support students who have difficulty with planning and organisation by providing a feature which allows them to make administrative changes and set reminders for the students. Standard 3 emphasises the importance of people with a disability having a leadership role with regards to their own support (National Standards for Disability Services, 2013). Asana is an organisational tool which allows varying degrees of control, this means that the support team can collaborate and assist while ultimately power resides with the individual for whom the planning is being done.

**How the app changes pedagogy (SAMR)?** Asana improves pedagogy through augmentation. The app can be used to substitute for a physical planner. Functionally, Asana improves on a physical planning tool through its ability to be shared and edited by a group of people who are not
physically near each other. The Premium version allows a teacher to monitor students and offer feedback throughout tasks, even if the students are working tasks outside of class times.

How the app encourages person centred planning? Asana allows a facilitator to support students through the process of group work. This means that a student can be supported to participate in a socially meaningful and valued role (NSW Department of Ageing Disability and Home Care, 2009) during group work.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Asana is a powerful tool for Collaboration. It allows members of a team to share ideas and information (Carey 2013) through the chat interface.

Evidence from the literature that the app is capable of the claims made: Time management, as a factor in academic success, has not been studied as extensively as other influential aspects of education (Basila, 2014). Basila (2014) also points out that time management is a better indicator for success than high-motivation. Time management is identified by George, Dixon, Stansal, Gelb and Pheri (2008) as being a better predictor of success in University than previous academic success. Additionally, students who feel as though they are in control of their time report feeling less stressed by their studies (Macan, Shahani, Dipboye, Phillips and Calfee 1990). Asana has the potential to facilitate the time management capabilities and sense of control which are clearly an important component for academic success. It is an example of an organisational strategy of the type that Basila (2014) suggests assist the learner to select information and build connections within what is learned.

General Comments: Asana is a powerful tool for collaboration. Collaboration is an important part of an inclusive classroom. Teachers and Developmental educators can use Asana to supplement any curriculum which involves a collaborative element and monitor the level of participation within the class groups. Being able to monitor the interactions between group members through the chat system allows the educator to effectively moderate inclusion and ensure that students are being respectful of each-other’s contributions. The capability to insert and reorganise tasks using an administrator account means that an educator can direct a group’s activity to ensure they are on-task without impacting on their sense of independence. Asana also has potential as a tool for collaboration between teachers. It would be a useful way for teachers to plan multi-disciplinary units and organise their workflow. Being more organised and having a simple way to track objectives and deadlines should allow a teacher to support students in achieving their goals.
Reviewer: Helene Mackay  

CanPlan

Operating System: IOS

Location: Apple Store

Cost: Initially free, enabling the addition of 3 tasks. In-app purchase of unlimited tasks: currently free, previously $14.99

Description: CanPlan could be useful for anyone who has difficulty remembering and completing the sequence of steps involved in a task. Individual tasks, and the sequential steps involved in completing them, can be added to the app. Each step can be described using an uploaded photo or video, audio description and/or captioning. Tasks can be filed under categories (eg. employment, cooking). Tasks can be scheduled, so that the person receives a visual and audio alert when it is time to undertake the task. There is an optional setting for reminders to 'stay on task'. CanPlan was developed through the CanAssist program, part of the University of Victoria, Canada.

Alignment with the UDL guideline: CanPlan aligns well with Universal Design for Learning (UDL) guidelines, as it provides multiple ways of engaging with the app, and of recording and accessing information (visually, through audio or captions). The interface on the app is relatively simple and clear, and people can adjust the interface via the 'settings' (eg. if they would like to show less information). The app provides feedback - completed goals are marked with a 'tick'. The app is available for iPhones, iPads and iPod Touch - devices that are widely used within the community.

CanPlan can assist people who have a cognitive impairment, in achieving goals and planning, through the scheduling of tasks, and in assisting them to undertake the task independently. People can add tasks and steps to the app themselves, or with assistance from a support person. For some people the app can be used while they are learning or re-learning a task, until they are able to complete it without referring to the app. The ability to file the tasks in categories, and to view a daily 'to do' list assists with organisation, remembering and planning.

Curriculum area: CanPlan could be used in all areas of the curriculum eg. for remembering steps in an assignment or class task. Students can see what tasks are planned for the day (via the daily task list), decreasing anxiety for some students. It may be useful in employment related courses or work experience, for remembering and learning on-the-job tasks and the sequence of steps involved. It could also be used to learn independent living skills such as household tasks, or catching the bus.

How does the app meet the National Disability Standards? CanPlan can contribute to a person's self-determination, participation and inclusion, and the attainment of individual outcomes. Tasks and schedules can be developed based on the person's goals. The app can assist people to
undertake tasks without needing to rely on someone to assist. There are clearly explained manuals for utilising the app, available for free on the developer’s website, and an email address people can contact regarding any problems with using the app.

**How the app changes pedagogy (SAMR)?** The app provides a substitution for paper-based step-by-step instructions, and sometimes for prompting and direction by a support person. The app is also an augmentation: it enables functional improvement in the completion of tasks, is transferable to different settings, and the step-by-step instructions can be provided through various means eg. through pictures, audio or captions making it accessible and beneficial to a wider variety of people.

**How the app encourages person centred planning?** The app enables the person (with or without support from others) to decide on tasks they wish to achieve, to plan and schedule them, and to complete the tasks. This could enable them to work towards their goals in employment, study, at home or in the community.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The app can facilitate community participation, as it assists a person to remember and undertake tasks at school, work, home or in the community. For example, it could be used by someone with an intellectual disability to learn how to catch the bus to work, and to complete new tasks at work. The app enables a list of tasks and the sequence of steps in completing them to be curated, saved in categories and provided in a daily task list.

**Evidence from the literature that the app is capable of the claims made:** Studies have confirmed the viability of using iPods and iPads in educational programs for people who have a developmental disability (Kagohara et al. 2013), and in using iPad applications to improve "life-readiness" skills for students, such as task completion, organisation and communication (Dunn et al. 2016).

Golisz et al (2018) examined the use of everyday technology in supporting development of daily living skills for adults with intellectual disabilities. Two of the three study participants used CanPlan on iPad to learn and implement a daily living task. Prompting from the trainer was gradually faded, with the person then continuing to undertake the task independently utilising CanPlan, together with some environmental prompts or modifications. Both participants improved in their functional performance of the task. Wild (2018) provides a description of the CanPlan app suggesting it could be used use in rehabilitation following brain injury. She suggests that the app could be used for people to remember the steps learned during training sessions.

**General Comments:** The CanPlan app can be used to complete tasks in various settings, including at home, work or school. It can be used temporarily while learning a new task, or as an ongoing memory and sequencing aid. The CanPlan app is simple to use, is adaptable, and it allows the steps in a task to be presented visually, through audio and/or through writing.
**Reviewer:** Helene Mackay  
**Life Activities - App 12**

**Remember the Milk**

**Operating System:** IOS, Android, Windows, Mac, Linux, Blackberry 10 and web based.

**Location:** Various – depending on operating system.

**Cost:** Free to sign up and use. There is a 'pro' version containing more features for $62.99 per year

**Description:** Remember the Milk is a task management app, that enables users to list and manage the tasks they need to complete. These tasks are contained in a master list and can be filtered into other lists according to when they need to be done (today, tomorrow, next week) or other categories (eg. Work, Personal). A priority can be assigned to the task, and tasks can be shared with contacts, or delegated to them. Tasks can be repeatedly scheduled if required. Reminders can be set for tasks and sent as a text, email or instant messaging. Location based reminders can be set, whereby GPS is used to send a reminder when the user is in a location. There is a calendar function in the app, and a note writing function. The app can be synced across multiple devices.

**Alignment with the UDL guideline:** The Remember the Milk app is relatively simple to use, however, it's use becomes more complicated as more functions are utilised. It is text-based, with tasks and reminders not represented through picture or in-built audio, so it is not an app that will suit everyone. Reminders are also primarily provided via text, through IM, email or text message. Remember the Milk is compatible with other programs that can be used to increase the app's accessibility. For example, the app works with in-built Apple programs VoiceOver and Zoom, increasing accessibility for users who have a visual impairment. Voice activation software applications Alexa and Siri can be used to add tasks, set reminders, delegate tasks and to find out what is due today. The Remember the Milk website states that their new web app has ARIA support (Access Rich Internet Applications), enhancing the usability of screen readers.

**Curriculum area:** Remember the Milk could be used across curriculum areas, to assist students to manage and prioritise tasks, and to develop organisational skills. It could be used during group projects when tasks need to be shared and allocated. It is more likely to be suitable for secondary or university students, rather than primary school students. Remember the Milk can also be used to manage and remember tasks in employment settings, and across settings (work, home, community, study).

**How does the app meet the National Disability Standards?** The Remember the Milk app could support participation, and the attainment of individual goals as it can be used by people with memory difficulties to schedule and remember home tasks, appointments, catch-ups with friends, recreational activities etc. The ability to utilise programs such as VoiceOver, Zoom, Alexa, and Siri, and to effectively use screen readers, contributes to the accessibility of the app for people who have a vision impairment or physical disability.
How the app changes pedagogy (SAMR)? Task Managers such as Remember the Milk are an augmentation, as they allow functional improvements and efficiencies compared to a paper-based to-do list (they can be synced across applications, tasks can be easily edited and deleted, 'repeats' can set, priorities allocated and changed, reminders set etc).

How the app encourages person centred planning? The app encourages person-centred planning by enabling users to set tasks in line with their priorities and goals, and to organise those tasks and associated reminders in a way that facilitates their completion. It facilitates the attainment of goals across life settings including work, home, community and study.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The Remember the Milk app facilitates connectivity: users can elect to receive reminders through text or email, share tasks with contacts or delegate tasks to them, sync the task manager across multiple devices, and connect it with other applications (Gmail, Google calendar, Twitter, Evernote, IFTTT). With the 'pro' version it can be linked to Outlook. The app enables people to curate their 'to do' list, filter it into different categories, and to record tasks from multiple settings (home, work, study) in one place.

Evidence from the literature that the app is capable of the claims made: A 2012 systematic literature review of assistive technology (AT) relating to cognitive function, found strong evidence for the effectiveness of AT in supporting time management functions using aural or visual reminders, although some studies had negative or mixed results (Gillespie, Best and O'Neill, 2011). A 2015 systematic review examining the effectiveness of electronic portable assistive devices for people who have a brain injury, found that most of studies reported positive outcomes (Charters, Gillett, and Simpson 2015). These reviews included very few studies on the use of smartphone applications.

Studies have shown the benefit of smartphone calendar application use following systematic training (using errorless learning, fading prompts, in various settings) for individuals who have a brain injury (Svoboda and Richards 2009, Svoboda, Richards, Polsinelli and Guger 2010, Svoboda, Richards, Leach and Mertens 2012). One study found that the recording and recalling of work related tasks was improved for an employee who has a brain injury, following systematic training and use of iPod Touch applications, including a task list application (Powell et al. 2015). With regards to the Remember the Milk application specifically, there are a couple of reviews in professional journals, regarding its use in a work setting (Glover 2012, Berger 2014).

General Comments: The benefits of this app include the ability to schedule tasks and to be reminded of them, to filter/sort them and to prioritise them. This not only assists with remembering the tasks, but also in making decisions regarding their prioritisation and timing.
Voice Dream Reader

**Operating System**: iOS, Android

**Location**: Apple Store, Google Play

**Cost**: $10.99 (Apple Store), $13.99 (Google Play)

**Description**: Voice Dream Reader is a text-to-speech app, that allows users to access text from various sources, and to have that text read aloud. It can be used on iPhone, iPad and iPod Touch and can be 'synced' across devices. Voice Dream Reader can be used to access content from the Cloud, Clipboard, Dropbox, Google Drive, Bookshare, Evernote, Pocket and Instapaper. The app can read PDF, and text can be downloaded from webpages, and from email attachments. Audio files can also be downloaded.

Voice Dream Reader reads content aloud, while highlighting where the narration is up to in the text. Documents can be edited, deleted, highlighted, bookmarked, sorted and filtered using various categories, and users can take notes. Users can pause, rewind and fast-forward the reading. There is a "now reading" button that allows the user to continue reading from the same place, after they have a break. Additional reading voices can be purchased within the app. Audio speed (reading speed) can be adjusted.

**Alignment with the UDL guideline**: Voice Dream Reader aligns with UDL guidelines, as it improves the accessibility of text-based documents and web pages, by enabling the content to be accessed in audio form and not just through visual reading. People who have a vision impairment can utilise Voice Dream Reader together with Voiceover, the inbuilt Apple screen reader, to assist with Navigation within the app (Voiceover verbally describes the buttons, links and functions within the app as the user taps them).

The app may benefit a variety of people, including people who have a vision impairment, people who have reading difficulties, or anyone who prefers to hear text. The app is available in 30 languages. There are functions and settings that can be selected to tailor the app to individual users. This includes being able to change the size of text, the font and spacing, and the colour of the text, background and highlights.

**Curriculum area**: Voice Dream Reader can be utilised across the curriculum in schools and further education. People can use it across life settings, including in their employment to read text-based documents and webpages, for personal use and study.

**How does the app meet the National Disability Standards?** This app facilitates participation and inclusion, as it improves the accessibility of text-based documents and webpages. This app also promotes the attainment of individual outcomes, as users utilise it to access information from a wide variety of sources, to keep informed and to assist in their employment, study, personal interests and pursuit of goals.
The Voice Dream website contains free user manuals, FAQs, and there are email addresses to contact for support or to provide feedback/suggestions.

**How the app changes pedagogy (SAMR)?** Voice Dream Reader is an 'augmentation', as it can enable people who have a vision impairment or learning disability to better access information from text-based documents and websites.

**How the app encourages person centred planning?** The app encourages person centred planning, as it improves the accessibility of information, particularly for some people who have a vision impairment or learning disability. It therefore contributes to the person being able to increase their knowledge, access information to make informed decisions, and to pursue employment, study or other personal goals and activities.

**What area of a 21st Century approach to teaching/training does the app encourage (SCs)?** The app can improve people's access to, or comprehension of, information available on the web or other computer-based documents. In this sense it would increase connectivity, and potentially enable someone to increase their participation in study, work or collaborative forums.

**Evidence from the literature that the app is capable of the claims made:** Text-to-speech is the most popular assistive technology used by people who have dyslexia to improve reading (Chai and Chen 2017). It can help with reading accuracy, pronunciation, speed and phonological awareness (Chai and Chen 2017). A 2017 systematic literature review examining assistive technology use by people with learning disabilities, found mixed results in terms of the impact of text-to-speech technology on reading comprehension (Perelmutter, McGregor and Gordon 2017). Some study participants found text-to-speech applications beneficial for reading comprehension, however, this does not appear to have been the case for people with an already high level of reading ability (Perelmutter, McGregor and Gordon 2017).

Text-to-speech technology is very commonly used by post-secondary students who have a vision impairment, for reading, with 96% of blind students in one study utilising screen readers (Fichten, Asuncion, Barile, Ferraro and Wolforth 2009). Text-to-speech can be beneficial in a work setting, with one study describing how a Human Resource professional who is blind utilises it to read employee paperwork, policy and procedure documents (Babu and Heath 2017).

**General Comments:** Voice Dream Reader is a useful application for anyone who would benefit from hearing written text read aloud. The ability to access content from a wide variety of sources, and have it read aloud on a mobile device, means that the app would be beneficial across educational and work settings, and in everyday tasks that involve reading.
Voice Dream Writer

Operating System: IOS, Android

Location: Apple Store and Google Play

Cost: $14.99

Description: Voice Dream Writer is an app that assists with writing, editing and structuring documents. A main feature of the app, is that the words written are read aloud (as the user is writing them, or afterwards). As a word is read, the word is highlighted. Hearing the words read aloud can assist with composition, and with proofreading. The app can be synced across devices, linked to the Cloud, and documents can be exported to a variety of programs or applications (including Microsoft Word for final editing).

The app tells you when you have mis-spelled a word as you go, and you can check the definition of words. There is a look-up tool for finding the right spelling based on phonetics (ie. you write the word how it sounds, and it looks up the correct spelling), and a look-up tool for finding the right word based on meaning. The speed and style of reading can be adjusted.

To assist with structuring the document, there is an 'outline' view that enables users to see the headings, or paragraphs, and this can be used to 'jump' to a section in the document. 'Drag and drop' or 'cut and paste' can be used to change the location of a section of writing.

Alignment with the UDL guideline: Voice Dream Writer can facilitate UDL. Although the app may be particularly useful for people who have dyslexia or other writing difficulties, Voice Dream Writer can benefit anyone in their writing. Users can draw on a wide variety of features to access and utilise the app.

Voice dictation can be used, and the app can 'read back' writing that was composed through voice dictation, so the user can check for accuracy. The app can be accessed and used utilising Voiceover, the in-built screen reader in Apple devices. Functions within the app, including the 'outline view' and correction of spelling are described using Voiceover, and the Voiceover also tells users what to do to access the function (eg. swipe right, double tap). Mis-spelled words are identified and read-out, and able to be corrected. Attention has been paid to difficulties encountered by screen reader users, for example, difficulty finding where the cursor is in a text. In using Voice Dream Writer and Voiceover together, users can locate the cursor, be provided with a description of its location through audio description, and complete functions such as "copy and paste" and selecting text to edit (the text selected is read out for confirmation of its content).

Curriculum area: The Voice Dream Writer is an app that can be utilised across all curriculum that require the writing of texts. It is an app that can assist people with their writing across settings.
including in their employment, study, online interactions and blogs, in writing letters and job applications.

**How does the app meet the National Disability Standards?** Writing is one of the primary methods of communication utilised in educational and employment settings, and in digital communication. An app that enables people, including people who have a learning or visual disability, to write, to proofread and structure their texts, is an app that facilitates participation, and the attainment of individual goals and outcomes.

The website and promotions for the app, encourage users to provide feedback and suggestions to inform future improvements. Email addresses are supplied for support in using the app, and for providing feedback.

**How the app changes pedagogy (SAMR)?** The app is an augmentation to other word processing programs, as it offers additional accessibility features and compositional aids. It offers considerable modification compared to paper-and-pen writing – with users being able to compose and edit their writing using multiple tools.

**How the app encourages person centred planning?** The app can be used by people to write for various purposes, including those related to employment, study, advocacy, information sharing, pursuit of individual interests, and online participation. This could lead to the achievement of personal goals.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Being able to write, and to write well, increases opportunities in employment, study and online communication. This in turn leads to opportunities for connecting and collaborating with others.

**Evidence from the literature that the app is capable of the claims made:** Voice Dream Writer could be beneficial for many writers, including writers who have a learning disability, in the process of composing or proofreading their writing. A 2017 systematic review and meta-analysis of assistive technology for people who have learning difficulties, identified built-in features of word processing software such as spelling and grammar checks, and ‘composition aids’ as having a large positive affect on writing outcomes for people with learning disabilities, although this was based on a small number of dated studies (Perelmutter, McGregor and Gordon 2017). In addition to this, multi-sensory input can assist learners and writers who have dyslexia (Reid, Stnadova and Cumming 2013; Madeira, Silva, Marcelino and Ferreira 2015), and being able to hear the words as they are written or afterwards can assist in picking-up errors (Chai and Chen 2017). Voice Dream Writer offers the opportunity to hear the words while writing, or to listen to what has been written afterwards.

**General Comments:** Voice Dream Writer is an app that can assist writers in composing and proofreading their writing, including writers who have a learning disability or a visual impairment.
Reviewer: Helene Mackay   Life Activities - App 15

RogerVoice

Operating System: IOS, Android

Location: Apple Store or Google Play

Cost: Free to download with 1 hour of free calls. $9.99 per month subscription.

Description: Rogervoice is an app that provides captioning of phone calls in real time. When a Rogervoice user makes a phone call, the person they are calling can speak into the phone, and what they say will be translated into text for the caller to read (using speech-to-text technology). The speech-to-text is available in many languages. The caller can either speak or type, with typed responses converted to speech (using text-to-speech technology). Calls are free between Rogervoice users, but calls can also be made to non-Rogervoice users (friends, businesses etc). Subscribers receive a "virtual" Rogervoice number which functions like a phone number, and by using the 'call forwarding' function, all calls they receive on their mobile can be answered utilising Rogervoice. An introductory message can be used to advise the call recipient that the caller has a hearing impairment, and that the call will be transcribed and recorded in text. At this stage short numbers (eg. 000) cannot be called utilising Rogervoice.

The information within the app and on the website provides some tips: talking clearly and not in a noisy environment can improve the accuracy of translation in speech-to-text calls and the quality of the internet connection is a factor (callers require internet connection but call recipients do not). When both parties have Rogervoice on their phones, they both receive a transcription, making it easy to check the transcription for accuracy, and to clarify any incorrect translations.

Alignment with the UDL guideline: The Rogervoice app is consistent with UDL principles, as it allows information to be communicated (expressed and received) through various means: Rogervoice users can speak or type and receive information in the form of captions and/or speech. Rogervoice enables people who have a hearing impairment to make phone calls on their mobile without relying on a relay service. There are packages available for companies who want their teams to have Rogervoice, potentially leading to a more inclusive workplace for colleagues who have a hearing impairment.

The Frequently Asked Questions for Rogervoice are available in video format, with information provided in French sign language and spoken French (it is a worldwide app and the company is based in France). The captions on my videos appeared in English. There are written FAQs in French, English and Spanish. Settings can be adjusted for language, on/off transcriptions, background colour and quick messages can be programmed. Font size can be changed utilising in-built iPhone features and on the Android version of the app there is a 'zoom-in' button.
**Curriculum area:** Users of Rogervoice can invite their friends to utilise the app - the app could lead to better inclusion of people who have a hearing impairment socially, in collaborative projects, and other interactions in educational and workplace settings. School students who are learning skills to prepare for the workforce or learning life skills, could be informed about applications such as Rogervoice and how they can be utilised.

**How does the app meet the National Disability Standards?** Phone calls are a frequently used method of communication within the community, and in business settings. Being able to make phone calls and to receive real-time captioning of calls, has the potential to improve participation and inclusion for people who have a hearing impairment across a range of life areas.

It is possible to message the Rogervoice support team via the app, and the company also appears to be responsive to queries and comments on their Facebook page.

**How the app changes pedagogy (SAMR)?** The app provides an augmentation to the way phone calls are made, with the inclusion of a variety of ways to communicate information. This means that people who have a hearing impairment can make and receive phone calls, without needing to rely on an intermediary.

**How the app encourages person centred planning?** People can use this app to make plans and implement them. This can include everyday plans like booking a restaurant at the last minute via phone, arranging tradespeople, contacting family and friends – the list goes on. It could involve collaborating and communicating with colleagues and other businesses regarding a work task or project.

**What area of a 21st Century approach to teaching/training does the app encourage (5Cs)?** The app promotes inclusion of people who have a hearing impairment in the process of making phone calls: it therefore promotes connectivity, community, and collaboration.

**Evidence from the literature that the app is capable of the claims made:** The captioning of mobile phone calls utilising speech-to-text technology and without an intermediary, appears to be a recent phenomenon, and I was unable to locate any academic literature that mentions it. A 2014 online survey of people who have a hearing impairment in the United States identified that the survey respondents made frequent use of smartphones and personal computers for text-based communication and accessing websites (Maiorana-Basas and Pagliaro 2014). There was no mention of the captioning of mobile phone calls without involving a relay service.

**General Comments:** The real-time captioning of mobile telephone calls utilising speech-to-text technology (and without a relay service), has the potential to improve the inclusiveness of one of the most commonly used methods of communication today, the mobile phone call.
Grace

**Operating System:** IOS 9 or later, Android 5.0 or later

**Location:** iTunes Store. Google Play Store

**Cost:** $46.99 iTunes Store, $15.99 Google Play Store

**Description:** The Grace app is a picture exchange for people who communicate non-verbally, and it is designed to encourage and reward children with Autism and other children with special needs to communicate effectively by using images rather than speech. It is easy to use and can be used across IOS and Android devices. The app works by offering a selection of images in categorised folders and the user is encouraged to find, take, select images and then point to the pictures to communicate their needs. It also supports therapeutic strategies for developing communication goals like asking for "help", saying "no", "Yes" and "telling where it hurt". The app comes with a vocabulary of pictures, but the user can update and customised the app by using pictures, Photos and vocabulary of their choice.

**Alignment with the UDL guideline:** The Grace app does align with UDL guideline (2.1) of providing alternative options for language use through clarifying vocabulary and symbols. The Grace app can be used as an alternative form of communication and the user can customise and update the app to their choice. The app is also aligned to UDL guideline 7.1., as it gives the user the autonomy to individualise the app according to their needs (CAST 2011).

**Curriculum area:** The app is useful in providing the basic communication skills needed for people with communication difficulties in their day to day activities of daily living. It is suitable for use by the whole family and caregivers as well.

**How does the app meet the National Disability Standards?** The app can be used as an alternative and augmentative form of communication as it allows the user to communicate their needs through different formats such as symbols, pictures and signs. It therefore meets the National Disability Standard 1 and 1.3, of promoting the rights of people with a disability in being able to express themselves and being actively involved in decision making process. This further increase their chances of participation and inclusion (National Disability Standard 2).

**How the app changes pedagogy (SAMR)?** The Grace app can enable users to update and customise vocabulary according to their liking which means it can be modified to allow for significant task redesign. The app enables users to communicate through picture exchange to express their needs, it is therefore, also Augmentative as it acts as a direct tool substitute for people who otherwise cannot communicate verbally.

**How the app encourages person centred planning?** The app comes loaded with some pictures and vocabulary, users can customize the app by adding more pictures or vocabulary therefore they
are not restricted. This means users can achieve their goals in learning new concepts as they are exposed to a wide variety of vocabulary to enhance their communication skills.

**What area of a 21st Century approach to teaching/training does the app encourage (5Cs)?** The app can be used across Apple and android devices and users can communicate their needs using pictures, symbols and signs downloaded from other websites or stored in their computer. It creates a community of learners as both caregiver and user engage in creating sentences using pictures, signs or symbols in connecting and sharing ideas.

**Evidence from the literature that the app is capable of the claims made:** The Grace app does not replace the Picture Exchange communication system, instead it replicates it. Recent developments in mobile technology including the iPad have provided a new way of communication for individuals with developmental and acquired neurological conditions (McNaughton and Light 2013). Parents and professionals had been able to make use of these mobile technologies to create awareness and social acceptance of Alternative and Augmentative Communication devices. Such opportunity is what a mother of two children with autism took to develop an award-winning communication application for autism. According to O'Brien (2010), technology writer for the Irish Times who wrote the article, Grace App took the prestigious mobile content award at the World Summit Award Mobile (WSA-Mobile) for e-Learning and education. The WSA-Mobile is a global initiative that promotes the world’s best mobile content and innovative applications within the framework of the United Nations.

**General Comments:** The Picture Exchange Communication (PECS) system allows children to communicate by building sentences through a book of laminated pictures. There is a reliance on parents and professionals to constantly add vocabulary with new cards from time to time. This involves printing, laminating new pictures and symbols to add to the vocabulary. The Grace app overcomes this with preloaded picture vocabulary which can be updated as well. It is therefore ideal for carers, parents as well as educators who have worked with PECS to keep developing their child’s independence in communicating.
Reviewer: Gibrilla Jalloh

Life Activities - App 17

Conversational Social Stories and Simple PECS communication Tool

Operating System: IOS, Android

Location: iTunes Store and Google Play Store

Cost: $5.99

Description: The app is a communication tool which is made up of four social stories about different conversational skills. The social stories use simple text and descriptive symbols or pictures to explain how to initiate, maintain and end a conversation. The conversational skills focus on "greetings", asking a question and tips for a great conversation and how to end a conversation. There is a table of content which the user can use to access a specific story. The stories on the app consist of square buttons with images that play the part of the conversation the story is about. The buttons are very much like buttons you will find on a Picture Exchange Communication System (PECS) as they have picture on the buttons that represent the idea and would play a message when tapped.

Alignment with the UDL guideline: The app aligns to the UDL guideline of providing options for expression and communication (5) (Cast, 2011). The social stories present information in a literal way to improve the understanding of a child 's previously difficult activity. The presentation and content can be adapted to meet different needs.

Curriculum area: Conversation Social Stories and Simple PECS Communication tool assist children diagnosed with autism, Down Syndrome or other disabilities to have a more direct instruction in social conversations. The app is useful in helping children sequence what comes next in a series of activities and execute functioning. It is therefore useful as a teaching tool in communication for children with special needs who find it difficult to initiate a conversation.

How does the app meet the National Disability Standards? The App meets the national Disability Standards of participation and inclusion because it encourages the user to initiate, maintain and end a conversation. Social stories in the App provide positive feedback to the child about the area of strength or achievement to develop self-esteem.

How the app changes pedagogy (SAMR)? Children diagnosed with Autism often find it difficult to pick up on social cues which makes it difficult to start and maintain a conversation. The app can be used as an Augmentative tool in teaching a child with special needs social skills.

How the app encourages person centred planning? The app promotes a clear platform for children with special needs to develop their social skills. This further enhances the value base for enhancing genuine social inclusion and community inclusion (DADHC 2009).
What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)
Conversational Social Stories and Simple PECS Communication encourages creativity as it
inspires children to manipulate images, symbols to representation information and ideas to
communicate their needs (Carey 2018).

Evidence from the literature that the app is capable of the claims made: Conversational Social stories
and simple PECS communication tool is an app that is made up of four social stories about
different conversational skills and simple communication tools to go with them. Social stories
according to Sutton (2011) are "individualised short stories that describe a social situation and
provide specific written cues using visual supports such as picture, diagram, symbols and text
(p.35). Social interaction is important for developing friendships and language and cognitive
skills, therefore social stories are important helping children with learning difficulties interpret
social cues to internalise the appropriate behaviour needed to interact socially (Sutton, 2011).
In another systematic research review of six trials, five reported statistically significant results
that favoured the social stories intervention as beneficial in modifying behaviour of children
with Autism Spectrum Disorder (ASD) (Karkhaneh, Clark, Ospina, Seida, Smith and Harling 2010).

General Comments: This app is a valuable tool in assisting children with learning difficulties overcome
barriers to maintaining a conversation. Parents, carers and developmental educators who are
supporting children with Down Syndrome and ASD will find this app beneficial in giving more
direct instructions regarding social skills using social stories.
Visual Reading-Special Education

**Operating System:** Android

**Location:** Google Play Store

**Cost:** Free (offers in-app purchases)

**Description:** Visual Reading-Special Education is a reading and speech development app for children and adults with a disability. The primary objective is targeted at reaching several educational goals such as reading, developing vocabulary and vocal imitation. The primary focus of the app is to further develop the reading and aural perception abilities of children and adults with disabilities. It also helps improve verbal skills, expand vocabulary and can be used as a speech therapy tool for Dysphasia and Aphasia. The App has a variety of programs settings with a wider selection of learning materials. For instance, you can record your session, and there are optional fonts for dyslexic students and several activities to teach mathematics. The visual reading program integrates four learning methods; that is Global reading, analytical and synthetic reading, errorless learning and derived stimulus learning. Each method used will depend on the user of the app. The app is also useful for people who want to learn a second language. The languages available are English (US), English (UK) Portuguese, Slovak, Czech, Hungarian, Polish, and Austrian.

**Alignment with the UDL guideline:** The UDL guidelines the app is aligned with include: 2.1, 2.2, 2.3, and 2.4. The Visual Reading-Special Education app focuses on several educational goals of teaching to read, improve listening and vocal skills and developing vocabulary. The app is also useful to people without a disability in learning a second language. This all provides an opportunity in clarifying vocabulary and symbols, decoding of text and mathematical notations.

**Curriculum area:** The Visual Reading-Special Education app falls within the curriculum of teaching as it allows individuals to learn new language. It also has a lot of educational materials which teachers, students, carers and family can use to assist people with a disability improve on their verbal skills.

**How does the app meet the National Disability Standards?** The app is not only useful as a communication tool for people with a disability but also as a therapeutic tool. It enables individuals to have freedom of expression, maintain their dignity and respect in an inclusive community.

**How the app changes pedagogy (SAMR)?** The app changes pedagogy as an augmentation and a direct substitution as it provides resources for teaching and therapy.

**How the app encourages person centred planning?** The app helps in dealing with barriers to communication. This gives the user the opportunity to develop their verbal skills, aural perception and to be in control of decision making and other aspect of their lives.
What area of a 21st Century approach to teaching/training does the app encourage (5Cs)? The app was developed and tested in cooperation with teachers in special schools. The app therefore provides learners with connectivity and collaboration as it can automatically record a lesson during a session which can be accessed by parents and teachers to track development.

Evidence from the literature that the app is capable of the claims made: The visual reading app program incorporate four learning methods which can be utilised depending on the person. Errorless learning, one of the reading methods integrated into the app has been applied in developing practical interventions for people with a range of disabilities. This method of learning according to Clare and Jones (2008) involves eliminating errors during the learning process. This can be achieved by breaking down targeted tasks into small units, providing models before the task, avoid guessing, immediately correcting the error and carefully fading prompts (Clare and Jones 2008).

General Comments: The app is mostly beneficial in the teaching of children with special needs to develop phonological awareness, development of verbal skills and vocabulary expansion. There are a lot of educational materials for parents, teachers and carers to use. This keeps on updating from time to time after consultation with experts.
Cuedin-Autism Early Intervention

Operating System: Android

Location: Google Play Store

Cost: Free (In-app purchases)

Description: Cuedin Autism Early Intervention app is an android based early intervention education app for children with developmental delays; or children who have difficulties with learning. The app helps children with visual cues and if implemented correctly enhances the child's ability to participate in activities regardless of their impairment. When interacting with the app, there is also a voice over and verbal support for children who benefit from auditory instruction. The child gets immediate feedback and positive reinforcement to motivate the child. Currently the app covers areas such as perception, daily living skills, general knowledge, writing and activities for developing fine motor skills.

Alignment with the UDL guideline: The app aligns with UDL guideline 9.1 as it provides feedback and positive reinforcement for motivation. The app can be used by people who want to learn a second language, thereby aligning to UDL guideline 2.4 in promoting understanding across languages (Cast 2011). The user can also track and record their performance over time to see if the student is meeting objectives, which also aligns to UDL guideline 6.1 in setting appropriate goals. The app may benefit a lot of people with a wide range of disabilities such as Autism Spectrum Disorder (ASD), dysphasia and other diagnosis which seem to cause learning and communication difficulties. There is also a similar web-based programme called Bluestacks just like this app which can be downloaded and installed with windows and Mac OS operating system. There is opportunity for experts such as a speech therapists and developmental educators to comment or add their contribution through the developer's website.

Curriculum area: The Cuedin-Autism Early Intervention app covers a broad range of educational resources for children with special needs and speech therapists on how to use the learning programs in the app to achieve better results. It can be useful across school or educational curriculum. It could be used in preschools to assist children develop their reading skills. Adults who want to learn a second language can also make use of the app.

How does the app meet the National Disability Standards? The app meets the national disability standard of participation and inclusion as it gives the user the opportunity to develop their aural capabilities and language skills thereby enabling the user to develop their vocabulary base and encourage more participation in activities. This enhances participation and an inclusive society.

How the app changes pedagogy (SAMR)? The app can be used as an augmentation tool as it serves as an intervention mechanism in improving the communication skills of children with a disability. It also serves as a substitute in translating words or phrases from English to other
languages such as Portuguese, Czech, Hungarian, Polish and German for people who want to learn a new language.

How the app encourages person centred planning? The app’s main objective is to develop and expand verbal skills of children with developmental delay. An early intervention program to assist in reading and personal development means you have the power to make meaningful contributions in the planning and provision of service delivery tailored to your needs. It also means with the development of fine motor skills a person can take part in activities of learning and play.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The app provides the opportunity for people to access information and resources for various types of disabilities associated with developmental delay, which has been curated. This further creates a community of learners as contents can be modified or contributions can be made from various professionals for parents and teachers to use.

Evidence from the literature that the app is capable of the claims made: There are a lot of apps that have been developed for people with ASD and other forms of developmental delays. Though these apps can help in developing skills, most have not been tested. There is no specific literature to substantiate the app. However, the rapid increase in the use of smart phones has provided the opportunity for the development of new means of communication, social and motor development for individuals with communication difficulties. (Shane, Laubscher, Schlosser, Flynn, Sorce, Abramson 2012). As people adopt the use of smart phones along with the many applications found on these phones, there is the opportunity for the developers of apps to cater for people with disability.

General Comments: The app could benefit mostly children who have a disability in the classroom environment as it could be used by teachers to enhance their abilities to participate in activities. There is also the potential benefits for people who are bilingual in translating text from English to other languages supported in the app.
Key word sign Australia-Auslan Resources

Operating System: IOS,

Location: iTunes Store

Cost: $39.99

Description: The key word sign Australia-Auslan Resources app is an app developed by Scope Victoria, which is designed to support children, adolescents and adults who use key word sign. The app is used to support and encourage language development in children and adults with communication difficulties. It is core concept words specifically appropriate for children and adults with communication difficulties and each word is matched to a hand sign. It is based on the key word sign Australia vocabulary of over 600 words, the vocabulary includes evidence based interactive core vocabulary of 100 words and all regional dialects of Auslan signs. There is a written instruction with a word document which the user can use to find information on the principle of key word sign. It also has a camera roll function where video clips or photos of an individual's sign can be stored in the app. The app is customable by using the library of Auslan sign and Widgit symbols to make your own communication resources.

Alignment with the UDL guideline: The app aligns to UDL guideline 5, as it is used as a means of communication by using key word sign. The app provides multiple means of expression through clarification of sings and symbols (2.1).

Curriculum area: The app is suitable for children of all ages, adolescents, and adults with communication difficulties. It is therefore suitable for all aspects of the curriculum.

How does the app meet the National Disability Standards? The app meets the national disability standard of promoting the full and effective participation and inclusion of people with a disability with communication difficulties (National Standard for Disability Services 2013).

How the app changes pedagogy (SAMR)? Key word sign Australia-Auslan Resource App is substitute for people with speech difficulties. By using signs and symbols they can overcome conversational barriers.

How the app encourages person centred planning? The app is very useful for teachers, carers and parents to encourage language development thereby dealing with structural barriers.

What area of a 21st Century approach to teaching/training does the app encourage (5C)? It creates a community of learners and creativity by bringing them together to learn how to do things as well as presenting ideas and information in a different way.

Evidence from the literature that the app is capable of the claims made: The key word sign-Auslan Resource App is an app developed by Scope Australia. It is specifically designed for anyone
supporting children, adolescents and or adults who uses key word sign. According to Grove and Walker (2009), Key word sign involves using speech and manual sign simultaneously, however signing is used only with the key words in the sentence. There are a variety of key word signings including the Makaton vocabulary which have been developed and become very popular in Australia (Grove and Walker 2009). The Makaton vocabulary according to (Grove and walker 2009) has become the most widely used system of augmentative communication. It is important to note that the Makaton itself is not an AAC system but an organisational approach to the teaching of language and communication (Grove and Walker 2009). A lot of research has been conducted to investigate the effects of manual key word sign intervention during early stages of developmental disability in children with intellectual disability (Vandereet, Maes, Lembrechts and Zink 2011). Two case studies conducted with children with Down Syndrome enrolled in a three-week individual teaching course with simultaneous sign and speech input, demonstrated signs of speech production over time. The research as Vandereet et al. (2011) pointed out, indicates that exposure to manual signs does not guarantee the child's development in adequate symbolic skills, factors such as: cognitive, communication and linguistic skills playing an important role.

**General Comments:** Key word signing is used extensively worldwide to support the teaching of communication and language skills for children and adults with a disability. The app transforms the way children and adults with communication difficulties express their daily needs through key word signs. Educators, families and carers can use key word for nursery rhymes to sing, see and sign.
Reviewer: Margaret O'Connell

Pocket Book Easy Budget Planner

Operating System: iOS, Android

Location: iTunes store, Google Play store

Cost: Free

Description: Pocket Book is an app that helps people keep track of their finances, the app is linked with most financial institutions and to your personal banking accounts. It enables an individual to set personal limits on their spending as well as track their spending. Pocket Book records and sorts spending into set categories. The location and the establishment where a purchase is made is also recorded. This information provides the consumer with data to analyse their spending and identify areas they can curtail to maximise savings capabilities. The app also has a notification function to remind of up-coming bills.

Alignment with the UDL guideline: Principle I. Provide Multiple Means of Representation Guideline 1: Provide options for perception: Checkpoint 1.1 Offer ways of customizing the display of information. Principle III. Provide Multiple Means of Engagement - Guideline 8: Provide options for sustaining effort and persistence – Checkpoint 8.3 Foster collaboration and communication (CAST, 2018). The user can customise Pocket Book to suit their needs; deciding on the categories, the types of recording methods for example photos or notes. Pocket Book combines information from bank accounts and services accessed to provide a record of spending. The collaboration is enabled with the connectivity of technology empowering informed choices to be made.

Curriculum area: Mathematics and Personal and Social – Self Management - This element involves students developing the metacognitive skill of learning when and how to use strategies to manage themselves in a range of situations (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014). Pocket Book aids in the management of personal finances the ability to understand financial priorities and distinguish between wants and needs is an imperative skill.

How does the app meet the National Disability Standards? 1:3 The service supports active decision-making and individual choice including the timely provision of information in appropriate formats to support individuals, families, friends and carers to make informed decisions and understand their rights and responsibilities. 1:9 The service keeps personal information confidential and private (National Standards for Disability Services, 2013). Pocket Book promotes financial wellbeing by increasing awareness of personal finances and expenditure. It enables informed decisions to be made about which areas may be eliminated to increase revenue towards personal savings. Pocket Book supports a secure interaction with financial institutions allowing access to data yet keeping information confidential and private.
How the app changes pedagogy (SAMR)? Pocketbook is an example of augmentation: in relation to the budget ledger of the past; balancing the books is now a redesigned digital finance companion. It will categorise spending for easier analysis of areas most of the money is spent. The user decides the spending safety limit and notifications are sent when the limit is near. However, this is a read only app, and the user is not able to interact with their accounts to transfer funds or pay for goods and services.

How the app encourages person centred planning? The Pocket Book app places the person, the user of the app, at the centre of all the decisions. Here is a list of some of the decisions available when using Pocket Book: 1) The accounts to be added and viewed from the app 2) The limit for the safely spend feature 3) The categories 4) The manual transactions recorded, disclosed and the manual transactions to withhold 5) Pay $9 or refer a friend to Pocket Book to activate the advance analysis feature.

What area of a 21st Century approach to teaching/training does the app encourage (5Cs)? Connectivity to the banks allows for the automatic sync so information is retrieved and categorised synchronously. Pocket Book is a storage place for your financial transactions and is an example of curation, a place to store and categorise your financial information for convenient easy access.

Evidence from the literature that the app is capable of the claims made: The capacity for one to act in their best financial interest correlates with their social economic environmental conditions. Understanding consumer behaviours regarding managing personal resources and selecting financial services that meet their needs is a definition of one’s financial capacity (Perotti and Siegrfried, 2013). Allmark and Machaczek state that there is a direct link with the ability to manage financial resources and wellbeing which impacts on an individual’s health.

General Comments: A Pocket Book account can enable the user to have a visual of their finances all on the one page. The ability to devise the categories and to set notifications provides the user autonomy with their finances.
Reviewer: Margaret O'Connell  

Life Activities - App 22

Wunderlist

Operating System: iOS, Android

Location: iTunes store, Google Play store

Cost: Free

Description: Wunderlist is list making app with the bells and whistles. Wunderlist can be a digital task organiser, with daily reminders, a place to store future goals and a collaborative tool to aid communication with colleagues on group projects. Microsoft recently purchased Wunderlist, current patrons of Wunderlist are concerned that Wunderlist will be superseded by Microsoft's new To-Do App which is still at a developmental stage and does not have the same features available in Wunderlist.

Alignment with the UDL guideline: Principle II. Provide Multiple Means of Action and Expression Guideline 6: Provide options for executive functions Checkpoint 6.1 Guide appropriate goal-setting and Checkpoint 6.3 Facilitate managing information and resources. Principle III. Provide Multiple Means of Engagement -Guideline 8: Provide options for sustaining effort and persistence-Checkpoint 8.1 Heighten salience of goals and objectives (CAST, 2018). Wunderlist is a place goals can be set, monitored and stored for easy access. The lists created can be checklists. The ability to create sub lists within a list is perfect for long term goals that can be broken down into smaller short-term goals that can be checked off as the goals are attained. The note taking feature can be used to add more information.

Curriculum area: Personal and Social – Self Management - This element involves students developing the metacognitive skill of learning when and how to use strategies to manage themselves in a range of situations (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014). Wunderlist is a tool for organising tasks and checking them off as they are completed. The lists can be used for school, work, social interaction and for personal use. The lists can be accessed easily and shared when used collaboratively. The ability to use the lists to collate ideas and break down tasks is an effective self-management strategy.

How does the app meet the National Disability Standards? Standard 2:2 The service works together with individuals to connect to family, friends and their chosen communities (National Standards for Disability Services, 2013). The share feature in Wunderlist enables lists to be shared with family and friends or with a group of colleagues working on the same task.

How the app changes pedagogy (SAMR)? Wunderlist is an example of augmentation: the technology substitutes pen and paper checklists with the added function of sharing checklists and notes with others enables the ability to work collaboratively on a task.
How the app encourages person centred planning? Wunderlist enables and builds autonomy for the user to make choices about the lists they want to create and whom to share the lists with. The lists can be for work, social or private use. Wunderlist could be an age appropriate approach to individual schedules providing discrete reminders on how to complete tasks or social cues.

What area of a 21st Century approach to teaching/training does the app encourage (5Cs)? Wunderlist is an example of Collaboration and Curation. The Wunderlist sharing feature allows for the sharing of lists and notes in real time and asynchronously with others. A list of movies to watch or books to read may also be shared with like-minded people developing a community sharing a common interest.

Evidence from the literature that the app is capable of the claims made: Graus, Bennett, White and Horvitz (2016) state use of external memory aids increases the likelihood of recall information. Prospective Memory (PM) is the ability to remember tasks or events to be carried out in the future and relies on the recall of information at any moment. Wunderlist notifications can aid memory recall and for those with working memory deficit it can be a tool to prompt or provide step by step guidelines in completing a task. Jamieson, Cullen, McGee-Lennon, Brewster and Evans (2015) report that memory aid assistive technology is the most utilised technology used by people with acquired brain injury.

General Comments: Wunderlist is perfect for customised reminders however the email notifications need to be customised as well to prevent receiving too many emails and filling up one’s inbox. Wunderlist can be a reminder for daily tasks like taking medication. People can be housebound for various reasons a shopping list could be shared with a family member, friend or carer with photos of the product to reduce the margin of error in purchasing the wrong item.
**Auslan Tutor Key Signs**

**Operating System:** IOS, Android

**Location:** iTunes store, Google Play store

**Cost:** Free; Full Version Android Version $20.00, iOS Version $19.99

**Description:** Auslan Tutor Key Signs is an app that has examples of key signs and phases ideal for people learning Auslan. The app was developed to support families with a young deaf child to learn Auslan to communicate and meet their child's needs. The app consists of videos of how the sign is made and photos explaining the handshapes used to form the sign. The video shows the sign in isolation and then the sign used in a phrase. The phrase is then used in a sentence to provide an example of the correct use of Auslan grammar. This app is perfect for people wanting to use Auslan to communicate with a deaf person.

**Alignment with the UDL guideline:** Principle I. Provide Multiple Means of Representation - Guideline 1: Provide options for perception - Checkpoint 1.2 Offer alternatives for auditory information (CAST, 2018). Auslan (Australian Sign Language) is a language that provides communication for the Deaf community; Auslan provides another form of communication different from text and lip reading promoting choice in a person's ability to access information and express their needs.

**Curriculum area: Languages:** Auslan is one of the many languages within The Australian Curriculum Languages learning area. The learning area provides four pathways two of the pathways refer to Auslan as a first language and the other two pathways refer to Auslan as a second language (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014).

**How does the app meet the National Disability Standards?** Auslan Tutor Key Signs meets the National Disability Standards 2:1 The service actively promotes a valued role for people with disability, of their own choosing. 2:2 The service works together with individuals to connect to family, friends and their chosen communities (National Standards for Disability Services, 2013). People have the right to choose how they will communicate in their own community and in their private life. Auslan Tutor Signs promotes communication using Auslan (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014).

**How the app changes pedagogy (SAMR)?** Auslan Tutor is an example of augmentation: the technology is used to enhance the tool which substitutes a paper version of a dictionary with a digital dictionary with functional improvements.

**How the app encourages person centred planning?** Communicating in a person's native language or providing access to interpreters so they can communicate in their language is tailoring the support to the person with the disability. Clear communication breaks down the barriers that can cause confusion and unsatisfactory outcomes.
What area of a 21st Century approach to Teaching/training does the app encourage (5Cs) Auslan Tutor Key Signs app is an example of curation: it is a collection of signs, phases and sentences that is categorised for easy access and retrieval later.

Evidence from the literature that the app is capable of the claims made: Auslan is a language, different from mime and gestures used in spoken languages (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014). Auslan Tutor Key Signs App provided videos and photos to aid in the formation of the sign. Sign language enables the deaf community to communicate with one another. Auslan is not based on a spoken language; Auslan grammar and vocabulary is unrelated to English (Johnston and Schembri, 2007). Auslan Tutor Key Signs is a resource that could be shared in the work place to encourage hearing colleagues to communicate with colleague with a hearing loss or deaf; developing an inclusive and cohesive work environment (Adam, 2015).

General Comments: Auslan is a complex language it is not easily acquired by book learning. The videos clarify which of the 5 parameters in signing is used to produce the sign. The five parameters are referred to as HOLME: Handshape, Orientation, Location, Movement and Expression. The handshape is the shape of the hand; there are 38 handshapes and 28 variants. The orientation is the direction the hand is facing upwards, downwards, sideways, towards the body or away from the body. Location is about the location on the body or in the signing space where the sign is produced. Movement is the way the hands move when producing the sign. Expression is the non-manual features that add information to the sign that do not include the use of the hands for example facial expressions, raising of the brow when asking questions or puffing of the cheeks for emphasis (Johnston and Schembri, 2007).
Reviewer: Margaret O'Connell  
Life Activities - App 24

Headspace - Meditation

Operating System: iOS, Android

Location: iTunes store, Google Play store

Cost: Free (Basic Course) $12.50 per month for a subscription or $19.99 per month for a monthly subscription. $399US or $537.35AUD for a lifetime subscription.

Description: Headspace provides guided meditation and mindfulness techniques. The guided meditations have various time limits for example 1 min, 3mins, 10mins etc ... depending on the user's time restraints; they can choose a time that suits their purpose. Headspace starts with a free ten guided meditation course to orientate the user. Headspace have short animated videos that explain various neuroscience concepts, audio recordings to aid sleep and meditation for children.

Alignment with the UDL guideline: Principle I. Provide Multiple Means of Representation, Guideline 2: Provide options for language, mathematical expressions, and symbols, Checkpoint 2.5 Illustrate through multiple media. Principle II. Provide Multiple Means of Action and Expression Guideline 6: Provide options for executive functions Checkpoint 6.2 Support planning and strategy development (CAST, 2018). Headspace utilise multiple means of representation like audio, video and text to present the guided meditations and thoughts. The meditations are categorised into various topics enabling the user to prioritise the selection of a focus area; for example, strategies for stress and how to improve sleep.

Curriculum area: Personal and Social – Self Management- This element involves students developing the metacognitive skill of learning when and how to use selected strategies to manage themselves in a range of situations (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2014). Headspace provides a strategy for students to focus their attention and to practise when they require assistance to self-regulate their emotions. Headspace increases awareness of present environment and understanding of how the brain works. Understanding the implications of neuroscience on learning, recall and emotional wellbeing increases self-efficacy.

How does the app meet the National Disability Standards? 2:1 The service actively promotes a valued role for people with disability, of their own choosing (National Standards for Disability Services, 2013). The Headspace user can determine their level of involvement with Headspace they can choose which guided meditations they require and the duration of the meditation. The user can add friends and meditate together.

How the app changes pedagogy (SAMR)? Headspace is an example of augmentation: the guided meditations are a substitution of technology using a recording instead of physically being present with the facilitator. The functional improvements of being able to meditate with a
friend and access to the information in various formats distinguishes Headspace from a simple substitution.

**How the app encourages person centred planning?** Meditation and mindfulness is a focus on thinking and managing thoughts and ideas contributing to a healthier wellbeing. Meditation empowers authority and control over one's thinking with a focus on ability. It enables a person-centred approach by giving control and building confidence in the person with the disability to make their own decisions.

**What area of a 21st Century approach to teaching/training does the app encourage (5Cs)?** Connectivity enables Headspace to be accessible and promotes independence in self-regulation in work and social activities. The guided meditations and strategies provided allow for personal reflection, and a moment to reenergise and self-correct if needed.

**Evidence from the literature that the app is capable of the claims made:** Azulay and Mott (2016) found the ability to repeatedly refocus attention can increase emotional self-regulation and enhance self-efficacy. The implementation of mindfulness strategies in schools has become a 21st Century trend; providing students with a tool to aid in the reduction of stress and the ability to focus attention. Zenner, Herrnleben-Kurz and Walach (2014) recommend teacher training in mindfulness to enable teachers to impart mindfulness skills and knowledge to their students. A benefit of teacher mindfulness training is the development of resiliency and prevention of burnout within their teaching practice.

**General Comments:** Headspace is a welcome self-induced time out. Providing the opportunity to focus on self; starting with a focus on the breath and then drawing attention to the present environment. A 21st Century world can become busy and the brain can become overwhelmed with everyday tasks. Headspace can aid in the development of wellbeing taking the time to ponder and celebrate successes and monitor progress of work related, social or personal goals.
Conclusion and Recommendations

The apps which have been reviewed in this section have been carefully selected to address the life activities needs of a diverse population. The WHODAS section on life activities can be broken into three categories; work, home and education (WHODAS 2.0). An important feature of many apps included in the reviews is that they are useful in more than one of the three categories of life activities.

Apps such as Asana and Slack have significant potential value because their organisational and collaborative nature make them adaptable to all three categories of life activities. Similarly, although the review's discussion of Talking Calculator centred around its value as an educational tool, it has potential to assist with work and home related tasks; such as budgeting. The apps reviewed here attempt to provide tools which cover broad aspects of education, such as organisation and motivation (iStudiez); and the specific, such as language learning (Visual Reading – Special Education). ICT has been identified as an area of having great potential to assist people with disabilities in achieving their educational goals (Hersh, 2014)

The ability to complete education and work tasks quickly and to a specified standard are identified by WHODAS as essential aspects of life activities (WHODAS 2.0). While ultimately the ability of people with disabilities to participate in employment is limited by the attitudes of peers and employers, technological developments have been shown to improve outcomes in terms of gaining and retaining employment for people with a disability (Roulstone, 2016). Many of the apps which have featured in the preceding reviews have features which enable greater participation in the sphere of employment.

People with intellectual disabilities are often aware of the stigma with which they are perceived (Jahoda, Wilson, Stalker and Cairney, 2010). There are multiple examples in the reviews of apps which allow the independent completion of home tasks, with the additional safety net of apps which allow discreet and mutually beneficial (paid services) requests for assistance. These applications allow people with disabilities to live more independently and by doing so, combat the stigmatisation present in their day-to-day lives.

The 30 apps which have been presented and reviewed each have the potential to aid people with disabilities in attaining their goals; whether that be learning something new, improving their performance at work or keeping a tidy and efficient home. The reviews are useful not only for the information they provide, but also as examples of a framework which can be used by the reader to conduct their own evaluation of apps to assist people with disabilities.
References:


Schecter, G. (2017). Time management for students with asd use these organizational ideas to help students with autism transition into middle or high school. *ASHA Leader*, 22(4), 36-37.


**Useful Links**

**Auslan Tutor Key Signs** - [https://vimeo.com/84194225](https://vimeo.com/84194225)

**Bitsboard** - [https://www.youtube.com/watch?v=U_yONxIqy8g](https://www.youtube.com/watch?v=U_yONxIqy8g)

**Blue Stacks** - [www.bluestacks.com](http://www.bluestacks.com)


**Coles** - [https://download.cnet.com/Coles-App/3000-2056_4-75733150.html](https://download.cnet.com/Coles-App/3000-2056_4-75733150.html)


**Headspace: Meditation and Mindfulness** - [https://www.youtube.com/watch?v=W38Xhg0afWs](https://www.youtube.com/watch?v=W38Xhg0afWs)


**Lotsa Helping Hands** - [https://www.youtube.com/watch?v=bMc7gHGVgw8](https://www.youtube.com/watch?v=bMc7gHGVgw8)

**Marley Spoon** - [https://www.youtube.com/watch?v=f6wBJ6iFrXY](https://www.youtube.com/watch?v=f6wBJ6iFrXY)

**Our Home** - [https://www.facebook.com/ourhomeapp/](https://www.facebook.com/ourhomeapp/)

**Pocket Book Easy Budget Planner** - [https://getpocketbook.com/](https://getpocketbook.com/)


Seeing A1 - https://www.youtube.com/watch?v=bqeQ8yqf_f8

Slack - https://www.youtube.com/channel/UCY3YECgeBcLCzIrFLP4gblw


Wunderlist - https://www.wunderlist.com/

Participation

The restrictions experienced from people, laws and other features of the world

Fandy Dawenan
Alexandra Bennett
Pouya Farbod
Mary-Ellen Flynn
Rebecca O’Hara
Louise Kaye-Smith
## Apps for functional group: Participation

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Introduction

Participation of people with disabilities in community life is influenced by environmental accessibility factors, access to information and technology, policies and legislation, economics, and societal attitudes (Hammel et al., 2015). “Participation is a complex interaction between intrapersonal, interpersonal and structural factors” (Darcy and Taylor, 2009, p4). Full participation is more than having a community presence (Verdonschot, De Witte, Reichrath, Buntinx and Curfs, 2009; Department of Social Services, 2012), and people with disabilities should be able to participate in social life with autonomy (Milner and Kelly, 2009), and not rely on others for participation and inclusion (World Health Organisation, 2011).

The social model of disability (Oliver 1990, as cited in Milner and Kelly, 2009) identifies structural barriers as the main contributing factor to disabling people. It provides the theoretical framework for The United Nations Convention for the Rights of People with Disabilities, The UN CRPD (2006). Article 9 and Article 30 clarify the obligations for participation in the community. The 2010-2020 National Disability Strategy (Australian Government, 2011) was developed in response to our international obligations under the CRPD. In the National Disability Strategy, outcome 1, Inclusive and accessible communities, has five principles, which cover the areas of increased participation in the community, improved accessibility of the built and natural environment, an accessible transport system, and accessible communication and information systems (Australian Government, 2011). Outcome 6 deals with health and well-being, which addresses aspiration for people with disabilities to have better access to health services and better health outcomes (Australian Government, 2011).

The apps reviewed in this category of participation provide information to people with disabilities to inform them about structural accessibility features of buildings and amenities, to assist them with navigation in the community, to access information, to address safety issues in the community, to optimise health participation, and to understand appropriate social and communication behaviours and skills when participating in the community. There are many barriers for people with disabilities, which has encouraged the ‘universal design’ paradigm to reducing environmental barriers (Harris, 2010; Australian Government, 2011). Additionally, adopting a “user-centred approach” addresses the access issues for people with disabilities using devices such as mobile phones and iPads (Harris, 2010; Kim, Han, Park and Park, 2016; Díaz-Bossini, and Moreno 2014; Naftali, and Findlater, 2014; Hakobyan, Lumsden, O’Sullivan and Bartlett, 2013). The type of disability needs to influence the design of the application, the interface between the user and the device, and be accessible to the user.

There have been several studies reporting on the use of mobile apps to promote participation in the community. These include apps dealing with navigation for people with an intellectual disability (Stock, Davies Wehmeyer and Lachapelle, 2011), structural barriers and access in the community for people with physical disabilities (Comai, et al., 2015; Auger et al., 2014; Naftali and Findlater, 2014; Youusuf, 2017), utilising mobile apps by visually impaired people (Hakobyan et al., 2013; Kim et al., 2016), utilising mobile apps for people with complex communication needs (Collier, Blackstone and Taylor, 2012), smartphone use by people with Autism Spectrum Disorders (Kim, Nguyen, Gipson, Shin and Torous 2018), using apps to optimise comprehension of complex medical terminology (Harnett, 2017), and involving patients in self-management to improve treatment outcomes (Bacigalupe and Askari, 2013).
Reviewer: Fandy Dawenan

Participation - App 1

Seeing AI

Operating System: iOS (iPhone and iPad)

Location: Apple Store

Cost: Free

Description: Seeing AI is an artificial intelligence app created by Microsoft to enable people with visually impaired to “see” the world through their smartphone. This application uses the camera on the smartphone to detect and recognize objects, such as text, documents, barcode, color, and then inform it the user through its screen reader feature. Although the app has its own screen reader, it is recommended to use it with the VoiceOver screen reader in iPhone and iPad. The main features of this app are reading short texts, reading documents, as a barcode reader, recognizing currency, colour, handwriting, light, image from other apps, etc. The main advantage of this app compared to similar apps is that all the features of this app are free to use.

Alignment with the UDL Guideline: This app is aligned with UDL Guideline I “Multiple Means of Representation”, particularly with point 1.3; “Offer alternatives for visual information”, as this app is designed to help people with visual impairments in recognising objects and surroundings by providing audible and text information. The information produced by the app in auditory feedback enables users with visually impaired to be more independent in their life and get the information they need more quickly and accurately. For example, the app helps users with visually impaired to identify the different types of products in a supermarket while shopping or the different types of cards the users have in their wallet.

Curriculum area: This app could be beneficial for students with visually impaired at all ages and levels of education in various subjects, from basic education till university to enhance their daily living skills. By using this app, students with visually impaired can read printed materials, handwriting, so that they can be more actively participating in classroom activities.

How does the app meet the National Disability Standards? As this app provides an opportunity for visually impaired people in making their own decision independently, thus, this app aligns with standard 1. This app also facilitates self-determination and right to freedom of expression.

How the app changes pedagogy (SAMR)? Before the implementation of technology in education, students with visual impairments used to learn only using braille books and through audio from the radio or television. However, rapid technological advances have enabled visually impaired students to improve their skills and knowledge more efficiently. One of them is the invention of Seeing AI applications. Thus, this application can be considered as an augmentation technology that enables blind students to identify the various objects around them using their smartphone.
**How does the app encourage person-centred planning?** This app supports the person-centred planning approach because by using this app, people with blindness or low vision can be more independent in planning and deciding for their needs instead of relying on others. For example, people with visually impaired can read the menu list on a restaurant using the reading text feature in Seeing AI app and then they can select the item they want to order rather than waiting for someone to read the menu for them.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The app is in line with Connectivity from 5Cs, as it gives opportunities to the user with visual impairments to connect and learn new things around them. Therefore, they can be more actively participate in the community.

**Evidence from the literature that the app is capable of the claims made:** In living everyday life, people living with blindness and low vision often face various obstacles and challenges, particularly to access various information around them that require vision, for example accessing printed material, recognizing colors, currency and so on. Even (Hammel et al., 2008) argue that many people with visual impairment do not have enough knowledge in decision-making skills to support their daily life. But along with the development of science and technology, these problems seem to be overcome. One of the most promising technological advances in helping and improving the quality of life of people with visual impairment and people with disabilities in general is the utilization of artificial intelligence. Although artificial intelligence technology is still relatively new, (Irwin, 2017) is optimistic that there is great potential in it to improve the quality of life of people with disabilities. Furthermore, (Trewin, 2017) discusses that some people still consider artificial intelligence futuristic, but in the world of science and technology, research is continuing, and now artificial intelligence has been applied in addressing the problems faced by persons with disabilities and the elderly. Seeing AI application is one example of the implementation of artificial intelligence in facilitating people with disabilities, especially visually impaired in everyday life. It narrates the world for people with vision loss or low vision users, enabling them to identify many things through their smartphone (Kontzer, 2018).

**General Comments:** This app is a useful and recommended tool for helping people with vision impairment. With its features, this app is believed to improve the quality of life of the visually impaired and increase their participation in the community. However, this app is currently only available for iOS users. Therefore, it is expected that this app will be available also for Android users for more visually impaired people who can use it.
Lazarillo GPS for Blind

**Operating System:** IOS (iPhone and iPad) and Android

**Location:** Apple Store and Google Play Store

**Cost:** Free

**Description:** Lazarillo is a free GPS application that helps people with visual impairment to navigate the location around them and to guide them to a specific place that they want to visit. This app also announces nearby places to the users while they are moving, such as street name where the user is walking on, public buildings, bus stops, ATM machines, etc. However, the instant announcement feature will use more battery power. Therefore, users are advised to turn off this feature while they are in a static situation for a long period. To function properly, this app works collaboratively with Google Maps and Apple Maps. Here are the main features of this app: Firstly, Exploration - announces the current position of the user, nearby places, intersections of the street where the user is walking on. Secondly, Category searches - allows the users to find nearby places in a category, such as cafes, banks, shops, restaurants, hotels, etc. Thirdly, Specific searches - allows the users to find a direction to any place they wish to visit.

**Alignment with the UDL Guideline:** As the app provides a mobility and navigation tool for people with visual impairment to support them in daily living, it is in line with the guideline II of UDL “Provide multiple means of Action and Expression”, particularly in checkpoint 4.1 Vary the methods for response and navigation.

**Curriculum area:** Apart from using the white cane and another conventional method, teachers are advised to use this app in orientation and mobility learning for students with visually impaired at all levels of education and age groups, from elementary school to university. This would be very useful in improving the orientation and mobility skills of students with visual impairment as well as would certainly have a positive impact on their independence and self-confidence in their daily activities.

**How does the app meet the National Disability Standards?** This app meets the point 2 “Participation and Inclusion” of National Disability Standards because the app helps people with vision loss to minimize physical barriers so that they can be more active in the community. One of the main difficulties for people with visually impaired to actively participate in society is the independence of traveling. However, this difficulty can be overcome by providing an appropriate orientation and mobility training and supported using technological advances such as the use of Lazarillo applications.

**How the app changes pedagogy (SAMR)?** Teachers can use this app as a modification to orientation and mobility learning. If previously teachers taught students with visually impaired to recognize the surroundings using sticks, voice guidance, and other conventional methods, teachers can add this app as an augmentation in their teaching to further maximize the ability...
of students with visually impaired in terms of daily movement. For example, if previously orientation and mobility teaching is only done in the school and residence of the students, with this application, teachers can introduce a wider environment.

**How the app encourages person centred planning.** This app aligns with person-centred planning because by using it, individuals with visual impairment can plan where they want to visit, traveling independently, becoming more confident, and reducing dependence on others. As a result, they can achieve what they want and can participate actively in the community.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app is in line with Connectivity in 21st Century approach because it enables people with visually impaired to connect with the places they want to visit and the activities they want to do, such as going to workplaces, shopping, doing leisure activities, and so on. This app is also in line with Community in 21st Century approach, as it helps people with visually impaired to take part and participate in the community.

**Evidence from the literature that the app is capable of the claims made:** One of the main difficulties often faced by people who live with visual impairment is the ability to move from one place to another, either within a relatively short distance or far away. Therefore, orientation and mobility skills must be owned so that they can move safely and more efficiently in their surroundings as independent as possible (Willings, 2017). However, as time goes by, there have been many changes in the environment, for example, there are many newly constructed buildings and streets that can potentially make it difficult for the visually impaired to recognize them. To overcome this problem, the utilization of technological aids is highly recommended. (Lancioni and Singh, 2014) argues that assistive technology plays an important role in improving the quality of life of visually impaired people. In terms of mobility assistance, (Christopherson, 2016a) discusses that GPS-based mobility apps could be very helpful for people with vision impairment.

**General Comments:** This is a recommended app for teachers or trainers who teach orientation and mobility to individuals with vision impairments. This app may not replace the white cane or the guide dog, but at least it can be an add-on to optimizing the mobility and independent living skills of the visually impaired.
**Reviewer:** Fandy Dawenan, Participation - App 3

**NVDA Screen Reader**

**Operating System:** Windows 7 SP1 and Above

**Location:** [www.nvaccess.org](http://www.nvaccess.org)

**Cost:** Free

**Description:** NVDA (Non-Visual Desktop Access) is a free screen reader software runs on Windows operating system (Windows 7 and above). This app is designed to assist people with visually impaired to navigate on the Windows OS environment independently. It converts the texts on the screen into synthesis robotic voice, so that the users with blind or low vision can access them. Most of the software running on Windows OS, such as Office Application (Word, Excel, PowerPoint, and Access), Internet Browsers (Microsoft Edge, Internet Explorer, Mozilla Firefox, and Google Chrome), Music Players, Video Players, PDF Reader, and so on, can be access using NVDA Screen Reader. This app is widely used by visually impaired people around the world and has been translated to more than 50 languages. As an open source software, users are welcomed to contribute their ideas to improve the functionality of the software by creating NVDA add-on. Users and anyone are also welcomed to donate to support this project.

**Alignment with the UDL Guideline:** This app aligns with the UDL guideline I “Provide multiple means of representation, particularly in checkpoint 1.3 “Offer alternatives for visual information because the app enables those who are blind and low vision to access information on the computer’s screen in audio format. By using this app, people with visually impaired can access information, such as electronic books, browsing on the Internet, accessing email, get in touch with their family and friends through social media, enjoying music, and so on, through hearing. This app also aligns with UDL guidelines II “Provide multiple means of engagement”, in checkpoint 7.1 “Optimize individual choice and autonomy, as the app allows the users with visual impairment to choose the information they need.

**Curriculum area:** Currently, the use of computers cannot be separated from daily activities, especially in education. Computers become a means of learning that is required to support the success of teaching and learning process. Almost all the areas of study taught in schools use computers as a medium of learning. For students with normal vision, it may not be too difficult to use a computer. However, for blind students, the ability to use a computer should be taught specifically because it uses different approaches and specialized software, such as NVDA screen reader. Therefore, teachers or trainers are encouraged to teach computer skills for blind students as early as possible using this application so that later they can follow the learning process more optimally. This app can be taught to visually impaired students once they are able read and write.

**How does the app meet the National Disability Standards?** This app meets the standard 2 “Participation and Inclusion”, as the app enables people with visually impaired to follow inclusive education rather than segregation system and enables them to work in inclusive places in the community. This app also meets the standard 3 “Individual Outcomes” of the
national disability standards, because this app helps people with visually impaired to manage and rich their goals in education and works. This app can be a bridge between the visually impaired to computers and information available from different parts of the world through the Internet that they need to achieve their goals.

**How the app changes pedagogy (SAMR)?** Teachers or trainers can use this app as a redefinition of learning because without this kind of app, it is almost impossible for visually impaired students, especially those who are totally blind to access computers independently. By using this app, visually impaired students can access various learning materials, such as books in electronic format, audio files in various formats, even they can scan books in hard copy format into an electronic format which can then be accessed on the computer using screen readers. This will certainly be more efficient for them as well as to the teachers or trainers because they do not need to convert books and other learning materials into braille format that takes a long time.

**How the app encourages person centred planning?** This app is in line with person centred planning because it encourages people with visual impairment to be more creative in planning what they want to study, finding the information they need, and planning their work. Thus, they will be more independent in living their lives.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app aligns with all the 21st Century approach (Connectivity, Community, Collaboration, Creativity, and Curation). This app connects students with visually impaired to the computer and information available in it. They can also connect with their teachers, trainers, friends, and family through social media that they can access through the computer using this app. Automatically they actively participate in the community. Moreover, students with visually impaired can work collaboratively with their peers, such as creating online study groups. Furthermore, they can also collect information from the Internet that can be accessed at later date.

**Evidence from the literature that the app is capable of the claims made:** According to Csapó, Wersényi, Nagy and Stockman (2015), assistive technology with audible feedback has been widely implemented to help the visually impaired people. Assistive technology has been instrumental in helping visually impaired and low vision people to engage in various activities, such as employment and education to improve their quality of life that previously may not be possible (Manduchi and Kurniawan, 2012). One of the assistive technology that has auditory feedback for the visually impaired people is screen readers. Screen readers have been developed to help blind and visually impaired users to operate the computer independently (Hofstader et al., 2014). Screen readers allow users with visually impaired to access the operating system, installed applications and the internet. One of the most widely used screen reader applications in many countries is NVDA. It has been used in more than 100 countries and translated into more than 50 languages (NV Access, 2018).

**General Comments:** NVDA is a free and useful application that support people with visually impaired to interact with their computer. It is an assistive software that gives benefits to users with blindness and low vision to be more independent in various activities, such as education and employment.
WhatsApp Messenger

**Operating System:** iOS (iPhone and iPad), Android, and Windows

**Location:** App Store and Google Play Store

**Cost:** Free

**Description:** WhatsApp Messenger is a free instant messaging app that can connect its users from any part to another part in the world if an internet connection is available, either through cellular network or Wi-Fi with no extra costs. To access its services, the users should register using their phone number because this app uses the phone number as the user account. This app provides a bunch of interesting features, such as text and voice messages, voice and video calls, sending files, group chat, and end-to-end security encryption where WhatsApp itself and third parties to user’s conversation.

**Alignment with the UDL Guideline:** This app aligns with the UDL guideline II “Provide multiple means of Action and Expression”, particularly in checkpoint 5.1 “Use multiple media for communication”. As each user has different communication needs, they can choose the communication features available in this application. For example, users with visually impaired might be more comfortable using voice calls, and deaf people might use video calls so that the can use their sign language.

**Curriculum area:** This application may be suitable to be introduced to high school students to build their social and communication skills. Students can use this app to communicate with their family and friends, even they can build a community group to share their interest and useful information by creating a WhatsApp group. However, teachers and parents should guide students in using this application to be properly used and responsible.

**How does the app meet the National Disability Standards?** This app meets standard 2 “Participation and inclusion” of the National Standards of Disability Services. It is because this app allows users with a disability to inclusively participate and a community. This app facilitates users with a disability with multiple features of communication so that they can choose which one is suitable and more convenient for them to use.

**How the app changes pedagogy (SAMR)?** This app is an augmentation of communication for students with disability. It is because this app provides many features for communication which enhance the communication skills of students with disability. For example, students with visual impairments often have trouble typing long text on the smartphone with touchscreen, so they can choose to record messages to be sent as voice notes, which surely save time. Students with learning difficulties, such as dyslexia can also use this app as an alternative way of communication by using video calls, voice calls, or sending voice notes, instead of typing text messages.

**How the app encourages person centred planning?** This app encourages person centred planning because as a communication tool, this app enables individuals with a disability to
communicate personally or in groups where they can actively participate in many ways independently. Following up the online communication through this app, users with a disability can then plan to build a face-to-face interaction. This automatically increases their involvement and participation in socializing in the community.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app encourages Connectivity and Community in the 21st Century approach. As a communication tool, this app can connect its users regardless of their location if they have an internet connection. The users can then share thoughts, useful information ideas, news, photo images, videos and so on through this app. This app allows users to stay connected to each other. The users can also use the chat group feature in this app to build an online community based on certain categories, such as family, coworkers, schoolmates, or by hobbies and interests.

**Evidence from the literature that the app is capable of the claims made:** Nowadays, social media such as WhatsApp and other platforms are very popular in the society. Social media has become an integral part of everyday life (Austin, 2016). For people with disability, social media offers lots of benefits, such as connecting and sharing with others with the same disability, stay connected with friends and family, and to do advocacy about their right in the society. one of the most popular social media platforms among people with disabilities is WhatsApp as it allows people with disability to communicate with others in various ways, such as instant messages, video calls, voice calls, sending files, and creating groups (Shigri, 2017). The ACE DisAbility Network (2017) also lists WhatsApp as one of the useful apps for people with disabilities.

**General Comments:** As an application that offer multiple and convenience way of communication, WhatsApp is recommended for all people including the people with disability. By using this app, people can enhance their communication and social skills and become more active to socialize and participate in the community.
RogerVoice Caption Calls

**Operating System:** iOS (iPhone and iPad) and Android

**Location:** App Store and Google Play Store

**Cost:** Free

**Description:** RogerVoice is a free call captioning application that transcribes phone calls into texts and shows them in subtitles in real-time. This app is designed for those who are deaf or having a hearing impairment so that they can access phone calls more easily and conveniently. To caption the phone conversations, this app uses automatic speech recognizer and speech synthesizer. This app is available for more than 100 languages in any country. Here is how this app works: Firstly, download the app from App Store or Google Play store, then register using a mobile phone number within the app. Secondly, dial any number (mobile or fixed line) from the app. Thirdly, once the call is connected, the user can then read the conversation on the screen and can reply by speaking with user’s language or by typing the messages. When the user types the message, the contact will hear the messages. Calls among the RogerVoice is free, however, calls to non-RogerVoice users require a subscription.

**Alignment with the UDL Guideline:** This app meets the UDL guideline I “Provide multiple means of Representation”, particularly in checkpoint 1.2 “Offer an alternative for auditory information” because this app allows people with deaf or hearing impairment to deal with phone calls. This app also aligns with UDL guideline II “Provide multiple means of Action and Expression”, in checkpoint 5.1 “Use multiple media for communication”, as this app provides a solution to the problems faced by the users with hearing impairment in communicating via phone calls.

**Curriculum area:** This app is suitable for students living with deaf or hearing impairment to enhance their communication skills and to give an alternative solution in their communication. Teachers or trainers may introduce this app to the hearing impairment students once they are able to read and write so that they can keep in touch with their family and friends who do not have a hearing impairment. This application can be an additional means of communication besides the use of sign language.

**How does the app meet the National Disability Standards?** This application is in line with standard 2 “Participation and Inclusion” of the National Standards for Disability Services. People with hearing impairment often have difficulty communicating with people with normal hearing by phone or face-to-face as generally deaf people use sign language, while not everyone understands sign language. This application can be a solution to solve this problem. Using this app, people with hearing impairment can communicate more effectively and efficiently with people with normal hearing so that they can be actively involved in the community.

**How the app changes pedagogy (SAMR)?** This app is an augmentation of communication for students with speech and hearing impairment as the app allows functional improvement in communication. This app can minimize the barriers in communication and enhance the communication skills of people with speech and hearing impairment.
How the app encourages person centred planning? This app enables the users with hearing and speech impairment to communicate effectively and more comfortably with their family and friends. As a result, they will feel confident in planning and achieving their goals. This app also encourages their independence in communication with others.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? This app encourages connectivity as this app facilitates effective and efficient communication between people with hearing and speech impairment with normal speech and hearing. This app also encourages users to be actively involved in the community because the barrier in communication can be minimized by using this app.

Evidence from the literature that the app is capable of the claims made: Dillet (2014) discusses that RogerVoice is a potential app that can help many people with speech and hearing impairment to make phone calls. This app provides instant transcriptions on the user’s smartphone of what the other person on the other end of the line is saying during the phone call (Guerrini, 2014). With a powerful and smart speech recognition system embedded in RogerVoice, converts phone calls into live instant messages for the hard of hearing users (Christopherson, 2016b).

General Comments: RogerVoice is a useful app that can enhance the communication skills of the users with speech and hearing impairment. The features of this app enable the users with hard of hearing to make and receive phone calls more conveniently and independently.
**Reviewer:** Alexandra Bennett

**Participation - App 6**

**Australian Public Toilets**

**Operating System:** IOS and Android

**Location:** Apple Store and Google Play Store

**Cost:** Free

**Description:** Australian Public Toilets is a community app, which uses the user’s location on Google Maps to find open public toilets within five kilometres and provides directions to the closest toilet. The app shows toilets, which meet the needs of people with physical disabilities including disability parking, wheelchair amenities, dimensions of doors and seating, if doors are right handed or left handed and if they open inward or outward. Users can add new locations, comment, and add information about existing locations.

**Alignment with the UDL guideline:** Australian Public Toilets meets the UDL guideline of Provide Multiple Means of Representation, specifically guideline 1, provide options for perception. This guideline includes options that offer ways of customising the display of information (1.1) and offer alternatives for auditory information (1.2). Australian Public Toilets meets this guideline by using coloured maps and text to visually display information also having features such as magnification and touch screen for use.

Australian Public Toilets also meets the guideline of Provide Multiple Means of Engagement in the areas of optimising individual choice and autonomy (7.1). The colour, design, graphics and layouts of the app allows users a choice of how they gather the information that they need to plan their journey so that they are not dependant on others to support their continence needs.

**Curriculum area:** Australian Public Toilets is a suitable app to teach students of all ages skills in information seeking. Limberg and Sundin (2006) explain that the ability to find, evaluate and use information is important for both educational and social needs. Mishra, Allen and Pearman (2015, p. 663) discuss information seeking in the context of decision-making, explaining that effective information seeking supports “… reflective, evidence-based decisions”.

**How does the app meet the National Disability Standards?** Australian Public Toilets aligns with standard two of the National Standards for Disability Services (Australian Government Department of Social Services, 2018) namely, participation and inclusion. This standard aims to ensure people with disabilities have opportunities for participation and inclusion in society. People with disabilities plan their work and social life around access to toilets and the places that they go to are often limited to locations with accessible facilities (Kitchin and Law, 2001). Australian Public Toilets provides users with a tool for planning thus supporting access to community spaces.

**How the app changes pedagogy (SAMR)?** This app redefines pedagogy as it allows for the creation of new tasks, which were previously inconceivable. This is evidenced by the user’s ability to not only locate facilities on a map, but to interact globally with a community of users to update, add and share locations with each other.
How the app encourages person centred planning? Person centred planning supports a person to decide how they want to live their life, shifting the power from services to the person. Essential elements of person centred planning include tailoring support to suit the person and removing barriers to achieving goals. It also concentrates on reducing the reliance on service systems by the provision of creative supports (NSW Department of Ageing, Disability and Home Care, 2009). Australian Public Toilets addresses all these elements as it fosters independence and allows for greater participation in community life by removing barriers that people with physical disabilities experience when in the community.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Australian Public Toilets encourages connectivity, collaboration and curation. The app allows users to connect to encourage control and independence in leisure activities. It also allows for collaboration as people can share data asynchronously with each other by adding the location of new facilities and reporting problems with existing facilities. The information and data is then curated to be used for easy retrieval whenever a person wants to find the location of accessible public toilets.

Evidence from the literature that the app is capable of the claims made: This app promises to locate public toilets in the community that meet the individual needs of people with disabilities, suggesting that this will increase their opportunities for community access. Kitchin and Law (2001) discuss that a determinant of community participation for people with disabilities is design of the built environment and that the denial of accessible public toilets is discriminatory and leads to social injustice. This is substantiated by Winkler (2016) who considers that in designing public facilities the needs of all citizens must be considered as to neglect individual needs violates a person’s right to freedom of movement. In a study, Kitchin and Law (2001) found that people with physical disabilities often phoned venues prior to visiting to ask if there were suitable facilities and did not go if these were not available. Although current literature does not specifically mention Australian Public Toilets, references to similar apps can be found which provide geographic open accessibility data using interactive online mapping systems to locate accessible public spaces, including public toilets. A major benefit reported is that use of these apps by people with disabilities, increases their levels of community access (Ding, Wald and Willis, 2014).

General Comments: developmental educators and teachers to support people with disabilities with planning could use this app. The acquisition of planning skills should enhance motivation and self-determination. The use of the app as a planning tool could be used in other supplementary learning contexts. An example of this is using the app to find accessible toilets when teaching other community skills such as shopping and catching public transport.
Reviewer: Alexandra Bennett

Tap Tap See

Operating System: iOS

Location: Apple Store

Cost: free

Description: Tap See is designed to assist people with visual impairments to identify objects in their daily life. Tap Tap See works by double tapping the screen to take a photo of an item. Photos can be taken from any angle and when the user turns on the talkback option on their iPhone or iPad the app will speak the name of the object. Text can also be photographed and “spoken” back to the user. Tap Tap See promotes independence for people with visual impairments in their everyday life as they do not have to rely on others to identify objects for them. The app also has a barcode reader and allows identification of objects to be shared via email, text or social media.

Alignment with the UDL guideline: Tap Tap See meets the UDL guideline of Provide Multiple Means of Representation in area 1, provide options for perception particularly, and offer ways of customizing the display of information (1.1) and offer alternatives for visual information (1.3). Tap Tap See demonstrates this by generating text and audio once a picture of an item is taken.

Curriculum area: Tap Tap See is useful for all areas of the curriculum for all ages of students, as it provides an alternative means of accessing curriculum material. Lee, Wehmeyer, Soukop and Palmer (2010, p. 214) discuss “… curriculum augmentations …” explaining that mechanisms which allow students to more effectively engage with the curriculum content, decrease student behaviour and increase student engagement leading to improved learning and progress.

In a study of students with vision impairment in Australian schools, Whitburn (2014) found that students preferred to use technology to support their learning, reporting that they felt disempowered and socially excluded when they received too much physical support from teachers. Whitburn (2014) also comments that teachers need to embrace the use of technology particularly as students are becoming more technically aware and voicing clear preferences for flexibility in learning.

How does the app meet the National Disability Standards? Tap Tap See meets standard two, Participation and Inclusion, of the National Standards for Disability Services (Australian Government Department of Social Services, 2018). It does this by providing a tool to support a person’s community and economic contribution. An example of Tap Tap See supporting economic contribution is that by using the app a person can participate in meaningful work and contribute to the economic wellbeing of their community through the payment of taxes. Babu and Heath (2017) discuss the use of mobile assistive technology (MAT) in the workplace, declaring that MAT is the greatest aid for people with vision impairments since the invention of braille, allowing users to perform job tasks that were previously not possible.
How the app changes pedagogy (SAMR)? Tap Tap See is a Transformation (modification) of previous methods of teaching. The visual feature is a substitute for other forms of hand held magnification while the audio feature allows a person to not only see an item but also hear a description of the item. This app can support the way that people with vision impairment navigate the curriculum material and the learning environment.

How the app encourages person centred planning? Tap Tap See supports person centred planning as it provides a tool for social inclusion, community participation and the development of valued roles, by removing the social and physical barriers encountered due to vision impairment. Traditional approaches to service provision often see people with vision impairments limited to specialist educational and vocational settings, however Ripat and Booth (2005) tell us that assistive technology that meets a person’s needs, wishes and priorities has the potential to change this as it eliminates barriers and increases opportunities for people to reach their life goals.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Tap Tap See encourages connectivity and collaboration. Tap Tap See helps people with vision impairment connect to enable control and independence in work and leisure activities. The option of immediate audio feedback supports real time collaboration with others, while the option of sharing via email, text or social media supports asynchronous collaboration.

Evidence from the literature that the app is capable of the claims made: Tap Tap See allows people with vision impairment to independently participate in social, vocational and educational settings. Crossland, Silva and Macedo (2014) in a study of 132 people with vision impairment found that 77% reported using apps, including Tap Tap See, on their smartphones to help them successfully and independently complete daily tasks in their both home and community. Whitburn (2014) discusses technology in the classroom, explaining that the convenience of modern technology makes its use practical, also discussing that students prefer to use modern technology, as it does not make them appear different to their peers. Babu and Heath (2017) discuss the use of smartphone apps as assistive tools in the workplace, confirming that the ability to take pictures and hear the contents as audio, significantly increases the employability and work output of people with vision impairments.

General Comments: Tap Tap See could be useful to developmental educators and teachers as it supports a person’s independence and learning, allowing for greater participation. The app could be used in various contexts an example being to access text in the classroom during assessments. The user or educator could take a photo of the assessment and the playback audio feature would provide the student with the instructions for the assessment. This would have an added benefit of decreasing the amount of time an educator would need to spend reading the text to the student.
Reviewer: Alexandra Bennett

Wheelmap

Operating System: iOS
Location: Apple Store
Cost: Free

Description: Wheelmap is a global, online, interactive app, which allows users to find wheelchair accessible public places in the community. Wheelmap uses a colour rated system, comprising traffic light symbols to indicate accessibility levels, with green indicating full accessibility and red indicating no accessibility. Users can upload information on new locations and leave comments about current locations to enhance descriptions for others. Wheelmap increases a person’s participation in their community by providing them with accessibility information to help them plan their outings (Wheelmap.org, 2018).

Alignment with the UDL guideline: The use of coloured traffic light symbols to identify accessibility aligns with the UDL guideline of Provide Multiple Means of Representation. If we consider area 1.1, offer ways of customising the display of information and area 2.4, promote understanding across languages, although not every country has traffic lights, the use of the colours green for go and red for stop, is recognisable across all cultures and languages. Wheelmap also aligns with the UDL guideline of Provide Multiple Means of Action and Expression, particularly in support planning and strategy development (6.2). Wheelmap does this by providing users with a tool for planning.

Curriculum area: Wheelmap supports planning skills for students of all ages. Planning is an essential life skill as it helps people to work through the required steps to accomplish their goals. Gerson, Bekkering and Hunnius (2016) discuss that while planning is not critical to goal achievement, an ability to plan the individual steps of a task is important as it allows for easier and efficient completion of the task.

How does the app meet the National Disability Standards? Wheelmap meets standard one, Rights, and standard two, Participation and Inclusion, of the National Standards for Disability Services (Australian Government Department of Social Services, 2018). Standard one includes a person’s right to information that supports them to make informed decisions while standard two includes economic and community participation. Wheelmap meets both standards as it provides users with the information that they need to access community spaces that cater for their individual needs.

How the app changes pedagogy (SAMR)? Wheelmap is a Transformation (redefinition) of previous methods of locating accessible public places. Wheelmap’s interactive features allows users to not only see places already on maps, but to add, comment and update maps in a collaborative global forum. Wheelmap can be used to support independence and self-determination for people with physical disabilities in the learning environment.
How the app encourages person centred planning? Services who are person centred embrace flexibility and adaptation. Rather than expecting that people with disabilities will fit into a fixed set of activities that remain static, through person centred planning, person centred services display creativity in the way that they support people to live their lives. Wheelmap supports person centred planning as it provides people with the information they need to successfully participate in their choice of community activities, allowing them to have choice and control over the places that they visit rather than being relegated to disability specific venues. Interestingly, Wheelmap was created out of frustration from a real-life event when a friend of the developer complained about having to meet at the same café because they did not know of any other café’s in their area that were wheelchair accessible (Wheelmap.org, 2018).

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?
Wheelmap’s interactive features encourage connectivity, collaboration and curation. Since its inception in Germany in 2010, Wheelmap users have tagged over 860,000 accessible public spaces worldwide in 25 languages and continue to tag over 300 locations every day. Users contribute to the site by adding locations, commenting on locations and translating open map pages into specific languages. Users can also become ambassadors to create awareness by organising “mapping events” with other like-minded people to map locations in an area (Wheelmap.org, 2018). Wheelmap creators describe their app as “… a free online map that stores information on wheelchair accessibility, worldwide … created with the goal of allowing people to easily share and access information about the accessibility of public places” (Can-Do-Ability, 2018, para. 1).

Evidence from the literature that the app is capable of the claims made: Velho, Holloway, Symonds and Balmer (2016) discuss accessibility, explaining that without accessibility, people are not able to mobilise, which prevents them from participating in the political, economic and social life of their community. Fischer (2011) discusses the use of human computer interaction to solve human problems through creating collaborative solutions by giving power to the owners of problems. He explains that when people are given the tools and the voice to make change, cultures of participation develop, and creative solutions arise. The wider ranging benefits of collaborative, community mapping apps are discussed by Prandi, Rocetti, Solomoni and Nisi (2017) who comment that these apps help to enforce an awareness of barriers in urban environments and help to break community perceptions of differences, to ensure everyone is included. Current literature confirms that Wheelmap supports “… an active and diversified lifestyle for wheelchair users” by providing them with information to plan their day more effectively and independent of others. An added benefit is that users can alert owners of inaccessible public places in the hope that owners address these barriers (Mobasher, Deister and Dieterich, 2017, p. 1).

General Comments: Wheelmap can be also used as a tool to teach social responsibility. The United Nations Educational, Scientific and Cultural Organisation (2017) consider that the collaborative, social nature of ICT helps students to develop a responsibility of what they write and say, explaining that this is a real-world skill necessary for social connections. Wheelmap (2018) also discuss responsibility in their message to users, stressing that users must follow the guidelines for tagging locations to ensure consistency of ratings.
**Reviewer:** Alexandra Bennett

**ClaroCom Pro**

Operating System: IOS  
Location: Apple Store  
Cost: $26.99 (Offers in-app purchases)

**Description:** ClaroCom Pro is an Augmentative and Alternative Communication (AAC) app which supports communication and participation for people who have language difficulties or who have difficulties in speech production. Users type into the on-screen keyboard and by pressing a button, ClaroCom Pro converts text into spoken words. The app includes the choice of a male or female voice which can be changed to speak fast or slow, word and phrase prediction, choice of font size and colour and a time saving option of programming personal information to appear in selected phrases. Text can also be sent using email and messaging, sent to Twitter and Facebook and copied into other apps (Claro Software Ltd, 2018).

**Alignment with the UDL guideline:** ClaroCom Pro aligns with the UDL guideline of Provide Multiple Means of Representation in offering ways of customising the display of information (1.1). The app shows this flexibility by allowing users to vary the size and colour of text and the rate of speech output. ClaroCom Pro also aligns with the guideline Provide Multiple Means of Action and Expression in provide options for expression and communication (5), particularly use multiple media for communication. The user having a choice of communicating using either the text or audio features of the app demonstrates this.

**Curriculum area:** ClaroCom Pro can be used with students of any age to facilitate independent communication skills. Light and McNaughton (2012, p. 35) discuss the use of text to speech apps in the classroom as a positive intervention to “… enhance communication, language and literacy outcomes”. In a review of published studies between 1998 and 2013, Still, Rehfeldt, Whelan, May and Dymond (2014) found that the requesting skills of children with Autism Spectrum Disorder increased by up to eight request responses with the use of speech generating apps used on portable electronic devices such as iPhones and androids. Bradshaw (2013) agrees adding that text to speech apps can also be used to teach turn taking, commenting, expressive, and receptive language.

**How does the app meet the National Disability Standards?** ClaroCom Pro meets standard one, Rights, of the National Standards for Disability Services (Australian Government Department of Social Services, 2018). It does this by providing the user with a “voice” to express themselves rather than having to rely on another person’s interpretation of their communication attempts. Having a “voice” allows a person to make their choices known which supports self-determination and decision-making.

**How the app changes pedagogy (SAMR)?** ClaroCom Pro is a Transformation (redefinition) of previous methods of communication. ClaroCom Pro would be useful in the classroom as it allows users...
to independently communicate in real time with others by converting text to audio and also supports asynchronous communication by allowing the user to communicate via email, messaging, Twitter and Facebook.

**How the app encourages person centred planning?** Person centred planning is a process of listening to the person, learning what the person wants and providing the supports needed to achieve personal goals. It starts with listening to the dreams and interests of the person but how do you listen if the people do not have a means to express themselves? ClaraCom Pro supports the planning process as it provides the means for expression, allowing a person to articulate their goals rather than relying on services to set goals for them. This has the potential to change the landscape from power over the person, to power with the person, which ultimately leads to person centred outcomes (NSW Department of Ageing, Disability and Home Care, 2009).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** ClaraCom Pro encourages collaboration by allowing a person to share their ideas with others. As well as collaborating in real time the ability to send text using email, messaging, Facebook and Twitter means that asynchronous collaboration is also possible.

**Evidence from the literature that the app is capable of the claims made:** While there is no literature on the specific use of ClaraCom Pro, there is literature on the benefits of the use of mobile apps as AAC devices for people with communication difficulties. Bradshaw (2013) considers that these apps provide options for users to connect with others through the construction and sharing of ideas and the expression of their wants and needs. Research on the benefits of using AAC apps has found that the potential for social inclusion increases as when people are able to share information with others their social relationships are reinforced and enriched (Hynan, Murray and Goldbart, 2014). Ayres, Mechling and Sansosti (2013) discuss the use of mobile technology in school settings, explaining that as most students own mobiles, those using apps for communication rather than other forms of AAC devices, blend in and are accepted more readily by other students, which increases their social opportunities.

**General Comments:** Using apps as communication aids have advantages over more traditional systems and can used as a motivation for learning for students in all curriculum areas. Most students own mobile technology that means that those who use AAC apps are not seen as different to others which promotes use and acceptance. Mobile technology is often more cost effective than traditional AAC devices, is easily available and easier to use (Bradshaw, 2013). As mobile technology is now widely used and accepted by young people, educators need to have an awareness of AAC apps and offer these to students as research has shown that uptake is increased when preference is supported (Van der Meer, Sigafoos, O'Reilly and Lancioni, 2011).
Reviewer: Alexandra Bennett

MightySubs Premium

Operating System: Android

Location: Google Play Store

Cost: $1.69

Description: MightySubs Premium allows users to download subtitles for movies and television shows. Twenty-three languages are available, and users can download more than one language at the same time. Users have unlimited access to seven subtitle fetcher internet sites. Previously people with hearing impairment could watch their favourite movies and television shows but could not hear them. This meant that they could not enjoy the full viewing experience that people without hearing impairments could. MightySubs Premium provides users with improved accessibility allowing full participation by providing text to complement their visual viewing experience.

Alignment with the UDL guideline: MightySubs Premium aligns with the UDL guideline of Provide Multiple Means of Representation, area 1.2 offer alternatives for auditory information. This app ensures that people with hearing impairment have access to content by providing visual alternatives to auditory information.

Curriculum area: MightySubs Premium can be used in the curriculum area of literacy, particularly comprehension, for students across all school levels. To develop comprehension skills students must not only read and view text they must also listen and respond to text. The Australian Curriculum guidelines for literacy advise that to develop literacy skills, students must listen be able to listen and respond to multimodal texts and audio. This includes listening to collect information, to complete tasks and to participate in discussions and activities in the classroom (ACARA, 2016b).

How does the app meet the National Disability Standards? MightySubs Premium meets the National Disability Standard of Rights and Participation and Inclusion. Rights includes choice, control while Participation and Inclusion includes respecting and facilitating individual interests and preferences to enable a person to connect to their community in the areas of learning, work, and social activities. An example of MightySubs Premium supporting these standards is if we consider that a person has an interest in movies, this app provides the user with a tool to enjoy full access to the movies of their choice and ensures a similar viewing experience to people without hearing impairments.

How the app changes pedagogy (SAMR)? MightySubs Premium is an Enhancement (Augmentation) of previous tools. It’s feature of supplementing visual information with text is useful in a learning environment as it allows for a richer literacy experience through increased comprehension of curriculum content. Peters, Heynen and Puimège (2016, p. 134) discuss the benefits of subtitles for literacy stating that “word learning through audio visual input can be boosted by providing on-screen text ...”. Jelinek Lewis and Jackson (2001) who consider that subtitling for audio and video enhances learning as it improves the comprehension of visual stimuli share this view.
How the app encourages person centred planning? Person centred planning includes the belief that all people have a right to participate in community life and that structural barriers that prevent participation should be challenged not accepted. It includes tailoring support to the person so that they can pursue their interests rather than looking at a person through the lens of disability therefore limiting the person’s choice of activities due to reasons of impairment. MightySubs Premium is a valuable tool that can be used to tailor support to a person with hearing impairment so that they can enjoy their choice of activities and not be limited by their disability.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? MightySubs Premium encourages connectivity as it provides users with a tool to easily connect to their favourite entertainment sites to gain control and independence in their leisure activities.

Evidence from the literature that the app is capable of the claims made: While there is no literature on the specific use of MightySubs Premium there is literature on other subtitling apps that perform the same function, such as SubTitleMe. This literature discusses the benefits of subtitling apps in cinemas for people with hearing impairments, explaining that subtitles promote accessibility and make watching movies a more meaningful experience for the user (Costa-Montenegro, García-Doval, Juncal-Martínez and Barragáns-Martínez, 2016). Hong et al. (2011) discuss accessibility in the context of advances in technology, which has seen video play an important role in modern society. The authors advocate the use of subtitles explaining that hearing impairment results in difficulties comprehending content due to the loss of auditory information which compromises the viewing experience.

General Comments: Many children with hearing impairments have difficulty acquiring language and literacy skills (Capuano, Tagarelli De Monte, Groves, Roccaforte and Tomasuolo, 2011). Subtitles can be used as a tool to support the acquisition of literacy skills. For children with hearing impairment subtitles help them to visually view new concepts while being exposed to the vocabulary and spelling that is linked to the text. By sitting with students as they view learning experiences with subtitles, a teacher can promote literacy skills as they engage with the student to work through the information presented on the screen (Krywko, 2014).
My Safety Companion

Operating System: iOS
Location: App Store
Cost: Free

Description: My Safety Companion application is designed to make people feel safe and provides the users with three different safety options. What the user should do is to select an emergency contact person and tap on one of three safety features when he/she feels in danger. The safety features include SMS, Phone and Alarm. In case of tapping on the SMS option, the App automatically collects the user’s location, coordinates and appends it into the user’s emergency message including a link to an online map with the user’s location details. By tapping on the Phone option, the App calls the user’s emergency contact and by choosing the Alarm option, a loud alarm starts to notify the nearby people that the user needs help. There is an extra safety option which can be activated by paying an extra $1.49 which allows the user to turn the device’s flash light on/off by shaking it. My Safety Companion application supports independence and community participation while providing safety for all ages. This application is beneficial for the peace of mind of the users and can minimise the risks when the travel training is completed (Zenon Chrysostomou, 2018).

Alignment with the UDL guideline: My Safety Companion application aligns with the third UDL Principle through multiple means of engagement which “provides options for recruiting interests” (Guideline 7) by minimizing “threats and distractions” (Checkpoint 7.3) (CAST, 2011). This App helps students to feel safe and thus reduces the negative perceptions that may arise because of feeling unsafe in educational environments.

Curriculum area: My Safety Companion application enhances the level of independency of the users and helps them feel safe and relaxed. This application enables the students to concentrate on the learning process by avoiding the negative thoughts. Therefore, this app can be useful in all eight learning areas of the Australian Curriculum for the students with and without disabilities of all ages (ACARA, 2015).

How does the app meet the National Disability Standards? My Safety Companion application meets the National Disability Standard one and two “Rights” and “Participation and inclusion”; because as a safety app, it can actively prevent the violence and the chance of being abused, harmed or neglected (standard one). Additionally, it can support the people with disabilities to travel independently and promote opportunities for meaningful participation and active inclusion in society (standard two) (Community Services ACT, 2014).

How the app changes pedagogy (SAMR)? My Safety Companion application enhances the teacher’s pedagogy through ‘augmentation’. This application can help the students to concentrate on their learning processes and avoiding the negative thoughts, which can arise from feeling
unsafe. It can also assist the student to feel safe when they are in a new educational environment and provide opportunities for meaningful participation.

**How the app encourages person centred planning?** This app supports independence by providing a safety support system which allows the users to make their own choices for traveling and visiting new places or participating in community activities. When there is a form of support, which makes the user, feel safe, the user can think of more options or consider more goals to achieve.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** My Safety Companion application encourages the 21st Century approach of ‘community’ (Carey, 2013); as it supports and develops the independence and community inclusion for an individual who needs an assistant to travel. Therefore, this App facilitates community participation and social inclusion of people with and without disabilities.

**Evidence from the literature that the app is capable of the claims made:** Dempsey and Nankervis (2006) explained the significant role of social connectedness and physical presence in the community in the life of person with disability. On the other hand, they highlighted that it can be dangerous for people with ID safety wise to travel independently. My Safety Companion application is a tool that can support the users to be involved in a community by providing assistance in travelling safely.

**General Comments:** My Safety Companion application is a useful tool, which promotes independent travelling and helps the user feel safe. When an individual’s basic need for safety is met, they will have more opportunities to concentrate on participating in a wider of community activities.
Community Success

Operating System: IOS
Location: App Store
Cost: $79.99

Description: Community Success application is categorized as an educational app, which prepares the students with developmental disabilities for different community activities and promotes the eventual independence. This app helps the users to learn independent living skills through mastering the social interaction skills in an engaging and easy-to-navigate program. This app covers 24 vital activities included; crossing the street, going on public buses, asking others for help, riding in cars, shopping in grocery stores, waiting in queues, going to a movie theatre, etc. Information is made accessible via vivid illustrations of social behaviours, storytelling, photo-based directions and video modelling. In addition, there are short stories and quizzes that emphasize to highlight and teach activity tips, safety issues and relevant vocabularies (Attainment Company, 2018).

Alignment with the UDL guideline: Community Success app is aligned with the first UDL guideline by providing multiple means of representations that offer customizing the display of information based on the different types of community activities and the relevant needed social skills. Since the information are provided in different forms of vivid illustrations of social behaviours, storytelling, photo-based directions and video modelling in a way which best suited to the user (standard 1.1). This app facilitates transferring the user’s knowledge by providing the option of quiz activities related to each community activity skill (3.4) (CAST, 2011).

Curriculum area: Community Success application suits the curriculum of special education to teach children with developmental disabilities in the transition age group (4 to 7 years old) about the day-to-day different community activity skills and the related social interaction skills (ACARA, 2015).

How does the app meet the National Disability Standards? This application meets the National Disability standard three; As the Community Success App focuses on individual’s outcomes and aims to facilitate community participation and social inclusion of people with developmental disabilities. Also, it employs a collaborative approach in identifying strengths, needs and goals (3.1) and can provide appropriate supports to achieve those needs and reach the set goals via the different community activities such as taking taxi, going to the restaurant, travelling, ordering food, shopping, etc. (Community Services ACT, 2014).

How the app changes pedagogy (SAMR)? Community Success App could be used as a tool for substitution as it enhances pedagogy by helping the student with developmental disabilities improve their functional tasks (Attainment Company, 2018). It allows the user to break down large or complex community activity tasks into smaller steps that the user can learn and progress upon them.
How the app encourages person centred planning? Community Success App presents the information in the best way that suits the user by providing pictures, videos, texts and diagrams. In addition, the results of the quizzes and success outcomes would enable the teachers to provide a person-centred plan for the children with developmental disabilities to enhance their community skills (Community Services ACT, 2014).

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Community Success application promotes both community and collaboration (Carey, 2013). Through collaboration, this app enables the teachers, parents or carers to monitor (real-time) and learn about the user’s strengths and weaknesses in different situations. In addition, it facilitates community participation and social inclusion of people with developmental disabilities by teaching them the relevant social skills needed for each community activity.

Evidence from the literature that the app is capable of the claims made: Community Success application facilitates community participation and social inclusion of people with developmental disabilities by teaching them the relevant social skills needed for each community activity. Therefore, the Community Success App is an effective teaching tool that encourages social skills, social interactions, community activities and transitional times (Rimmer and Rowland, 2008). In addition, in this way it can change the negative feelings of other community members towards a person with a disability (Stewart and Gissel, 2012).

General Comments: Teachers and developmental educators can actively use this app to help the students to learn independent living skills through mastering the social interaction skills in an engaging and easy-to-navigate program. Learning these skills would benefit the students when they join community activities and are required to be involved in social interactions.
BlindSquare

Operating System: iOS
Location: App Store
Cost: $AU 62.99

Description: BlindSquare application is categorized as a navigation app, which facilitates accessible navigation to help people with visual impairment in their daily lives. This includes providing information of the place they are and the place they are travelling to by reading the street names, which enables them to travel with confidence. This app enables accessible navigation both outdoors and indoors. The BlindSquare App locates the users by using the compass and GPS, and then uses the data of FourSquare application and Open Street Map to tell the users about the surrounding environment including the interesting places, FourSquare venues and street crossings around the user (MIPsoft, 2018).

Employing the unique algorithms enables the BlindSquare application to decide and find the most relevant and useful information suitable for the user and then speaks them to users in a clear synthetic voice. Some other beneficial features include; working in lock screen, hearing a virtual journey, working in background, planning a route, and supporting 24 different languages (MIPsoft, 2018).

Alignment with the UDL guideline: BlindSquare application aligns with the second UDL Principle through multiple means for action and expression which “provides options for physical action” (Guideline 4) by “optimizing access to tools and assistive technologies” (Checkpoint 4.2). As an assistive technology, the BlindSquare app facilitates community participation and social inclusion of people with visual impairment by reducing the physical barriers (CAST, 2011).

Curriculum area: This app can be used when teaching moving orientation and teachers can introduce this app to their students at any age, as it promotes the independency and social inclusion of people with visual impairment, which can help improve the learning ability of the users (ACARA, 2015).

How does the app meet the National Disability Standards? BlindSquare App meets the National Disability Standard two “Participation and inclusion” (Community Services ACT, 2014); as this App helps to reduce the physical barriers faced by the people with visual impairment in community participation. In other words, the BlindSquare application will boost the confidence of people with visual impairments to travel independently by navigating them both in indoor and outdoor environments; therefore, it facilitates community participation and social inclusion of people with visual impairment.

How the app changes pedagogy (SAMR)? BlindSquare application changes pedagogy by transforming the old moving orientation teaching method to the new one. This is plausible because this app redefines the way teachers teach the moving orientation lesson and allows users to create new
tasks which were previously inconceivable for them such as traveling with confidence without other’s assistance.

**How the app encourages person centred planning?** BlindSquare application has been developed in collaboration with people with visual impairment and is carefully field tested (MIPsoft, 2018). This app can encourage a person-centred planning that brings positive changes in user’s life through enabling them to take part in the community activities and helping them to travel safely and confidently.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** BlindSquare application conforms best with the area of community (Carey, 2013). As an assistive technology, this application facilitates community participation and social inclusion of people with visual impairment by reducing the physical barriers. It also increases the opportunities for participating in community activities by helping the users visit new places and meet new people.

**Evidence from the literature that the app is capable of the claims made:** To enhance the quality of life of people with visual impairments, it is necessary to employ assistive technologies that can improve their level of mobility (Lancioni and Singh, 2014). Assistive technologies that help the people with visual impairment to navigate, play a critical role in their lives. This is because assistive technologies can support the users to be more independent and confident (Ong, Zhang, and Nee, 2013).

**General Comments:** This app can be a useful tool in teaching moving orientation and traveling to students with visual impairments. It can also be helpful for developmental educators and teachers to encourage the people with visual impairments to visit new places and participate in new activities.
Braci Smart Ear

Operating System: IOS, Android
Location: App Store, Play Store
Cost: $AU13.99

Description: Braci Smart Ear application is categorized as a health and fitness app which recognises and analyses the existing sounds in the environment and then converts them into visual (written text) and sensory alerts and notifications. This app can detect a broad range of sounds both in indoor and outdoor environments. The Braci Smart Ear has a smart algorithm, which alerts the user through flashing their mobile’s camera light, vibrating the mobile phone or wearable technologies, and showing an icon image of the current event with a text note under it. This application can be considered as a safety app that is useful for the people with hearing impairments, helping them hear different range of noises ad appliances (Braci1 Ltd, 2016).

Alignment with the UDL guideline: Braci Smart Ear application aligns with the first UDL Principle through multiple means for representation which “provides options for perception” (Guideline 1) by offering “alternative for auditory information options” (Checkpoint 1.2) (CAST, 2011). This app offers the people with hearing impairments a direct substitute for auditory information and gives them higher levels of control and independence in the different environments.

Curriculum area: Braci Smart Ear application can assist the students with hearing impairments in literacy by converting the sounds into written text. Considering the ability of this application to convert sounds into the written text, this app can be useful in all eight learning areas of the Australian Curriculum for the students with hearing impairments in all ages (ACARA, 2015).

How does the app meet the National Disability Standards? Braci Smart Ear application meets the National Disability Standard 2 and 6 “Participation and inclusion” and “Service Access”; as this app gives the users higher levels of control and independence in different environments, thus it can increase the opportunity of the users to participate in community activities happening in different environments. In addition, it can facilitate the access of people with hearing impairments to different services (Community Services ACT, 2014).

How the app changes pedagogy (SAMR)? Braci Smart Ear application changes the teacher’s pedagogy by transforming the lessons from the audio (Speaks) to the written text and modifying the study materials in real-time, otherwise the task would be hard to achieve without employing such an application.

How the app encourages person centred planning? Braci Smart Ear application facilitates the independency of people with hearing impairments and gives them more power and control, which can have a more positive impact in the user’s lives and the services that have been provided for them. This application can also be personalized to the user by adding the sounds that users wish to add to their sound lists.
What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? Braci Smart Ear conforms best with the area of community (Carey, 2013). As an assistive technology, this application facilitates community participation and social inclusion of people with hearing impairments by reducing the physical barriers. It increases the opportunities for participating in community activities by converting sounds to the written texts.

Evidence from the literature that the app is capable of the claims made: There are similarities in the way Braci Smart Ear application and speech to text apps work. These kinds of applications are the common assistive technologies that assist the people with hearing impairments while they are in different environments (Collins, 2013). This app can be considered as a safety application, which recognises and analyses the existing sounds in the environment and then converts them into visual and sensory alerts and notifications. Alert systems improve the quality of life of an individual by saving lives and making them feel safe (Kaur, Sharma, and Kaur, 2016).

General Comments: Braci Smart Ear application is useful for developmental and teachers to provide the students with hearing impairment with the written text format of their speech and to assure the safety of the students when they are in schools for example in the event of fire evacuation when students can hear the fire alarm.
Reviewer: Pouya Farbod App 15

Amedia Live Reader

Operating System: iOS

Location: App Store

Cost: $AU 46.99

Description: Amedia Live Reader application is categorized as a productivity app, which is designed for the people with visual impairment. This app uses the device’s camera to scan a live image and in a real-time it reads the texts which are in the image. The Amedia Live Reader app provides real-time OCR using the FineReader engine and supports both still capture mode and live capture mode. Therefore, the Amedia Live Reader application can be used to read a full page of text by holding the device flat (with the camera facing down) and taking still pictures. However, in most situations the best-recommended way is to hold the camera facing the front of the target with 20-30cm distance or take 2-3m distance if the target is large. The app has VoiceOver feature and it is recommended to turn on this feature when using the app. This app is able to read English, Chinese (Traditional), Chinese (Simplified), Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Indonesian, Italian, Japanese, Korean, Malay, Norwegian (Bokmål), Polish, Portuguese, Romanian, Slovak, Spanish, Swedish and Turkish (Amedia Corporation, 2018).

Alignment with the UDL guideline: Amedia Live Reader application aligns with the first UDL Principle through multiple means for representation which “provides options for perception” (providing a range of visual texts available through audio) (Guideline 1) by offering “alternative for visual information” (Checkpoint 1.3) (CAST, 2011).

Curriculum area: This app offers the people with visual disabilities a direct substitute for visual information and gives them higher levels of control and independence in different environments. Therefore, this app can be useful in all eight learning areas of the Australian Curriculum for the students with visual disabilities of all ages (ACARA, 2015).

How does the app meet the National Disability Standards? Amedia Live Reader application meets the National Disability Standard one and two “Rights” and “Participation and inclusion”; this application supports individual’s rights to self-determination, control and choice by allowing independent access to the range of visual texts trough real-time OCR technology and reading the texts (standard one). It also gives the users higher levels of control and independence in different environments therefore it can increase the opportunity of the users to participate in community activities happening in different environments (standard two) (Community Services ACT, 2014).

How the app changes pedagogy (SAMR)? Amedia Live Reader application enhances the teacher’s pedagogy as it transforms the way students with visual disabilities could have access to visual text information by redesigning the tasks (modification) which cannot be done without a personal assistant. Otherwise, the tasks would be hard to achieve without such an app.
How the app encourages person centred planning? Amedia Live Reader is person-lead and person-centred app which supports the development of positive changes in an individual’s life by increasing the level of user’s independency in different environments and giving them more power and control over their lives.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Amedia Live Reader app facilitates more independent ‘Connectivity’ (Carey, 2013), for the people with visual disabilities with their surroundings thus it can result in overcoming the physical barriers faced by the users in meaningful community participation.

Evidence from the literature that the app is capable of the claims made: D’Andrea and Sui (2015) noted that the main barrier for people with visual disabilities in educational contexts is to have access to the printed text which also it effects an individual’s quality of life. The Amedia Live Reader application works as a solution to help the users overcome the printed-text access barrier. This app uses the device’s camera to scan a live image and in a real-time, it reads the texts which are in the image. Since, it supports both still capture mode and live capture mode it can be used to read a full page of text. Therefore, it can increase the level of user’s independency, self-efficacy and personal satisfaction (D’Andrea and Sui, 2015).

General Comments: Amedia Live Reader application supports greater independence by facilitating the access to the texts within the live images in a real-time. This app can work as a potential assistive technology that is especially designed for people with visual disabilities to assist them both within and outside the educational environments. For example, it can enable a student to independently read labels, book’s title, full textbooks, signage and posters.
Reviewer: Mez Flynn  

**Simply Sayin’**

**Operating System:** IOS, Android

**Location:** iTunes Store, Google Play

**Cost:** Free

**Description:** *Simply Sayin’* uses pictures, sounds and simple language to explain complex medical terms, procedures, equipment and facilities. The information presented in the app provides ideas and talking points for discussions between health care professionals, patients and parents. The application uses developmentally appropriate language to engage the patient in conversations relating to procedures through word definitions and images to help understand. Guiding questions and discussions points are available to encourage deeper understanding of processes and equipment.

**Alignment with the UDL guideline:** *Simply Sayin’* aligns with Principle 1 as it provides multiple means of representation. Specifically, it fits in with Guideline 2 of providing options for language, mathematical expression and symbols. *Simply Sayin’* illustrates medical terms, procedures, equipment and facilities through multiple media (2.5) (CAST, 2011). Terminology is presented in developmentally appropriate language and offers pictures and real-life photos to elicit further understanding. This application allows the option for the medical terminology and the corresponding explanation to be converted to Spanish, which is promoting understanding across languages (2.4) (CAST, 2011).

**Curriculum area:** The *Simply Sayin’* application has been created for children but could also be used for teenagers and older patients who have an intellectual disability. The curriculum area this app fits into is the Personal and Social General Capability and within the element of Social Management and sub-element Communicate Effectively (ACARA, 2016b). This application allows the user to develop language skills specific to medical terminology to help understand upcoming procedures allowing for a deeper understanding and ability to discuss and analyse the procedures.

**How does the app meet the National Disability Standards?** The *Simply Sayin’* app meets National Disability Standard Participation and Inclusion (Department of Social Services, 2013). The app promotes the discussion around the hospital equipment and process to help the patient to better understand the expected procedures. The app can be used to facilitate conversations between patients, parents and health care professionals.

**How the app changes pedagogy (SAMR)?** The *Simply Sayin’* app fits within the enhancement pedagogy through augmentation (Puente, 2013). The app provides a strategy to use with patients who need simple language and clear definitions to prepare for procedures and hospital stays. This is done using pictures, photos and simple text.

**How the app encourages person centred planning?** The app *Simply Sayin’* is a tool to use to ensure the person with a disability has a good understanding of the medical terms, procedures,
equipment and facilities. Being able to understand the terminology through developmentally appropriate language, photos and pictures which can be manipulated means the patient will less stressed and better prepared. The health care professionals and carers will be able to use the app to ensure the patient has a complete understanding of procedures. A lack of trust can be present when the health provider is not honest and clear about what is going to happen in the hospital. Involving the person with a disability by communicating effectively will develop a strong working relationship and assist the patient with making decisions about their health care (DADHC, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** *Simply Sayin’* is an app which promotes a deeper understanding of medical terms, procedures and equipment. The patient, parents and health care professionals can use this tool to describe what is going to happen and why. These aspects align with the 21st Century approach of ‘create’ and ‘collaborate’ (Carey, 2013). Health care professionals will be able to manipulate the pictures to demonstrate the functioning of the digestive system or the circulatory system to describe the necessary procedure of a person with a disability.

**Evidence from the literature that the app is capable of the claims made:** The *Simply Sayin’* app has been recommended by Unaka, Statile, Choe and Yin (2018) as a strategy of using visual aids and educational materials to engage the younger patient. It states the importance of supplementing verbal information with print materials and visual aids. *Simply Sayin’* incorporates descriptions of medical terms in an easy to understand language and incorporates visual material that can be manipulated by the user. As the app is usable at home, carers and the patients can discuss together to develop a better understanding. Patients who have a better understanding of the procedure how and why’s are more likely to engage with their health care and have a less likely chance of poor health reoccurring (Harnett, 2017).

**General Comments:** For developmental educators and teachers of younger children or teenagers and adults with an intellectual disability this app will assist with language development and deeper understanding of future medical procedures. Educators can encourage discussions using the app to help the patient to gain a clearer perception, which will enable them to prepare mentally for procedures, and hospital stays.
i Get....Going to the Hospital

Operating System: IOS  (iPad only)
Location: iTunes Store
Cost: $7.99

Description: I Get...Going to the Hospital is for people who need help understanding the process of being admitted to the hospital. The app allows the user to create social stories in relation to the emergency room, hospital equipment and hospital staff. The books can be created with the pre-made books on the app, modifications can be made to the pre-made books or the user can create their own individualised stories. Photos, text and audio can be added to all books. Parents, children and the health care professionals can actively interact; sharing books and providing information needed for the patient in preparation for procedures and hospital stays. Patients could also create their own storybooks to reflect on the experience. The app allows certain books to be hidden from the user, which allows for specific focus topics. Books can be shared with other users who have this app and can be downloaded as a pdf or emailed.

Alignment with the UDL guideline: I Get...Going to the Hospital aligns with Principle 1 as it provides multiple means of representation. Specifically, it fits within Guideline 1 of providing options for perception as it offers alternatives for auditory and visual information (1.2, 1.3) (CAST, 2011). With the health care professionals involved, the patient will have correct information provided to describe and explain procedures and treatment, and potentially visuals of the people they will be involved with. This will better prepare those individuals who struggle with new environments and engaging with new people. The use of audio, visuals and text ensure a comprehensive understanding. Through the process of creating stories using their own chosen photos the patient will be able to individualise their stories, which will foster engagement with the topic of preparing for a hospital stay or procedure or reflecting on one.

Curriculum area: Young children, teenagers and young adults with a learning difficulty would be able to access this application at the appropriate language level due to the option to use your own photos, words and audio. The application can create preparation stories and reflections completely for everyone. The I Get...Going to the Hospital app would demonstrate the Critical and Creative Thinking Capability as the user will be able to pose questions to clarify and interpret information about the hospital (ACARA, 2016a). It also fits the Personal and Social Capability through the self-management element as the patients could be encouraged to describe their emotions and become more confident as they plan for their hospital stay.

How does the app meet the National Disability Standards? I Get...Going to the Hospital demonstrates the National Disability Standard of Participation and Inclusion (Department of Social Services, 2013). The user can actively be involved with their health care professional in preparation for hospital stays and even basic procedures.

How the app changes pedagogy (SAMR)? The I Get...Going to the Hospital app fits within the transformation pedagogy through modification (Puentedura, 2013). This app changes the
exposure to hospital related terminology, procedures and people using text, personal photos, audio and subtitles all in language which can be personalised and is appropriate for the user.

**How the app encourages person centred planning?** As this application can be completely individualised for each patient it certainly encourages person centred planning. *I Get...Going to the Hospital* allows users to create personalised books for the exact needs of the patient. The health care professionals can be honest with the patient about procedures, as the language will be at a developmentally appropriate level, creating a partnership between the health care professionals and families (DADHC, 2012). Through the better understanding of the processes and people in the hospital it will lessen the stress associated with attending the hospital in general and enable the user to develop ideas and further questions for meetings. This app will enable authority, control and power for the patient, who will make more informed choices about their health (DADHC, 2012). The ability to create personalised storybooks for the patients offers the opportunity to tailor the support for the patient at an individualised level, again offer a person-centred approach to their health care (DADHC, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** *I Get...Going to the Hospital* is an opportunity to engage the patient with social storybooks. These digital books can be manipulated to include personal photos, audio and text. These aspects align with the 21st Century approach of ‘collaborate’, ‘create’ and ‘curated’ (Carey, 2013). Patients, family members, carers and health care professionals can share created stories to better prepare the individual for any upcoming procedure. These stories can be downloaded as a pdf or emailed to others with the same app. The app comes with pre-made books, but the user can manipulate the content to include relevant and specific information for the individual.

**Evidence from the literature that the app is capable of the claims made:** Harnett (2017) states the need for health patients to understand procedures and information regarding health care to reduce anxiety. Another important reason for including patients in understanding their health management is the increased engagement with their health care. For a patient to understand their health management plan there is an opportunity to prevent complications and extended hospital stays (Unaka et al., 2018). If understanding about procedures and hospital stays are not addressed in a clear manner and at an appropriate level, there is an increase in the likelihood of hospitalisation due to reoccurrence of poor health (Harnett, 2017).

**General Comments:** For developmental educators and teachers this app would be useful if the person with a disability wanted to discuss with them upcoming procedures and hospital stays. The educators would be able to provide accurate information, as a health care professional or their carer in consultation with the medical team will have created it. The patient will be able to reflect on their hospital stay and share their experiences with their educators.
**My Health Guide**

**Operating System:** IOS (iPad only), Android  
**Location:** iTunes Store, Google Play  
**Cost:** Free

**Description:** *My Health Guide* is an application, which has been constructed specifically for people with an intellectual disability. It allows users to store and make sense of medical information given to them about their health and well-being. It can be used as a diary to record feelings of anxiety or depression or as a food diary. Videos can be recorded to show carers the correct way to position the user correctly in a wheelchair or during physiotherapy stretches. Users can record important information and later play to explain their situation and wants when attending medical appointments. The application can also record meetings with health care professionals to help the patient remember what was said.

**Alignment with the UDL guideline:** *My Health Guide* aligns with Guideline 3: Provide options for comprehension. It allows the user to transform their health-related information into a source that organises it and provides an opportunity to take control of their management of their health. Specifically, it will guide information processing, visualisation and manipulation (3.3). It provides a platform for users to organise their health care management and store it all in the one place. (CAST, 2011)

**Curriculum area:** The *My Health Guide* application has been constructed specifically for adults with an intellectual disability. This application links directly to the Personal and Social Capability and within the Self-management element (ACARA, 2016b). By using this application, the user would develop independence and become more confident in being able to manage their own health needs. The user would also be able to play pre-recorded videos of wheelchair alignment and procedures or physiotherapy stretches to demonstrate the correct way to complete the task. Having a visual element to their description would support their verbal needs.

**How does the app meet the National Disability Standards?** *My Health Guide* aligns with the National Disability Standard Individual Outcomes (Department of Social Services, 2013). It allows users to manage their medical needs and store important medical information. Taking control of their own needs will develop confidence and independence, which is an important step in becoming an adult.

**How the app changes pedagogy (SAMR)?** The *My Health Guide* app fits within the transformation pedagogy though redefinition (Puenteedura, 2013). The ability to video correct seating posture and physiotherapy stretches to show to carers demonstrates redefinition as this action would not be possible without technology.

**How the app encourages person centred planning?** As the app Health Guide has been develop specifically for people with an intellectual disability, it has been created in a way, which presents the information in a developmentally appropriate way. Being able to manage their own health
allows people with a disability to develop strength in the areas of independence and self-determination and take control of their own health care (DADHC, 2012). Collating health information in a central location and being able to access it for a multitude of uses and share with a range of people means the person will be able develop partnerships with health care professionals and promote a more successful outcome (DADHC, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Health Guide is an app, which allows health information to be stored as well as videos to be taken to show carers correct postures and exercises. Meetings with health care professionals can be recorded and replayed later to help remember the correct information. These aspects align with the 21st Century approach of ‘collaborate’ and ‘curated’ (Carey, 2013). The ability to store and share ideas and information means users will be able to have a better control of their health management.

**Evidence from the literature that the app is capable of the claims made:** Bacigalupe and Askari (2013) state the importance of patient involvement in self-management in relation to improved self-determination and empowerment. The ability to manage their own health can improve independence, which in turn will influence other areas of their life. People with an intellectual disability are subjected to barriers, including access to health literacy. Providing health education at a developmentally appropriate level is crucial to ensure all procedures and treatment are understood (Roll, 2017). The *My Health Guide* app has been constructed specifically for people with a disability and addresses the content in such a way to ensure the user better understands their health management.

**General Comments:** For developmental educators the *My Health Guide* app creates an opportunity for the user to develop independence skills. For teachers, this app could be used by the student to use when a new relief teacher is in the classroom, or for staff who have not worked with a specific student for some time. This process could also prevent accidents or incidents from bad positioning, including the prevention of pressure sores. This would also enable the student to self-advocate and educate adults working with them regarding medical requirements and other health related issues.
Reviewer: Mez Flynn

LifeTiles Pro

Operating System: iOS, Android
Location: iTunes Store, Google Play Store
Cost: Free

Description: LifeTiles Pro is an application that allows users to enhance their personal health and treatment plans with self-management. Health care professionals can engage their patients in treatment through real-time communication and support. Users can set up reminders for medication, treatments and appointments. This application has been created to support people who have complex health needs, or those with an intellectual disability or mental health issues who require monitoring and support. Users will have access to care and support at any time though their mobile devices. The latest version enables users to contact their care provider via instant messaging, voice and video calls.

Alignment with the UDL guideline: LifeTiles Pro fits the UDL Principle 3 of providing multiple means of engagement. Specifically, it fits within Guideline 8 as it fosters collaboration and communication (8.3) (CAST, 2011). LifeTiles Pro creates a partnership between patients and health care professionals and allows real-time communication and support in the management of their personal health needs.

Curriculum area: LifeTiles Pro will be suitable for older teenagers and adults who are wanting to increase their independence in relation to their health care management but still require support while doing so. The app relates to the Personal and Social Capability with both the Self-management and Social Management Elements (ACARA, 2016b). The users will be able to develop strategies to become more confident and independent when managing their own health. The app promotes communication and collaboration between the user and health care professionals.

How does the app meet the National Disability Standards? The LifeTiles Pro app promotes the National Disability Standard of Rights. By using this app, the user will be promoting their right to independently manage their own health care. It also encourages collaboration between the user and health care professionals and support towards independence in their personal health management. In this way the app also meets the National Disability Standard of Participation and Inclusion (Department of Social Services, 2013).

How the app changes pedagogy (SAMR)? The LifeTiles Pro app fits within the transformation pedagogy through modification (Puantedura, 2013). The application promotes communication and support in real time to manage complex health issues. The ability to plan and organise using technology with real time support displays the modification pedagogy.

How the app encourages person centred planning? Health care professionals can support and communicate with the app user in real-time which means that a person with a disability can manage their own health care plan with as much support as they need. This demonstrates...
partnership between the health care professionals and the person and their family DADHC, 2012). As they develop the skills needed to manage their health care they would rely less on the support, meaning the app will promote an investment in people and their families as they enact a greater authority over their health care (DADHC, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** The *LifeTiles Pro* app allows the user to engage with their personal treatment plans and management. The app has been created to support and monitor people with an intellectual disability or mental health issues. These aspects align with the 21st Century approach of ‘collaborate’ and ‘curated’ (Carey, 2013). Users of this app can access real-time communication and support at any time through their mobile devices. Users can collate their health care plans and access from the one place.

**Evidence from the literature that the app is capable of the claims made:** The ability to develop communication links with their health care professional will ensure the person with a disability is well supported. Brandenburg, Worrall, Rodriguez and Copland (2013) state the capacity to foster interaction between a patient and the doctor will promote medication adherence, allow the opportunity for longer follow-up periods and potentially reduce health relapses. Bacigalupe and Askari (2013) note the importance of collaboration between patient, family and the numerous health care professionals involved in the management. Also, the importance of clear communication to reduce health care inconsistencies. Through fostering communication and collaboration at the right developmental level, the person with a disability will engage with their health care and develop self-empowerment and independence.

**General Comments:** For developmental educators the *LifeTiles Pro* app would be a useful strategy in promoting independence and self-determination for the person with a disability. This will aid the developmental educator in facilitating self-advocacy with the person with a disability in relation to their personal health care management. This app would also be useful in ensuring all health care related information was in one location.
MedicineWise: Manage Medicine

Operating System: iOS, Android
Location: iTunes Store, Google Play
Cost: Free

Description: MedicineWise: Manage Medicine allows users to store all their medical information in one place. It has the option to scan medication by barcode or search the database to then be stored within the app. Users can add dosage guidelines and schedule reminders. Users have access to a large range of useful learning resources and information. When using the app, it is possible to store, track and graph health information such as blood pressure and body weight. The stored information can be shared with health care professionals via email.

Alignment with the UDL guideline: MedicineWise: Manage Medicine aligns with Guideline 3: Provide options for comprehension, as it is an application which promotes organisation and allows the user to store all their medical needs in one place. This application will maximise transfer and generalisation (3.4). It will promote strategies to enhance memorisation with the section of the app that allows dosage guidelines and scheduled reminders to be used. With the availability to store, track and graph health related information users would be able to highlight patterns, critical features, big ideas and relationships (3.2). (CAST, 2011)

Curriculum area: MedicineWise: Manage Medicine has been created for individuals who are wanting to manage their own medications, meaning this app would be suitable for older teenagers and adults. It fits within the Personal and Social Capability and the Self-Management Element (ACARA, 2016b). Users of this app can self-regulate and monitor their own health management. They potentially will develop confidence in their own ability to be independent and show initiative.

How does the app meet the National Disability Standards? The MedicineWise: Manage Medicine app aligns with the National Disability Standard Individual Outcomes (Department of Social Services, 2013). It allows users to store all medication information and schedule reminders, encouraging independence and developing self-determination in relation to their personal health care.

How the app changes pedagogy (SAMR)? The MedicineWise: Manage Medicine app fits the transformation pedagogy through redefinition due to the ability to scan the medication by barcodes to accurately store the guidelines and dosage requirements (Puentedura, 2013). It also allows the scheduling of reminders to give further independence to the users. Being able to store, track and graph health information will allow an accurate record to be discussed in future health meetings.

How the app encourages person centred planning? The MedicineWise: Manage Medicine app gives people with a disability an opportunity to develop independence in the management of their medicine and health care. Gaining authority and power and making decisions about their future will mean the user will be able to take responsibility for their own health and other areas of
their life (DADHC, 2012). Communication between patient and health care provider will promote positive partnerships between the person and the health care sector building trust and positive outcomes (DADHC, 2012).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?**

*MedicineWise: Manage Medicine* is an app which allows health information to be stored and to be shared with a health care professional. These aspects align within the 21st Century approach of ‘collaborate’ and ‘curated’ (Carey, 2013). This app displays collaborate in that the user can email their stored data to their health care professional which can then be used at future health meeting. It also demonstrates curated as it stores medical information such as medication types and dosages, blood pressure and body weight.

**Evidence from the literature that the app is capable of the claims made:** People with a disability value positive relationship with their health providers (Gibbons, Owen and Heller, 2016). It is important the patient understands their health care, which needs to be explained with clear and developmentally appropriate language. Gibbons et al (2016) state the importance in how a person with a disability perceives their health care, as a positive perception can improve their recovery and shorten hospital stays. Using and understanding graphed information would require health care professionals to use language, which is accessible to ensure the people with a disability understand the content and why it is being used. This will increase patient education and create interactive health care (Bobian et al., 2017). The graphs create a visual display of data that can facilitate communication of health-related information, treatment and recovery goals (Okan, Garcia-Retameru, Cokely and Maldonado, 2018). Sharing health care data and information with their health care provider will save time and

**General Comments:** Developmental educators would find this app useful in assisting the person with a disability to set, track and monitor their health goals. MedicineWise: Manage Medicine would be helpful in assisting the personal with a disability to develop independence in managing their own medicines. By presenting data in a visual graph display, the user will be able to engage with the health care information and develop self-determination in making decisions about their own health management.
**Reviewer:** Rebecca O’Hara

**AccessNow**

**Operating System:** Requires iOS 8.0 or later.

**Location:** iTunes Store, Google Play store

**Cost:** Free

**Description:** AccessNow assists individuals with a physical disability to share and rate specific places and establishments regarding how accessible they are. The app allows users to search for specific places such as hotels, stores, restaurants and buildings, as well as access the interactive map. The interactive map is run by the app community and can be filtered with categories and tags to adapt the search based on the specific access features individuals may require. If the information is not available users are able to add and rate the accessibility of the new location themselves e.g. accessible, partially accessible, patio access only and not accessible.

**Alignment with the UDL guideline:** This app aligns with the UDL Principle II: “Provide Multiple Means of Action and Expression”. In guideline 4 “Provide options for physical action”, checkpoint 4.1 “Vary the methods for response and navigation” states “Learners differ widely in their capacity to navigate their physical environment”. Therefore, this app provides the means for physically handicapped individuals to search for and find information regarding the accessibility of places. The filters make it customisable to the individual’s specific needs, reducing the time researching or navigating the physical barriers of establishments and allowing full participation in the community.

**Curriculum area:** This app is more suited to older students in high school. ICT classes could assist students in learning how to use the app and discuss the accessibility of places they have searched and accessed through the app. Geography lessons would also assist in understanding geographical areas and researching new desired locations.

**How does the app meet the National Disability Standards?** This app aligns with the National Disability Standard 1 “Rights”. Supporting a person’s right to self-determination and decision making by enabling individuals the means to navigate their world safely and independently. The app also provides individuals opportunities to connect and communicate with others who have similar physical needs, thus promoting a sense of community, inclusion and participation (Standard 2 “Participation and Inclusion” - promoting opportunities for meaningful participation and active inclusion in society.)

**How the app changes pedagogy (SAMR)?** This app is more about enabling independence and inclusion to identify and locate establishments with specific features reducing the physical barriers. Therefore, it does not directly affect pedagogical approaches for the whole classroom but does considerably change the capacity in which students with physical disabilities or impairments navigate the physical environment.
How the app encourages person centred planning? This app promotes a person-centred approach as it allows individuals to be in control of their own movements. It also allows individuals to tailor their searches and modify features individualised to their own needs as well as their lifestyle and interests. Furthermore, it enhances independence within the community by building a platform that enhances participation and inclusion but reduces the physical barriers.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The app promotes connectivity and community creating an ease of integration and inclusion in the physical world. It allows individuals with the same or similar physical needs a means to easily connect and share reliable information regarding the physical accessibility of establishments and locations.

Evidence from the literature that the app is capable of the claims made: AccessNow assists individuals in assisting them in finding accessible places and locations. This allows individuals to be involved in the community such as having access to shopping centres, restaurants and further encourages social inclusion (Gibson, Carnevale and King, 2012). Social inclusion includes community participation and interpersonal relationships. Inclusion in the community develops a greater quality of life for individuals with physical disabilities. According to Hall (2010) social inclusion involves acceptance which extends beyond an individual’s disability. Acquiring access to formal and informal locations supports individuals’ accessibility to a range of different activities and events, involvement in the community and providing social inclusion.

General Comments: This app could be useful to developmental educators and teachers when organising whole class excursions, as well as assisting families when venturing out on the weekends finding easily accessible places they may have not been before.
Reviewer: Rebecca O’Hara

Stepping Stones Daily Routine

Operating System: Requires iOS 6.0 or later.

Location: iTunes Store, Google Play store

Cost: $1.49

Description: Stepping Stones Daily Routine provides a visual representation using personalised visual and audio prompts for users to follow and complete daily routines and schedules or tasks/activities. The visual representations act as prompts and can be recorded into smaller steps to reinforce understanding. These steps can also be customised to include audio instructions to create incidental learning opportunities through written and visual prompts. Customisation of the application is quite simple and can upload photos or alternate visual representation via the camera or using the photo library. Additionally, a visual task timer can also be added at times of the day to remind users when to complete a specified task. An overriding parental lock option is available to prevent any unintentional changes the routine.

Alignment with the UDL guideline: This app aligns with the UDL Principle III: “Provide Multiple means of Engagement”. In Guideline 8 “Provide options for sustaining effort and persistence”, checkpoint 8.1 “Heighten salience of goals and objectives”, dot point 4 states “Demonstrate the use of hand-held or computer-based scheduling tools”. Therefore, this app provides users with a personalised visual representation on their daily schedules and routines. Additionally, the customisable feature enables users to tailor to the app to suit their individual needs and build independence.

Curriculum area: This app can a useful tool that can be used in the curriculum area of language and literacy and can be used by children and adults who benefit from using visual supports. Specifically, this app would be more beneficial for children and used in early intervention education. The audio instruction feature offers clarity to the task providing visual representation using picture prompts and can be customised to include spoken and written language to reinforce what is required, creating incidental learning.

How does the app meet the National Disability Standards? This app aligns with the National Disability Standard 3 “Individual Outcomes. Building on individual strengths encourages independence and supports individual participation in all aspects of their life by enabling individuals the means to manage and complete tasks and activities independently. This app also provides greater self-reliance and confidence thus enabling individual to reach their goals and full potential creating better quality of life.

How the app changes pedagogy (SAMR)? This app is a pedagogy ‘transformation’ through ‘redefinition’. The use of this application provides a visual and auditory representation of multiple steps in a portable manner. The visual steps provide a prompt and can be reinforced with script which provides a stable routine for the successfully completion of a task or daily activity.
How the app encourages person centred planning? This app promotes a person-centred approach as it presents multiple modes of information that is easy to understand, relevant and can be customised to suit the needs of the user. The camera feature of the app allows users to upload personal photos to engage the user and make connections through creating personal schedules. Additionally, parents/carers or teachers can support children at home and at school when undertaking daily tasks on a more personal level.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? The app promotes both ‘creativity’ and ‘curation’ which is reflected through its customisable multimodal modes of display to suit individuals needs promoting increased independence, teaching essential life skills and assists with time management and sequential processing. The customisable paths are easily created and accessible when undertaking daily requirements aligning with the criteria for curation.

Evidence from the literature that the app is capable of the claims made: Research-based evidence suggests individuals with disabilities and/or developmental delays gain the most positive outcomes within all aspects of their life when provided with consistent and predictable routines (Meadan, Ostrosky, Triplett, Michna, and Fettig, 2011). Visual supports help to teach life skills, assist with flexibility, sequential processing and time management, increase independence, and manage daily anxiety (Dettmer, Simpson, Myles, and Ganz, 2000).

General Comments: This app would be useful for developmental educators and teachers in assisting children requiring support with their daily needs in completing tasks/activities through a personalised and manageable digital application. This in turn reduces the need for external intervention by promoting skill acquisition and independence. Additionally, the app could be used to introduce or enhance children’s communication, language and literacy skills.
**Look at Me**

**Operating System:** Samsung Electronic Devices- Android

**Location:** Google Play store

**Cost:** Free

**Description:** Look at Me was developed by doctors and professionals to improve the communication skills and abilities of children with autism. It also aims to deepen relationships with their parents and those around them. The app uses facial recognition technology, photos and a series of games in helping children with ASD to read emotions and facial expressions, make eye contact and express their emotions. The app includes seven interactive and engaging missions, where children earn points and various rewards. Each mission can take about 15-20 minutes to complete.

**Alignment with the UDL guideline:** This app aligns with the UDL Principle II – “Provide Multiple Means of Action and Expression”. In Guideline 5 – “Provide options for expression and communication”, Checkpoint 5.2- “Use multiple tools of construction and composition”. Provides opportunities for individuals with disabilities to communicate and express their feelings with those who do not have a disability. Additionally, the guidelines reflect the main feature of the app in supporting and teaching communication skills, without the need for explicit instruction.

**Curriculum area:** This app will best be introduced and used in language and literacy. The visual representations help in supporting children in the acquisition of communication skills and would significantly benefit young children when used in early intervention education. ICT classes would also ensure any difficulties children may be come across when completing the missions, allowing further sense of independence.

**How does the app meet the National Disability Standards?** This app aligns with the National Disability Standard 1; supporting individuals rights to freedom and expression of how and whom they choose to communicate and providing individuals with disabilities the means to feel safe. This app also provides greater opportunities for social engagement and allows individuals with disabilities to contribute in a meaningful way.

**How the app changes pedagogy (SAMR)?** This app has the potential to change pedagogies in ways of substitution and augmentation. These pedagogies are a transformation towards the development of communication skills and abilities of children with ASD, where by the skills are taught through meaningful representations in a series of teaching ‘missions’. The visual games provide learning prompts and a way for parents and children to engage and play, while learning valuable life skills.

**How the app encourages person centred planning?** This app promotes a person-centred approach by teaching children the beginning stages of communication skills, specifically eye contact and allows them to express their own emotions. This app will allow parents/carers or teachers can
support children at home and at school with utilising these new learnt social skills and deepen the emotional relationships with those around them.

**What area of a 21st Century approach to Teaching/training does the app encourage (SCs)?** This app promotes connectivity, community and collaboration. Children with ASD will be able to feel a sense of connectivity with those around and directly in their world, through recognising how they and others may feel. This app is helpful for teachers and parents in supporting social behaviours of children with ASD more effectively in the community and engaging in social activities.

**Evidence from the literature that the app is capable of the claims made:** Look at Me aims to assist in developing communication and social skills of children with autism, through reading emotions and facial expressions, making eye contact and expressing their emotions. Boyd, Ringland, Haimson, Fernandez, Bistarkey and Hayes (2015) recognised that multiplayer touchscreen technologies have shown an increase in communication and sociability among users. This then translates to the transfer of improved social skills and meaningful interactions with individuals directly and indirectly in their lives. The app offers real-life like experiences that teach relevant learning in communication skills and abilities. This prepares children with the tools to communicate in not only different environments, but also how to engage effectively with others (Kuder, 2013).

**General Comments:** This app would be useful for developmental educators and teachers in supporting children in learning social and communication skills. This app allows teachers and parents to build relationships with children through completing the ‘missions’ and unknowingly learning new skills. This app encourages children and parents to have fun, whilst learning expression communication, thus deepening their relationship.
uSound (Hearing Assistant)

Operating System: Requires iOS 10.0 or later.

Location: iTunes Store, Google Play store


Description: uSound (hearing assistant) was developed by sound and hearing professionals to help individuals with hearing impairments to improve their hearing capabilities in specific situations including watching TV, listening at school, participating in a conversation or meetings or listening to a movie at home. The app can be easily installed and configured to suit the individuals heading needs. To begin users will need to connect their ear phones and undertake a hearing test. The different filters adapt the sound and hearing levels as well as adapting to the environment, offering a customised experience.

Alignment with the UDL guideline: This app aligns with the UDL Principle I- “Provide Multiple Means of Representation”. In Guideline 4- “Provide options for physical action”, Checkpoint 4.2- “Optimize access to tools and assistive technologies”. Providing opportunities for individuals with hearing impairments to be able to participate fully in different situations. uSound serves as an assistive technology tool for interaction, navigation and configuration for both adults and children with hearing impairments.

Curriculum area: This app is suitable for individuals of all ages, yet it is dependent on the severity level of the hearing impairment and the adaptability of sound and hearing levels. This app may not directly link to one area within the curriculum, however it could be used to aid multiple curriculum areas where learning is reliant on being able to listen, interact with others and effectively synthesise information.

How does the app meet the National Disability Standards? This app aligns with the National Disability Standard 2; Participation and Inclusion. Promoting participation and independence by being able to actively have control in adapting the sound and hearing levels within various environments such as home, work, classroom. This can also be transferred into the life skills, where assistive technologies enable individuals the ability to engage socially in the community.

How the app changes pedagogy (SAMR)? This app is a pedagogy enhancement, redefining learning to allow individuals to engage in the curriculum in ways they may not have before the use of assistive technology. For instance, it allows children with a hearing impairment the support needed to engage in peer group collaboration activities, by limiting the distractions of background noise and adapting the sound and hearing level on the app to suit the environment.

How the app encourages person centred planning? This app encourages a person-centred approach by promoting independence and providing opportunities for individuals to take control of their lives. This also supports individuals in understanding their own needs and knowing how to adapt the environment using hearing assisted technologies.
What area of a 21st Century approach to Teaching/training does the app encourage (SCs)? This app promotes communication, community and collaboration. The app allows individuals to clearly hear, understand and participate in verbal conversations, providing greater learning, knowledge and independence. This then promotes collaboration with peers in sharing ideas, receiving feedback and participating in meaningful discussions. uSound also encourages a sense of community by allowing individuals with hearing impairments and the deaf community to communicate with others effectively by reducing any miscommunications.

Evidence from the literature that the app is capable of the claims made: uSound (Hearing Assistant), aids in the manipulation of processing sound and hearing levels to assist individuals hearing capabilities in specific situations. Maidment, Barker, Xia, and Ferguson (2016) found that amplifying elements of speech through configuration improves the recognition of speech. Furthermore, the use of alternative hearing devices or aids, do provide similar levels of amplification including speech-in-noise performance, compared to conventional hearing aids (Maidment et al. 2016). This app is also beneficial in supporting students with auditory processing disorders, who may have difficulties with concentrating in noisy classroom environments.

General Comments: This app would be useful for developmental educators and teachers in assisting children in improving their hearing capabilities, promoting a greater understanding of how to independently adapt the auditory world around them. This app could be used in collaboration with other assistive speech apps or manual sign language to encourage a holistic approach in person centeredness and the ability to greatly improve understanding and learning in the classroom, workplace and at home.
Conversation Builder

**Operating System:** Requires iOS 8.0 or later.

**Location:** iTunes Store, Google Play store

**Cost:** $30.99

**Description:** Conversation Builder is designed to help elementary aged children in learning multiple ways of how to converse with peers in different social settings. This app promotes the development of social skills in fun and engaging way, presented visually auditory patterns of conversations are used to support children in recognising and mastering the flow of conversation. Children will learn appropriate skills in learning how to ask questions, introduce themselves, and make observations and changing the conversation subject.

**Alignment with the UDL guideline:** The app aligns with the UDL Principle I - “providing multiple means of representation”. Ensuring individual expression through audio patterns, visual imagery and written formats. In Guideline 1- Check-point 1.1; the app offers options to ensure the display of information customisable to the individual needs. Check point 1.2; provides the options for audio information and check-point 1.3; tailored options of visual information.

**Curriculum area:** This app will best be introduced and used in the area of language and literacy. This app aims to support elementary aged children in building language who may have disabilities including Dyslexia and/or language delays or impairments. Being able to converse with peers is the foundation for developing meaningful relationships. This app can help children learn to communicate with their peers in a range of conversations. The patterns of conversations in the app are presented visually, however the visual and written formats can be used by students off all ages up to adult life with difficulties in communicating.

**How does the app meet the National Disability Standards?** This app aligns with the National Disability Standard; Participation and Inclusion. Promoting community connection, through learning appropriate skills in how to ask questions, introduce themselves, and make observations and changing the conversation subject.

**How the app changes pedagogy (SAMR)?** This app is a pedagogy enhancement in learning specific language skills by means of modification to improve creativity. For instance, the app assists children in offering pre-recorded visual and audio real-life like conversations, supporting children in recognising and mastering the flow of conversation. Students can also individualise the app by using their own personalised images in the conversations to ensure learning and transfer of skills in to different types of interactions, as well as environments. Additionally, being able to save the conversations and availability to use them in other technological applications is a highly effective tool for teacher pedagogy.

**How the app encourages person centred planning?** This app encourages a person-centred approach by focusing on social inclusion of children with language delays or impairments. Through a
means of creative support and valuable teaching tools to converse with peers in different social settings.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** This app promotes communication, community and collaboration, improving language and academic activities. This app supports children in the acquisition of appropriate communication skills and a means to practice conversing with peers in a more engaging and meaningful way.

**Evidence from the literature that the app is capable of the claims made:** Conversation Builder has the potential to engage children in learning appropriate conversation skills and encourages confidence and independence. This app will not only increase opportunities to children to communicate effectively, but also reduce the barriers of social inclusion and participation, associated with communication difficulties (Vance, Clegg, Hynan, Murray, and Goldbart, 2014). Ganz, Earles-Vollrath, Heath, Parker, Rispoli and Duran, (2012) found speech-generating devices that provide prompts and cues are helpful for students with learning disabilities as they encourage communication. (Jackson, Cavenagh, and Clibbens, 2014) further acknowledged that individuals with learning disabilities have difficulties with communicating peers due to delays in communication and understanding. Communication Builder is can assist student in communicating and conversing with their peers in multiple ways including orally, visually, graphically or through textual presentation.

**General Comments:** This app provides children with the essential tools to learn appropriate skills in conversing appropriately with their peers through how to ask questions, introduce themselves, make observations and changing the conversation subject. This app has the potential to improve the quality of life for children with language or communication impairments. Furthermore, this provides valuable skills for children to express their own feelings and engage in meaningful conversations with their peers who may have common interests.
Access 4000

Operating System: iOS, Android

Location: iTunes and App store, Google play

Cost: free

Description: Access 4000 provides disability access information, using map-based technology, for various venues and locations in Brisbane and the surrounding regions. The app provides information on which locations have wheelchair access, disabled toilets, disabled parking, hearing induction loops, support for low vision or blindness, automated doors, baby changing facilities, lifts and interpreter services. Each site listed includes a picture of the venue/location, contact details, a link to GPS map to navigate to the location, opening hours and accessibility features. Users can filter their searches by venue name, category or accessibility features. The sites include pools, museums, libraries, shopping locations, cinemas, transport sites and many other categories. It is an interactive app where all users can contribute information on accessibility features to new unlisted locations/venues.

Alignment with the UDL guideline: Access 4000 aligns with all three principles (CAST, 2011); it provides information by way of illustrating through multiple media, in that it presents a map, images and icons to represent the different locations and the different accessibility features and has text to explain the icons (checkpoint 2.5). It provides access to tools and assistive technologies which will assist a person with disabilities to navigate their environment more effectively (checkpoint 4.2), and the app optimises individual choice and autonomy as it provides multiple options in regard to the locations but also which disability access feature is relevant for the individual (checkpoint 7.1).

Curriculum area: Access 4000 would be under the curriculum area of independent living skills in exploring recreation and leisure and community access, as it assists individuals to navigate their environment specific to their needs and assists them to utilise assistive technology, which is aimed at enhancing their participation in their communities (Hume Region Special Schools’ Curriculum, 2009). The app would be used by any person from aged 12 and up who is seeking out accessibility information for themselves or someone they support. The app also includes the feature of baby changing rooms, so parents of small children would be interested in such information.

How does the app meet the National Disability Standards? Access 4000 is aimed at enabling people with disabilities and their carers to have access to public locations and to promote participation and minimise the barriers to inclusion in the community (Standard 2) (Department of Social Services, 2013). Carers Link, a disability support service in Brisbane that launched the app, encourages users of the app to provide feedback on locations that provide good accessibility for people with disabilities. This is in line with Standard 4 which relates to a process of continuous improvement of the information (Department of Social Services, 2013).
How the app changes pedagogy (SAMR)? Information on accessibility features to venues and locations is generally available at a venue or on a website, whereas Access 4000 brings together accessibility information on a huge range of locations in Brisbane and surrounds into one application on a mobile device. This allows people with disabilities and their carers to make informed choices about locations they can access. This app would represent a modification of gathering information about access to locations in the community (Puentendura, 2013).

How the app encourages person centred planning? Access 4000 is person centred with respect to several essential elements of person centred practice. The app encourages social inclusion and participation in the community for people with disabilities and their families/carers as they have increased information about access to venues and locations. The app is addressing the issue of structural barriers at venues (DADHC, 2009). Carer Link who are responsible for the app have encouraged users to provide feedback on further accessibility issues at locations, thus having an impact on businesses and government to reduce such barriers. The app has a range of accessibility features, so it includes people with varying disabilities.

What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)? Access 4000 allows for connectivity in that a user can find out about information on accessibility features of a wide range of venues and locations. It also represents community in that the app is promoting people with disabilities to get out in the community by knowing how they can access various sites. It enables collaboration and curation as the app can be updated with new information on accessibility features from users, and then it stores and retains the relevant information (Carey, 2013).

Evidence from the literature that the app is capable of the claims made: Whilst the Access 4000 app can document what places are currently accessible to people with disabilities, which is extremely helpful, the issue of changes to public places becoming more accessible is a complex issue (Darcy and Taylor, 2009). There are a few studies where people with disabilities have utilised apps to navigate locations based on accessibility (Comai et al., 2015; Auger et al., 2014), and the issue of how feedback from the users is incorporated into a continuous improvement of the app was important.

General Comments: This is reportedly one of the first apps developed in Australia providing disability accessibility information, although there have been web sites that provide similar information, e.g. You’re Welcome-Access WA (n.d.) (http://www.accesswa.com.au/) and Sydney for All (n.d.) (http://www.sydneyforall.com/).
Out and About

Operating System: iOS, Android
Location: iTunes and App store, Google play
Cost: free

Description: Out and About provides information on accessibility features of venues and locations throughout metropolitan Melbourne and major regional towns in Victoria. The user filters the criteria by selecting their location, distance, and accessibility features relevant to them. The accessibility features include ambulant, wheelchair user, high support needs, accessible toilets, handrails, hoist, change tables, hearing impaired, vision impaired, accepts companion card, accessible parking, and near public transport. Each venue page has useful information on the location, further accessibility details and criteria, a map with a drop pin, which takes you to Google maps and a linked virtual view of the location, and a review option. A help option explains the accessibility criteria, how the app works, information about Villa Maria, the service provider who has designed the app, and a feedback section.

Alignment with the UDL guideline: Out and About aligns with all three principles (CAST, 2011); it provides information using multiple media, in that it presents a virtual map and icons to represent the different accessibility features (checkpoint 2.5). It provides access to tools and assistive technologies which will assist a person with disabilities to navigate their environment more effectively (checkpoint 4.2), and the app fosters collaboration and community by way of the feedback and review options and the option to share information directly with other users (checkpoint 8.3).

Curriculum area: Out and About would be under the curriculum area of independent living skills in exploring recreation and leisure and community access, as it assists individuals to navigate their environment specific to their needs and assists them to utilise assistive technology which is aimed at enhancing their participation in their communities (Hume Region Special Schools’ Curriculum, 2009). Any person from aged 12 and up and or carers who need accessibility information on various locations would use the app. The app also includes the feature of changing rooms, so parents of small children would be interested in such information.

How does the app meet the National Disability Standards? Out and About is aimed at enabling people with disabilities and their carers to be able to have access to public locations and to minimise the barriers to inclusion in the community (Standard 21 Department of Social Services, 2013). Villa Maria, a disability support service in Melbourne, which launched the app, encourages users of the app to provide feedback and reviews on various locations that provide good accessibility for people with disabilities. This is in line with Standard 4 that relates to a process of continuous improvement of the information (Department of Social Services, 2013).

How the app changes pedagogy (SAMR)? The app brings together accessibility information on a huge range of locations in Melbourne and Victoria, into one application on a mobile device. This allows people with disabilities and their carers to make informed choices about locations they
can access. It also provides a link to a virtual map of the location so that users can see what the building looks like inside and out. Out and About would represent a modification of gathering information about access to locations in the community (Puentendura, 2013).

**How the app encourages person centred planning?** Out and About encourages social inclusion and participation in the community for people with disabilities and their families/carers as they have increased information about access to venues and locations. The app is addressing the issue of structural barriers at venues (DADHC, 2009). Villa Maria who are responsible for the app have encouraged users to provide feedback and reviews on further accessibility issues at locations, thus aiming to have an impact on businesses and government to reduce such barriers. The app has a range of accessibility features so includes people with varying disabilities.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Out and About allows for connectivity in that a user can find out about information on accessibility features of a wide range of venues and locations. It also represents community in that the app is promoting people with disabilities to get out in the community by knowing how they can access various sites. It enables collaboration and curation as the app can be updated with new information on accessibility features from users, and then it stores and retains the relevant information (Carey, 2013).

**Evidence from the literature that the app is capable of the claims made:** Whilst Out and About can document what places are currently accessible to people with disabilities, the issue of changes to public places becoming more accessible is a complex issue (Darcy and Taylor, 2009). The Disability Discrimination Act 1992 (Australia) provides a legislative framework for people with disabilities being able to access public places. There are a few studies where people with disabilities have utilised apps to navigate locations based on accessibility (Comai et al., 2015; Auger et al., 2014), and these studies concluded that the information on the apps needed to be current and have useful and specific feedback about all aspects of accessibility to the various places. This is most likely dependant on feedback from users who update the content.

**General Comments:** Villa Maria, who developed Out and About, are a not for profit organisation that provides services to people with disabilities and their families, based in Victoria. The app was developed to help their clients find venues and events that are accessible to people with disabilities, as they recognised the difficulties that people with disabilities face in accessing venues and events.
Reviewer: Louise Kaye-Smith  

Participation - App 28

Equip Myself

Operating System: iOS, Android

Location: iTunes and App store, Google play

Cost: free

Description: Equip Myself has been developed by the Independent Living Centre Western Australia and provides information on a range of assistive technology (AT) products that will best assist individuals with disabilities. The app includes stories of individuals and their use of AT, a virtual world with capacity to explore the use of AT in the domains of work, leisure and sports, home and mobility. For the category of participation in community activities, this app is mostly useful with respect to Leisure and Sports. Various AT options are visually displayed, and where an item is clicked on, there is more detailed information provided and a link to the National Equipment Database (NED), which displays a bigger range of related AT products, the costs of the item, and suppliers of the AT. In Leisure and Sports the type of areas for AT products include: painting, fishing, audible balls, wheelchair conversion kits, speech generating devices and mobile devices.

Alignment with the UDL guideline: Equip Myself aligns with all three learning principles (CAST, 2011): it provides multiple means of representation in that the presentation of the information can be altered for hearing impaired and visually impaired people, and it utilises multiple media in the way of stories and virtual interfaces (checkpoint 1 and 2.5). The app optimises access to tools and assistive technologies and links the user to a service that will assist in understanding the use and range of AT (checkpoint 4.2). The app provides for engagement as depending on the area of AT needed, the user can navigate to the particular AT that is most relevant to them (checkpoint 7.2)

Curriculum area: Equip Myself covers a diverse range of areas where AT is utilised, including independent living skills in recreation and leisure (Hume Region Special Schools’ Curriculum, 2009). It is relevant to all ages, but adults would be the main users as it potentially leads to purchases of AT. The app serves to increase knowledge about the huge range of AT, how it is used and how a person might find and purchase such items.

How does the app meet the National Disability Standards? Equip Myself is primarily meeting Standard 5, which is that it is providing accessible information about a broad range of AT options to potential customers (Department of Social Services, 2013). The information is available to anyone using the app and makes links to local independent living centres to assist the person with any enquiries about their AT needs. The app is also encouraging greater participation and inclusion (Standard 2) through the increased use of appropriate AT to assist people with disabilities to pursue individual goals and activities (Department of Social Services, 2013).

How the app changes pedagogy (SAMR)? Equip Myself provides an extensive list of AT options (11,000 items on the data base) for people with disabilities, and it provides this information in a very accessible format. It links to independent living centres in each state and provides costs of the
various items. This app would represent an augmentation for people exploring their individual AT options (Puentendura, 2013).

**How the app encourages person centred planning?** Equip Myself is person centred in that it is supporting people with information that is specific to their needs in AT (DADHC, 2009). The user can choose what areas they are interested in exploring and then follow through with the links as to how they can source the AT product. It is user driven the process.

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Equip Myself is primarily concerned with curation (Carey, 2013), that is providing an extensive database on AT products. The app allows people to share information about AT with other users, so it also incorporates collaboration, that is sharing information about AT (Carey, 2013).

**Evidence from the literature that the app is capable of the claims made:** Accessing assistive technology is a complex process, and Harniss, Samant Raja and Matter (2015) describe this process as part of an AT service delivery “ecosystem” made up of the technology, social, financial, governmental, private business and health care systems and the professionals involved at all these levels. The ecosystem also includes the people who use the AT. Vines, Wright, Silver, Winchcombe and Olivier (2015) point out that there is difficulty experienced by people accessing information about the range and choices of AT. They found that people want to become informed about the choices and are looking for reliable sources of information. They also suggested that personal stories of other users of AT can be helpful, in that people compare their situation with those stories and uses of AT. They also point out that, “any peer to peer service must integrate online content with signposts to locations where gadgets and technology can be touched, seen and tested” (Vines et al., 2015, p11). Equip Myself assists informed decision making from a reliable source, i.e. Independent Living Centres, provides social stories, and provides information on where the devices can be looked at and tried.

**General Comments:** Equip Myself would be useful for any disability support person and educator to be able to consult an extensive list of AT devices, when exploring a range of activities to engage with. It would be a valuable tool when searching up various AT devices, specifications and details where and how to purchase such items.
OpenAccess Tours

**Operating System:** iOS, Android

**Location:** iTunes and App store, Google play store

**Cost:** free

**Description:** OpenAccess Tours provides information on cultural locations, including museums and art galleries, and presents the information in various formats, including Auslan, Audio captions, audio description, scrolling text and different languages. The app can be used at about 25 participating venues in Australia, including the National Gallery of Australia, Queensland Gallery of Modern Art, Werribee Zoo and the Adelaide Oval, to name a few. The user can select their preferred communication format, and then there are 3 options to access the items in the display/exhibition, by entering a code, QR code or going to the nearby option, which will list the displays closest to the user.

**Alignment with the UDL guideline:** OpenAccess Tours aligns mainly with providing multiple means of representation (CAST, 2011), as the app provides the information in an accessible format for hearing and visually impaired people (checkpoint 1.2 and 1.3). The app also aligns with providing options for recruiting interest (checkpoint 7.1 and 7.2). A person interested in art and culture is able to access information in a format such as Auslan, audio or captioning, so they can appreciate the particular displays and exhibitions.

**Curriculum area:** OpenAccess Tours relates to developing independent living skills, specifically community access, and visiting cultural venues in the community (Hume Region Special Schools’ Curriculum, 2009). It also relates to art and cultural appreciation, as the app includes guides and explanations of exhibits in several galleries and museums. The app could be utilised by people with a hearing impairment from children to adults.

**How does the app meet the National Disability Standards?** OpenAccess Tours promotes access to information about displays and exhibitions at many cultural venues and reduces the barrier for hearing impaired people to be able to access that information (Standard 5) (Department of Social Services, 2013). This promotes people with hearing impairments to be included and be able to participate in activities in their communities, such as attending an art gallery or exhibition (Standard 2) (Department of Social Services, 2013).

**How the app changes pedagogy (SAMR)?** Generally, visits to an exhibition or gallery/museum can include speaking tours, however for a hearing-impaired person, they cannot access the information in this format. Auslan interpreters are generally not available at museums and galleries, although some galleries such as National Gallery of Victoria (NGV) and National Gallery of Australia (NGA) have specific Auslan tours (National Galley of Victoria, n.d; National Gallery of Australia, n.d.). OpenAccess Tours represents an enhancement to an interpreter service and improves the access to cultural information to people with a hearing impairment. It has some functional improvements, in that it allows for a few options in accessibility features, so several
people may benefit from using the app, so the technology represents an augmentation (Puentendura, 2013).

**How the app encourages person centred planning?** OpenAccess Tours is promoting people with hearing impairments to be included in experiencing the enjoyment of attending art and cultural places and learning about the exhibits and significant features. In providing Auslan and audio caption interpreting, the app tailors the information to a person with a hearing impairment. It promotes social inclusion and reduces barriers to accessing the information about the venues and the exhibits (DADHC, 2009).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** OpenAccess Tours is mainly about enabling community, in that a person with a hearing impairment can access the same information in an accessible format, when at a gallery or museum, which may occur with friends or family (Carey, 2013). It also shows some creativity in presenting the information on exhibits and displays using Auslan interpretation.

**Evidence from the literature that the app is capable of the claims made:** Museums and galleries under Article 30 CRPD (United Nations, 2007) need to be accessible to people with disabilities. Museums and galleries have been utilising digital and multimedia technology for patrons to access information for over ten years (Filippini-Fantoni and Bowen, 2008). Lisney, Bowen, Hearn and Zedda (2013) report on their experiences from the perspective of a person with a disability attending a museum and gallery. Various accessibility issues are discussed, and examples of where assistive technology has been utilised in the museum/gallery. However, there were no apps described in this article that provided Auslan interpretations, so OpenAccess Tours app would be innovative. Lisney et al. (2013) conclude that there are opportunities for museums to become even more accessible through technological means.

**General Comments:** Conexu is the organisation that has developed the OpenAccess Tours app and they have developed other apps: OpenAccess Alerts, OpenAccess Excursions, OpenAccess Face to Face and OpenAccess Chat. Their mission is to use technology to bridge the communication divide between hard of hearing, Deaf or speech impaired Australians, and the broader community (http://www.conexu.com.au/).
Model Me Going Places 2

**Operating System:** IOS

**Location:** iTunes and App store

**Cost:** free

**Description:** Model Me Going Places 2 is a set of videos featuring children involved in activities in the community. The purpose is to provide video modelling for children with Autism Spectrum Disorder (ASD) to assist with their social and communication skills in locations and situations that might be challenging for them. There is a series of six settings to choose from, including the hairdresser, playground, mall, grocery store, doctor and restaurant, where a child narrates their activities, with a music background, and demonstrates appropriate behaviour.

**Alignment with the UDL guideline:** Model Me Going Places 2 aligns mainly with providing multiple means of representation (CAST, 2011), through illustration of the information through multiple media (checkpoint 2.5). It presents the information in video, auditory and text, icons for the categories, and with a music background. It also aligns with providing multiple means of engagement in that the videos involve children doing everyday things that would be of interest to them (checkpoint 7.2)

**Curriculum area:** Model Me Going Places 2 relates to developing independent living skills and appropriate social and communication skills in the community (Hume Region Special Schools’ Curriculum, 2009). The app is addressing the social, communication and behavioural challenges for a child aged 2-8 with ASD in various settings in the community. The method is by using video modelling in the app.

**How does the app meet the National Disability Standards?** Model Me Going Places 2 is providing a tool to assist children with ASD to develop appropriate behaviours in community settings. It is encouraging positive outcomes for the child, so that they can cope better in challenging environments (Standard 3) (Department of Social Services, 2013).

**How the app changes pedagogy (SAMR)?** Model Me Going Places 2 delivers a series of videos, for a child with ASD, moulding appropriate behaviour in social scenarios. Video modelling as an intervention with children with ASD would generally involve a therapist/teacher showing a child a video with the target behaviour being performed, followed by opportunities in which the child can perform the target behaviour they have just observed (Keenan and Nikopoulos, 2006). The app represents a substitution for this tool of video modelling. There is a form of functional improvement in that there is a text display of the dialogue and the addition of music is designed to make the videos appealing to children, so it could be seen as augmentative (Puentendura, 2013).

**How the app encourages person centred planning?** Model Me Going Places 2 is person centred in that it provides a tool and technique such as video modelling to assist children with ASD to be able to participate in their community. It is providing a resource for parents to assist their
children who may have challenging behaviours in public and community settings. The technique of video modelling is particularly tailored to children with ASD (DADHC, 2009).

**What area of a 21st Century approach to Teaching/training does the app encourage (5Cs)?** Model Me Going Places 2 is mainly about creativity, in that the developers of the app have compiled several scenarios for video modelling techniques and packaged these into an app. A teacher or a parent would find this app helpful when helping a child with ASD to be able to manage their behaviour more effectively when going out in the community and engaging in social activities (Carey, 2013).

**Evidence from the literature that the app is capable of the claims made:** Bellini and Akullian (2007) in their study report that video modelling is an effective intervention strategy for addressing social communication skills, functional skills and behavioural functioning in children with ASD. Model Me Going Places 2 app provides the basis of video modelling, but it does not incorporate the further stages of the intervention, which would be with an instructor prompting the desired behaviour and providing feedback to the child demonstrating the behaviour (Shukla-Mehta, Miller, and Callahan, 2010). The app would be useful to therapists/educators who are working with a child with ASD, in it provides several scenarios modelling appropriate behaviour in a range of settings. A parent may also find the app useful in a natural environment, by assisting the child when they go out in the community.

**General Comments:** Model Me Going Places 2 would be useful for developmental educators and teachers to form the basis of video modelling techniques. Model Me Kids is an American organisation that produces teaching tools for children with ASD. They have developed other apps for the age group 2-13 such as Model Me Faces and Emotions, Model Me Airplane, Time for School, Time for a Playdate, I Can Do It, and Model Me Yoga. They also have a further range of Model Me apps for adolescents (http://www.modelmekids.com/).
Conclusion and Recommendations

It is widely believed that engagement and participation in the community enhances a person’s feelings of wellbeing and creates stronger community connectedness (Simplican, Leader, Kosciulek and Leahy, 2015). Community engagement and participation is just as important for people with disabilities as it is for people without disabilities. Unfortunately, people with disabilities often face barriers to participation due to physical, structural or environmental issues, which restricts their access to the community (Stewart and Gissel, 2012).

The advancement of everyday technologies is an effective tool in promoting participation in the community for people with disabilities and we now see people using devices such as mobile phones and iPads to overcome barriers and support increased community engagement and participation (Hallgren et al., 2011). Lancioni and Singh (2014) explain that the development of technology, including mobile devices, computers, and remote controls, provide countless opportunities for people with disabilities to become more active in their daily lives which increases people’s opportunities for independence, choice and control. Ventola (2014) tells us that specific technological applications such as software programs designed to be used on mobile devices and computers are a modern example of the use of technology to support independence and participation.

The apps reviewed challenge the barriers to participation for people with disabilities and support a person’s independence, choice and control. These include apps to support independent access to community buildings and amenities, apps to assist people to navigate within their community, apps to support the independent acquisition of information, apps to address safety in the community, apps to optimize health and wellbeing and apps to support the social and communication skills necessary for successful community participation.

The apps also support educators and students by providing the tools for students to successfully engage in the curriculum content therefore allowing for equal participation and inclusion in the classroom environment. When choosing the apps, universal design for learning has been considered to accommodate for individual learning differences. This means that users have a choice of apps that allow for multiple means of representation, action and expression and engagement. In choosing these apps, it is hoped that, they will be useful tools that people with a disability can use to support equal access to the same opportunities for participation as people without disabilities already have.
References


Useful Links

Access 4000

AccessNow

Amedia Live Reader

Assistive Technology Australia
http://at-aust.org/search

Australian Public Toilets

ClaroCom Pro

Community Success

Conversation Builder

Blindsquare

Braci Smart Ear
http://www.braci.co/

Equip Myself

I Get...Going to the Hospital

Lazarillo Accessible GPS

LifeTiles Pro
https://itunes.apple.com/au/app/lifetiles-pro/id1183436532

Look at Me  

MedicineWise: Manage Medicine  

MightySubs Premium  

Model Me Going Places 2 2  
http://www.modelmekids.com/

My Health Guide  

My Safety Companion  

NVDA Screen Reader  
https://www.nvaccess.org/

OpenAccess Tours  

Out and About  

RogerVoice Caption Calls  
https://rogervoice.com/en/home  

Seeing AI  

Simply Sayin’  

Stepping Stones  

Tap See  
uSound (Hearing Assistant)

WhatsApp Messenger
https://whatsapp-messenger.en.uptodown.com/android

Wheelmap
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