Using iPads with Students with Intellectual Disabilities

Definition of an Intellectual Disability

‘Intellectual disability is a broad concept encompassing various intellectual deficits, including mental retardation (MR), deficits too mild to properly qualify as MR, various conditions such as specific learning disability, and problems acquired later in life through acquired brain injuries or neurodegenerative diseases like dementia. Intellectual disabilities may appear at any age.’ [Source: http://en.wikipedia.org/wiki/Intellectual_disability]

Intellectual disability is a disability characterized by significant limitations both in intellectual functioning and in adaptive behaviour, which covers many everyday social and practical skills. This disability usually originates before the age of 18. Intellectual functioning, also called intelligence, refers to general mental capacity, such as learning, reasoning, problem solving, and so on. One criterion to measure intellectual functioning is an IQ test. Generally, an IQ test score of around 70 or as high as 75 indicates a limitation in intellectual functioning.

Standardized tests can also determine limitations in adaptive behaviour, which comprises three skill types:

- Conceptual skills—language and literacy; money, time, and number concepts; and self-direction
- Social skills—interpersonal skills, social responsibility, self-esteem, gullibility, naïveté (i.e. lack of wariness), social problem solving and the ability to follow rules/obey laws and to avoid being victimized
- Practical skills—activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone

‘On the basis of such many-sided evaluations, professionals can determine whether an individual has an intellectual disability and can tailor a support plan for each individual.’ [Source: http://www.aaidd.org/content_100.cfm?navID=21]

It is now common practice to have Individual Learning Plans (ILPs) written for every student in a special school, classroom or in a mainstream educational setting. A team of educators, teaching support personnel and therapists, together with valuable insights and input from parents, advocates and guardians, develop an educational overview with goals set for each area of need.

Part of this plan should involve the integration and daily use of technologies, including ICTs. It is an ever-expanding area and does not only include computers, but a range of digital devices, tablets, entertainment systems (Wii, Xbox, PlayStations), cameras, audio and video recorders, computer based toys and games and interfaces as well as modified mice/keyboards, Touch Screens and switches.

Computer software and devices (such as touch screens and interactive whiteboards and tables) have been used very successfully over the past twenty years in many school and pre-school settings. The emerging technology of choice for many parents and schools are the portable, hand held tablets, with the iPad leading the way with thousands of generic and tailor made Apps. They cater to almost every facet of learning, therapy, communication and engagement. Specialised areas such as AAC (Augmentative and Alternative Communication) are well catered for on the merging tablets, most particularly the iPad. AAC is a set of tools and strategies that help students with communication impairments with opportunities to express themselves; and understand language more fully. There are many reasons young children and even adults have trouble communicating.
Some students have motor impairments and the difficulty to communicate is primarily one of motor access to words, sentences, and conversation. Others have specific communication and language learning problems and AAC. Visual language helps them find and functionally use words, understanding, and expression. Apps can be elementary in design and purpose or fully fledged communication systems (e.g. Proloquo2Go).

AAC involves a set of tools and strategies. Therefore an AAC assessment is required to determine those tools and strategies that will maximise opportunities to help with the ultimate goal of AAC including functional communication, self advocacy and independence.

**Meeting Different Learning Needs**

Learning activities need to be broken down into small, tightly focused steps for students with ID (Intellectual Disabilities). The provision of a multisensory approach to learning is often the best strategy, involving and promoting multiple intelligences. Many young children use and employ different strategies. Often the traditional teaching pedagogy doesn't apply or work well with these students. Children with ID need to revisit the same learning objectives repeatedly through a variety of activities that maintain their interest and motivation.

Engagement is the key and with children or clients with short attention spans, the catalyst can be technology as it invites and promotes participation and learning. Technology can range from no-tech through to hi-tech devices and equipment. A range of technologies is required to stimulate the user to elicit responses and to invite exploration and experimentation using sound, music, colour, movement and visual media.

Hand held Apple and Android based devices are becoming increasingly prevalent in special education and in the mainstream classroom. A large and diverse range of portable digital tools are now available. Apps are available at little or no cost with many titles catering to younger students.

They are perceived and readily accepted as being mainstream technology, without any associated stigma. Students have fun using them as they are intuitive and little training is required. They are almost immediately accessible to most students (with the possible exception of students who have physical difficulties). More and more Apps are being released to meet all areas of need. The application to students with different access, communication and especially very specific learning styles is the important factor, as well as the IT support and acceptance in schools by educators.

The iPad Apps that are now available vary in cost and quality. Apps start at a multisensory level, through to cause and effect games and activities through to manipulation of objects by gesture, hand or voice. Switch Apps are starting to appear together with others that cater more specifically to students with physical impairments and disabilities.

Hundreds of Apps offer entry level exposure to early learning, concept and skill development. Number, colour shape and alphabet based Apps are commonplace. Apps provide activities in tracing and colouring-in letters and numbers, to simple phonics and spelling games. Games range from very elementary and simple activities to quite extensive suites of lessons that graduate in complexity and skill development. Apps are available for many early concepts (i.e. colour, shape, animals, pets, familiar objects etc.) through to letter, number and word recognition/matching, word to picture matching and other whole word activities. Numerous memory games range from 2 x 2 grid matches up to 16 cells or more. Words, colours, animals, vehicles, child friendly drawings, symbols, photos and images are usually involved and are normally theme based.

Simple number recognition, counting, grouping, matching, ordering and the four operations are quite common. They range in usefulness with some free Apps being quite boring and static. In the near future, App developers will design more comprehensive sets of activities that relate to every day experiences. These will be worth investigating, acquiring and using as the initial offerings were quite tedious and clumsily designed.
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Gerry Kennedy IT Consultancy © May 2012 E: specmelb@bigpond.net.au M: 0411 569 840 P: 03 9894 4826

eBooks Interactive and Talking Books

A range of eBooks are available, starting from passive reading with text and illustrations. Talking books offer an extra dimension incorporating text to speech or incorporate narrators and actors voices. Animated and interactive books appeal to children for different reasons, mostly as they offer active participation. Many of the higher quality books include colouring-in activities, tracing, manipulation of objects and characters as well as photographs.

The eBooks that can record of the child’s or educator’s/parent’s voice reading the story, commenting on the plot or images as well as video recording of the session, provide scope for so much more. As the iPad (and competing Android and Windows 7/ and soon to be Windows 8 tablets) have inbuilt microphones and cameras (forwards and backwards facing) these developers have included important tools to explore different aspects of learning.

Making the child the centre of the story, and an active participant in the reading, telling or retelling of the story personalizes the experience. Many students with ID see the world from mainly one perspective – their own. They are the centre of their own universe and by including them in the activity; they immerse themselves quite willingly, eliciting many positive outcomes and responses that normally might not occur using other systems or methods.

Critical Analysis

The graphics and animations, and often the rewards can sometimes overpower and dilute potential learning outcomes. The correct answer should not represent the only goal, as it is rewarded in some software programs and Apps.

It is investigating the procedure and the processes by which the student resolved the question or puzzle. As the tablets have so many wonderful attributes and capacities such as voice, temperature and movement input as well as gesture and multi point touch screen capabilities, the interaction between the child and the content can be made more dynamic. It can be totally interactive on so many different levels. Children can be independent users and gain confidence and develop abilities at their own pace.

Apps that just cater to passive response have their place. The App developers who maximise the potential of these tablets will be rewarded with sales and exposure as they will harness the real power of this emerging technology.

Students with ID can be marginalised due their incapacity to adequately or accurately communicate their needs and articulate their desires. With these emerging devices such as iPod Touches and tablets, they can interact with others in meaningful and purposeful ways. They can explore our world and theirs, learning with technology that doesn’t label nor does it discriminate.

The mainstream appeal of the iPad and tablets affords them equity alongside peers and siblings. The specific Apps for communication, self care, early learning and leisure can work alongside Mum’s and Dad’s. They have equal opportunity to engage in their own pathway to being a contributor to society and progress to a brighter and more fulfilling future.

Inbuilt Features and Functions

Staff can take a photo using a digital camera or movie camera. The iPads have inbuilt cameras (backwards and forwards facing) so that educators, therapists and parents can immediately capture moments and important events in a child’s day. These can be stored, printed and shared as well as used in many other drawing, painting, photo manipulation, story making and multi-media based Apps. Many Apps have a camera or video capture function that enables greater interaction with the user and the content of the App.

As the iPad has iTunes (and many other music Apps) the device can be used effectively for playing back sounds, sound effects, music and narration. Apps that offer ambient sounds, soothing music and relaxation music cater directly to children who require time out or an
opportunity to be diverted or redirected. Popular music can be played in class or at playtime.
Classroom projects created in Garage Band or other music Apps can cater to students with musical
flair and be shared with classmates. Keyboards (representing pianos, organs) as well as guitars and
drum kits invite children to play instruments and explore their sound qualities and/or compose
music.

Apps that connect to radio stations and music platforms provide avenues for older students to
recreate and work independently, sourcing and locating songs and instrumentals that appeal to
them. This offers the iPad as an age appropriate and socially acceptable tool. Students are more
likely to make their own decisions about what genre they enjoy and how to locate tracks and albums
on the iTunes store as well as other music sites.

The iPad has built in text to speech (TTS) so any text that is typed, copied or pasted from internet sites can be voiced immediately.
Students enjoy writing simple words and sentences, with the device voicing their attempts in notepad and writing tools. They can
access information from any web resource and navigate more confidently as they can listen to the text on screen in their browser.
As voice and hand writing recognition is available in many Apps, the more confident writers and speakers can experiment with these
inputs, bypassing traditional typing that can often be difficult, frustrating or impossible.

Games and educational Apps that involve touch, multiple touching and gestures as well as physical manipulation of the iPad including
rolling, tilting, shaking and forwards and sideways movement, help children learn in different ways. This physical manipulation helps
develop other skills and understandings within activities that are very engaging.

Links to Apps – articles, Resources and Reviews

- http://a4cwsn.com/
- http://www.injini.net/
- http://www.snapps4kids.com/find-an-app/
- http://appsforaas.net/applist
- http://appsforaas.net/applist?field_devtext_value=&items_per_page=All
- http://appsforaas.net/content/aac-apps-android-0 (AAC Apps for Android devices)
- http://www.mayer-johnson.co.uk/apps/
- http://www.geekslip.com/
- http://www.callscotland.org.uk/Resources/Apps/
- http://www.theappacademy.org/applist.html
A Selection of Useful Apps

ASD

- Autism; Autismx; Autism Help; Autism Help!; Autism iHelp; Autism Lite; Zone in on Autism; Autism iHelp – Food; Autism iHelp – Play; Autism Assessment

Early Years/Concepts

- Itsy Bitsy HD; Old Mac HD; WordWagon HD; Bus HD; Fish HD; Underwear; Seasons; OldMac; My Scene; Build it Up; Families 1; Make a Monster; Charlie Bear; BabyBus; Toca Hair Salon; Music Sparkle; Phone4Kids; BalloonDarts; Kids Can Drive; Bugs and Buttons; Achieve (Sesame Street); Tap Fish

Cause and Effect

- Bubbles; Pocket Pond; Bubbles – Free; Puppet Show; Toddler Piano; Xylo Kid; Reacticles Magic; Twinkle Star; Somantics; City Vehicles

Education ABCs

- ABC a Go-Go; ABC Song; ABC Animals; ABC Tracing; Paint Letters; ABC Lite – Pocket Phonics; ABC Touch; ABC Alphabets; Kids Learning; Magnetic ABC; ULearn ABC – Lite; Fun Rhyming; Sight

Shapes

- Shapez Match; TriZen; DTT Shapes; Slide & Spin; Timor Shapes

Words

- Word Magic; Letter Words Free; Sight Words; Word Spell; Animal Words; Articulation!; Word Wrap; Word Ball; Sight Words

Reading

- Fly Words; WhoCanRead; Shops; SeeTouchLearn; Letter School; Magnetic ABC

Writing

- Sentence Maker, AbiliPad; Click ‘n’ Talk;

Spelling

- A1Spelling App; Spelling Bug; Spell Animals; Year 1; Spelling Test; SBSpelling; My Spelling Test : Free; Spelling Notebook; Spelling with Cimo: Words – Lite; Spelling with Cimo : Sight Words – Lite

Phonics

- Phonics Genius; Phonics with Letter Lillies
Flash Cards

- Flash Cards; Baby Flash Cards

Children’s Books

- Humpty Dumpty; Barney The Dog; MeeGenius; Peter Rabbit; Fav Shoes; W&G #1; Farm Preview; Sesame Books; A Story B4 Bed

Talking Books

- Nighty Night!; The Rabbit and the Chocolate Carrot Cake; Toy Story; Bouncerella; Miss Spider UK; Zanny; Good Idea; Toucan

Maths & Numeracy

- Grasshopper; 123 Shape Up; Counting Bear; 1 2 3 Sheep; Dot 2 Dot – Numbers and Letters – Lite; Kids 123; Counting 123

Voice Apps

- TalkBox; Type n Talk; Tap to Talk; Voice Plus; Chippy Talk; iPuppet; Change Voice; Baby Bunny; Voices

Talking Apps

- Talking Tom; Talking Robbie; Talking Roby; Talking John; Talking Ben

Music and Dance

- Drum Kit; Instrument; CatPiano!; Autodance 3

Painting and Drawing

- Draw Some; Glow Draw; Green Splosh

Matching

- Match it Up 1; Match it Up 2; Match it Up 3
Quizzes

- Spicks Quiz; QI; Quizarium

OT – Fine Motor Skills

- Dexterity; iCanWrite; Glow Draw; Zubopp

Social Skills

- Functional HD; SpecialCare; Family; Flash Cards

Sleep

- Brian Alarm; Quick Sleep

Circus Activities

- Circus; Clown; Big Top Free; ClownBooth HD; iCircus

Verbalising

- Verbally; Talkapella

Puzzle Solving

- Trainyard; Puzzles4Kids; PuzzleBabies; Puzzles ‘n’ Colouring – Sea Life; Simon Says

Matching

- Amazing Match; Matches; MatchAnimals; Memory Matcher

Photography

- ColorSplash; PS Express; Pro HDR; Photo Booth; Incredibooth (take 4 photos and then manipulate); Clown Faces (add effects)

Christmas

- Hair Xmas; 123 Sticker; PianoMixmas; Xmas Tree; PigglyXmas HD; Christmas; Xmas Booth; Photo Cards; Elf Myself; Santa Cam; ArtyTree; Cookies

Other Useful Teaching Resources