Premier’s Sport and Tourism Youth Foundation Special Education Scholarship

Curriculum access for students with disabilities

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My goal was to examine current research in the United States of America (USA) in relation to evidence-based teaching practices in curriculum design and implementation. Within this field I wanted to examine the research that has been undertaken in the area of curriculum access for students with disabilities, and engage with professionals in schools who are associated with current research in light of the impending implementation of the new K-10 Australian curriculum.

The Melbourne Declaration of Educational Goals (2008) states: … all school sectors must: provide all students with access to high-quality schooling that is free from discrimination based on gender, language, sexual orientation, pregnancy, culture, ethnicity, religion, health or ***disability***, socioeconomic background or geographic location.” (p. 7). This statement is underpinned by the Disability Standards for Education (2005). Despite legislation, and key government policy directions, providing access to the general curriculum for students with disabilities continues to be a challenge for curriculum developers and educators. The Australian Curriculum, Assessment and Reporting Authority (ACARA), for example, has stated: “For a small percentage of students with special education needs, the curriculum content and achievement standards may not be accessible …” (2011, point 27). The need to promote and research access to the Australian curriculum is an important issue for students, educators, families, and society.

All students have a right to access the Australian curriculum, as per the Disability Standards for Education. Research into curriculum design, instructional design, and inclusive practices continues to work towards developing evidence-based approaches that promote access to the general curriculum for students with disabilities on the ‘same basis as’ their typically developing peers. Professor Diane Browder and her team at the University of North Carolina are the leading researchers in this area (see Browder, 2001; Browder & Spooner, 2011; Jimenez, Browder, Spooner, & DiBiase, 2012).

Professor Browder is a leading international researcher on academic instruction and assessment methods for students with significant developmental disabilities. Her work is changing expectations in the education arena for students with developmental disabilities, which have impacted practices and policies within the United States of America, and internationally.

Professor Browder’s research has been used in curriculum developments by ACARA. This work is informative and yet teachers in our schools are speaking loudly about their limited knowledge of how to cater for students with disabilities in their classroom. (O’Neill & Stephenson, 2012; Subban & Sharma, 2006; Westwood & Graham, 2003).

The implementation of the Australian curriculum provides a great opportunity to promote the delivery of quality education programs that promote access for all students. Educators need to rethink the way delivery and development of lessons occur, to ensure all students are being provided with meaningful learning experiences.

All students in the current Kindergarten-year 6 setting are required to access the mainstream curriculum. This will continue when the new Australian curriculum is implemented into all schools. It is imperative that all educators are provided with the skills and knowledge in current pedagogy and research, which will assist when adjusting the curriculum to tailor it to the individuals learning needs, which ultimately contribute to the improvement of learning outcomes of students. The Australian Government’s initiative *More Support for Students with Disabilities* is focused on ensuring that schools and teachers are more able to meet the learning needs of the student. Therefore, researching evidence-based teaching practices to assist students access the curriculum will also ensure Government initiatives are being prioritised.

Education plays a vital role in supporting students with additional learning needs or disability to support their long-term goals as they progress through the education system. It is important to be mindful that adjusting the curriculum is not limited to schools whose enrolment criteria is students with a diagnosed cognitive disability. Many of our schools from all educational sectors, have students enrolled who require additional support.

During my study tour I had the privilege to work at the University North Carolina, Greensboro (UNCG), the University of North Carolina, Charlotte (UNCC) and the University of Oregon, Eugene. I worked closely with researchers and had opportunities to visit local schools in both states to see much of their research and projects in action in the classroom.

Background

Legislation in the USA, IDEA (Individuals with Disabilities Education Improvement Act of 2004); NCLB (No Child Left Behind Act of 2002), mandated all students, including those with disability, be provided with access to the state standards with the use of evidence based instruction. Furthermore, everyone is to participate in statewide assessment, which will measure progress.

As a result of No Child Left Behind, 2002, much work has been done to define evidence-based practices. Tankersley et al. (2008) defines evidence-based practice as instructional strategies or education programs that are shown to produce positive student outcomes. Cook et al. (2008) suggests that an essential goal of Special Education to use instructional strategies that demonstrate an improvement in behavior outcomes as well as an increase in student learning over time. (Spooner, Knight, Browder & Smith, 2011)

University of North Carolina, Greensboro

Mathematics

Whilst at UNCG, I worked with Dr Bree Jimenez. Dr Jimenez showed me many programs and resources developed through research at the university.

“Teaching to Standards, Maths” is a research based Mathematics Curriculum that is designed to middle and high school students whose cognitive ability falls within the moderate to severe range. (Trela, K., Jimenez, B., & Browder, D. M. (Spring 2008). Teaching to the standards in Mathematics: A literacy-based approach for students with moderate and severe disabilities. Verona, WI: Attainment Company)

The lessons contained in the program are based on the principles of systematic instruction. Teachers are provided with scripted lessons. Lessons are both strategy and literacy based.

The program does not cover all standards, however, it provides a solid base with examples for educators of how to teach mathematical concepts to students with a cognitive disability.

The program focuses on applying evidence-based teaching practices that are research based to Mathematical concepts. The program also uses stories to allow students to make connections between the concepts being delivered, and their daily lives.

Connecting real life experiences to Mathematic content is vitally important for students with an intellectual disability. Bringing real life experiences to concepts taught in Mathematics can be achieved through the use of stories that relate to real life experiences that are familiar to the students.

Whilst using a literacy-based approach to solve Math problems, students also have opportunities to practice literacy skills. For example, they are identifying facts. If a teacher is reading aloud a story for a Math problem, the students are also practicing comprehension skills. (Browder, Trela & Jimenez, 2007)

A challenge faced by educators of students with cognitive disabilities is how to effectively deliver targeted content. Research on teaching Science to students with moderate to severe disabilities is limited. However, it does suggest that effective instruction should occur within a meaningful activity while providing feedback and systematic prompting. (Browder, Trela, Courtade, Jimenez, Knight & Flowers, 2012)

Current research in the area of Mathematics suggests that using a math problem story, task analysis of the problem solving steps and graphic organizers are a solid starting point for planning mathematical experiences. (Browder, Trela, Courtade, Jimenez, Knight & Flowers, 2012)

Literacy

The area of Literacy is one academic area that IDEA mandated to be taught using evidence-based practices. (Individuals with Disabilities Education Improvement Act (IDEA), 2004)

Young students typically sit on the floor whilst listening to a book being read. The book contains pictures and themes that are appropriate to their age group. Middle school students access books that contain less pictures, more mature themes, and less repetitive text. Books such as these can be adapted to become accessible, whilst still being age appropriate for students who have emergent literacy skills.

Therefore students in older grades have the opportunity to participate in grade appropriate and age appropriate texts, whilst still meeting their individual learning needs. (Browder, Trela & Jimenez, 2007)

In relation to curriculum in New South Wales, this procedure can still be applied to texts for students who may be working in a stage lower than their age peers.

Adapted books allow students with a disability the opportunity to participate in the general curriculum accessing titles in literature that are the same as their ‘typically developing peers’. Pictures, symbols and basic text, can be used to adapt the books to the needs of the student. Books may also be adapted in terms of how they are made. This may include placing paper clips on the side of pages to help students to turn pages. (General Curriculum Access Projects, UNCC)

School Visit- Johnson Street School – North Carolina

Johnson Street School is a public neighbourhood school. I spent the day in a ‘separate classroom’ that serves students with a significant intellectual disability. The class followed the ‘adapted curriculum’. Students in the class are also assessed on alternate achievement standards, based in the common core standards.

The visit enabled me to observe how the adapted curriculum functions within a school. I also had the opportunity to see how resources are incorporated into teaching. Adapted books were one of the main resources I saw as well as a Mathematics lesson that incorporated a story-based lesson.

Montgomery District County – Virginia

During my week at Greensboro, I travelled with Dr Jimenez to Virginia. We visited schools in the Montgomery District County. The two schools we visited (K-5) are both fully inclusive, meaning that there are students enrolled in the schools that have a significant intellectual disability, whose educational needs are served within the mainstream classroom.

This experience allowed me to have great dialogue with staff members of the schools and County Office about what best practice for students with a cognitive disability look like in a mainstream setting. One observation I made was the staff to student ratio. In some of classes I observed it was very high.

Professional Dialogue - UNCG

Whilst at the University of North Carolina, Greensboro I also had opportunities to meet with other Professors in the School of Education. During these meetings we discussed current issues in the area of Special Education including curriculum developments as well as programs offered to students enrolled at the University completing studies in Education.

The University of North Carolina – Charlotte

The University of North Carolina-Charlotte contains a research team that undertakes studies that focus on finding ways to teach academic content to students with significant cognitive disabilities which are linked to grade level content.

UNC Charlotte General Curriculum Projects’ purpose is to research and develop evidence-based practices for both teaching academic content as well as assessment, which are aligned to grade level standards.

I worked with many researchers including Dr Fred Spooner and Dr David Test, who discussed current research projects that are occurring in the centre. It was evident from my meetings with the researchers that evidence-based practices overwhelmingly provide students with an intellectual disability, positive learning outcomes. What was also of interest to me was the use of such practices in the areas of Literacy, Science and Mathematics. The skills learned in these areas all interrelate to assist skill development in other key learning areas.

I also met with researchers who were working on a variety of current projects. One project was the, [Centre on Secondary Education for Students with Autism Spectrum Disorder (CSESA](http://www.fpg.unc.edu/node/4831)). This particular project focuses on developing, adapting and studying a comprehensive school and community based education program for high school students on the autism spectrum. This particular project looks at components including Academics, Social Transition & Families and Personal Responsibility, & Self – Management. (UNCC, 2012)

IDEA states that students with a disability must be challenged to excel within the general curriculum and be prepared for success in their post school lives. The common standards provide educators with opportunities to improve access to academic content strands for students who have been diagnosed with a disability. (Introduction to the Common Core Standards June 2, 2010)

Of interest to me was the intensity of the research being undertaken at the University. North Carolina is producing amazing resources to support educators in implementing their curriculum. They are researching evidence-based practices and clearly making connections with these to content, particularly in the area of Literacy, Mathematics and Science.

Reading Instruction

Reading instruction has been a priority in education; however, the last decade has seen an increase with an emphasis on research-based strategies to promote individual success in reading.

The Early Literacy Skills Builder (ELSB) and Pathways to Literacy are two programs that have been developed at the University Of North Carolina, Charlotte.

The Early Literacy Skills Builder (ELSB) is a literacy program that incorporates systematic instruction to teach phonemic awareness and print awareness. The program allows students to work at their own pace. It also contains ongoing assessments to track student progress through the program. Teachers can also alter the script to accommodate the student’s needs. (Browder., D, Ahlgrim-Delzell., L, Flowers,. C, Spooner., F, Lee., A, & Hicks,. C, 2010)

The Early Literacy Skills Builder (ELSB) is based on the principles of Direct Instruction, and uses systematic instruction and contains scripted lessons to follow.

Pathways to Literacy, is also a research-based curriculum for students with significant developmental disability. The program also meets the needs of students who are non-verbal. Strategies to increase awareness and engagement in story reading are part of the program. (Lee., A, Mims., P, & Browder., D)

Whilst in Charlotte, I had the opportunity to visit schools in the Charlotte-Mecklenburg County that were implementing the Early Literacy Skills Builder (ELSB). What was of great interest was seeing how the program could be adapted to meet the individual needs of the students. This highlights its flexibility. The program was delivered via different modes- through the text (books) and also an interactive version using an interactive whiteboard.

Mathematics

It can be easy to focus Mathematical content to a functional curriculum for students with a disability. However, IDEA (2004) emphasised that students with a disability access the same curriculum as their typically developing peers.

The area of Mathematics can challenge students with disabilities in a variety of ways including and not limited to:

* + Communication – reading problems, writing and comprehending
	+ Strategy deficiencies
	+ Lack of past interest

We looked at barriers associated with Mathematics instruction. UNCC has identified the following:

* + We need to focus on the big ideas
	+ Use graphic organisers and concrete manipulatives to compensate for cognitive challenges
	+ Move beyond money and time when relating activities to daily activities or familiar tasks
	+ Use evidence-based practice
	+ (Saunders, A., UNCC Fall 2012)

Inclusive practices and curriculum design become a focal point in designing a Mathematics curriculum that is not only meaningful to students, but one that aligns with National Standards. Alicia Saunders, Research Associate at the University of North Carolina Charlotte, took me to an Elementary school to look at some of the work that the school and research centre have been working on.

Inclusive Practices

The goal is to provide all students with age appropriate access to the general education curriculum.

Curriculum Design

To build a curriculum based on evidence- based practices, examples include and are not limited to:

* + **Time Delay**- a method of systematic prompting and fading the prompt using small increments of time. It works because it suppresses errors. When using Time Delay you need to decide if the student will be using an expressive or receptive format? What type of model prompt will be used? For example if the student is to point to their response, then model pointing. How many “warm up” trials at zero? How long to wait on delayed trails?
	(Information sheet Developed by D Browder UNCC)
	+ **Systematic Instruction**- teaching that is focused on specific, measurable, responses (can be chained or discrete task). It may include prompting, feedback or task analysis. It is established through the use of defined methods of prompting and feedback. Implement a hierarchy of prompts on each step of the task analysis (gesture, verbal model, physical) until the learner succeeds. Before intervening it is important to give the learner the opportunity to make a correct response. Uses the least prompt first and progress. Encourage the learner after independent and correct responses. As the learner responds to natural cues, decrease praise. Use 3-5 second delay between prompts.
	(B Jimenez, UNCG 2012)

Assessment

Assessment is an integral part of the planning process. I viewed a number of samples of assessment for the North Carolina Testing Program. North Carolina provides their state with an alternate assessment. There are clear guidelines to who qualifies for the assessment.

The purpose of the testing program is to identify areas of strengths and weaknesses in the education process to improve instruction delivery. Secondly it was established to make the education system at school local and state levels accountable for results. (NC Extended 1 Mathematics Assessment Handouts, 2008)

I met with Dr Shawnee Wakeman who discussed the National Centre and State Collaborative General Supervision Enhancement Grant (NCSC). This was very interesting as the long term goal of the project is to develop a full system that supports educators, that includes formative assessment strategies and tools, professional development on data for progress monitoring as well as management systems for documentation of data.

Science

Spooner, Knight, Browder, Jimenez and Di Biase (2010) identified that systematic instruction intervention, the use of time delay and task analysis are evidence- based practices for the use in the curriculum area of Science for students with moderate to severe disabilities. (Cited in (Browder, Trela, Courtade, Jimenez, Knight & Flowers, 2012)

Current research suggests that students can learn Science vocabulary and their meanings through picture symbol word match, which is incorporated as part of an overall Science lesson. Constant time delay was implemented in a study when showing words at the beginning of the lesson. This proves to be consistent with previous research that indicates time delay as an effective strategy for teaching students to recognize vocabulary words. (Browder, Wakeman, Spooner, Ahlgrim-Delzell & Algozzine, 2006) (Cited in (Browder, Trela, Courtade, Jimenez, Knight & Flowers, 2012)

Whilst I was in Charlotte, the new Science resource arrived: Early Science Curriculum research and inquiry based process teaches basic science content. The new program incorporates evidence based teaching practices including least intrusive prompts strategies. Time delay, an evidenced -based practice, that is a method of systematic prompting and fading of a prompt, which uses small increments of time, is used in the program to teach science concepts and vocabulary.

Like the other curriculum areas, it incorporates a literacy-based approach to teach science concepts. The lessons are scripted. All lessons follow a series of steps that engage the students in inquiry. It also contains ongoing assessment to assist with tracking student progress. (Jimenez, B., Knight, V., Browder, D., Early Science Curriculum (2012) Verona, WI: Attainment Company)

The University of Oregon, Eugene

The College of Education of the University of Oregon is the home to one of the top three ranked departments of Special Education in the United States of America. The University is research intensive and provides an ideal environment to look at evidence-based programs for students with special needs.

I met with Kathy Jungjohann. Kathy has had many years’ experience with evidence based practices. We discussed the importance of targeted instruction.

Some programs we purchase to implement for students with cognitive disability may need to be slightly modified to meet their learning needs. Program adjustments may include, grouping strategies and time allocation. Kathy provided valuable ideas about effectively modifying programs.

During my visit I observed a literacy class. Students were provided with a solid research base on the current topic as well as opportunities to develop their own activities based on the literacy topic. This approach I believe, allowed students to gain a better understanding of the importance of reading and language development. These experiences challenged my thinking about the effectiveness and importance of ‘hands-on’ professional development for educators with the impending arrival of the new K-10 curriculum. Personal involvement allows educators to take responsibility. Understanding the process of curriculum development and the research base from its development I believe will assist in building our own knowledge and skills to guide decisions to curriculum adjustments and delivery of content.

Bethel School District

I had the opportunity to visit two schools in the Bethel School County. I also met with staff from Bethel School County Office. Whilst visiting schools I had the opportunity to see how they implement programs such as Reading Mastery into their school curriculum and the groups that are targeted to participate in the programs.

At the Bethel District office, we discussed assessment practices and how these are used to guide curriculum development and planning. Staff identified a number of assessments that they use including DIBELS and EasyCBM. Assessment in Mathematics was also discussed as well as programs to support development in areas such as Number Facts. Rocket Math was one program they implement.

Behavioral Research and Teaching

“Behavioral Research and Teaching (BRT) conducts research and development in student academic assessment to support the development of effective educational programs for all students. BRT concentrates on access to learning so that appropriate and accurate information can be collected from all students to improve decision-making for their educational programs.” ([University of Oregon, Behavioral Research and Training](https://education.uoregon.edu/rou/behavioral-research-and-teaching), 2013)

Prior to identifying appropriate evidence-based practices to teach curriculum outcomes, it is imperative that we identify the current needs of students within the identified curriculum area.

“With federal and state funding, BRT projects focus on developing information systems with three primary goals:

* + Improve basic skills assessments so that all students can read, write, and compute.
	+ Enhance learning of middle and secondary content subject matter so that all students have the opportunity to develop a broad knowledge base.
	+ Provide accessibility to large-scale testing so that all students, including students with disabilities, can demonstrate their proficiencies on state and local achievement standards.”([University of Oregon, Behavioral Research and Training](https://education.uoregon.edu/rou/behavioral-research-and-teaching), 2013)

I met with the director, Gerald Tindal, Castle-McIntosh-Knight Professor of Education and Co-director of the program Dr Julie Alonzo. They navigated me through many aspects of the easyCBM program. The program included benchmarking, progress monitoring and reporting. The program is for K-8 and incorporates Math and Reading.

The program directly links back to the No Child Left Behind mandate of students with disability. It can demonstrate Adequate Yearly Progress through alternate assessments that are judged against alternate achievement standards.

The program is flexible so you can meet the needs of individual students. It guides teachers in how to use information systematically as well as provides helpful accommodations to adjust the curriculum accordingly.

Reading – Appropriate Resources

I met with Dr Gina Biancarosa. Our discussions focused around the difficulty in attaining, low-level, high interest books for students. Dr Biancarosa showed me some valuable websites that contain a variety of texts that could be suitable for students who are reading at a low level, that have high interest topics. This is a really big issue. It is very difficult to source books that appeal to older students with low reading levels. It is important to provide them with texts that are related to interests.

We also discussed appropriate resources that can be used for Reading Interventions. What was of interest to me was the same program was being implemented in many of the schools I had visited whilst on my tour. The program was Reading Mastery.

PBIS – University of Oregon Dr Brigid Flannery

I met with Dr Flannery to discuss School Wide Positive Behavior Support. [PBIS](https://www.pbis.org/) is a systems approach to establish a social culture and behavior supports required for all students in a school to achieve both academic and social success.

“Improving student academic and behavior outcomes is about ensuring all students have access to the most effective and accurately implemented instructional and behavioral practices and interventions possible.” ([PBIS](http://www.pbis.org/) 2009)

I saw examples from schools of how this program is part of their school. There are many positive outcomes from this system, one of which is maximizing academic achievement for all students.

Visit to Pearl Buck Preschool to see a Preschool Wide PBIS Implementation

Pearl Buck Centre was established to provide support for individuals with intellectual and developmental disabilities across various age ranges. The preschool was established to support children of parents with intellectual and developmental disability.

Renee Van Norman from the Centre went through a presentation that identifies the steps of implementation for the PBIS. It was great to see ‘real life’ examples of how the program works and what it looks like in the preschool. For example, pictures to accompany rules that were developed, which allows for greater accessibility to students. I saw examples of the school-wide reinforcement system. This included the resources they use for visual reminders of engagement positive behaviour. Van Norman went through a very detailed look at the implementation. The results were amazing.

Summary

Evidence-based teaching practices are highly successful in regards to curriculum design and delivery of content to students with cognitive disability with reference to the key learning areas of Mathematics, Literacy and Science. Current research in this area and hence the development of resources have shown to be effective in curriculum delivery to students with an increase in student learning. Evidence-based practices can include Time Delay, Chained Response (task analysis) and Discrete Response. Incorporating stories into curriculum content to teach a specific outcome was also used frequently, thus allowing students to relate new concepts to their daily lives. With the impending implementation of the new K-10 Australian curriculum, I believe it is important to look at the use of evidence-based practices when implementing curriculum content to our students. I also believe it would be beneficial to look at the various resources developed by the University of North Carolina and see how we can incorporate ideas such as story based lessons into our content. Assessment is also an integral part of the planning process. Identifying effective assessment tools that meet the needs of students with cognitive disability is of paramount importance.

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| **Examples of Effective Evidence- Based Practices** | **Examples of Curriculum Areas where EBP can be applied** |
| Time Delay | Literacy, Numeracy, Science – Vocabulary  |
| Task Analytic Instruction  | To promote participation in reading a storyUsing task analysis allows you to break down the math task into a step by step process (A Saunders, UNCC Fall 2012) |
| Systematic Prompting  | Science – Vocabulary  |

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Behavioral Research and Teaching <https://education.uoregon.edu/rou/behavioral-research-and-teaching>, 2013

[www.PBIS.org](http://www.PBIS.org) 2009

National Centre and State Collaborative General Supervision Enhancement Grant Handout (University of North Carolina, Charlotte)

Centre for Secondary Students with Autism Participation Flyer (K Fallin, UNCC)

Useful Websites

[Links to Behavioral Research and Teaching](https://www.easycbm.com/)

[University of North Carolina – Charlotte](https://access.uncc.edu/)

[North Carolina](https://www.dpi.nc.gov/)

[Attainment Company](https://www.attainmentcompany.com/) – Contains resources developed by University of North Carolina Charlotte