To investigate approaches to support families of children with vision impairments in the development of early literacy skills - Canada, USA
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INTRODUCTION

Background

Over the last eight years at Vision Australia, I have provided early intervention support to families who have children with vision impairments. I have also been involved in developing the early literacy support that Vision Australia provides to families. ‘Dots for Tots’, an early braille literacy program aims to teach families how to create a literacy-rich environment in their home, how to make stories meaningful for their child and to demystify braille for families. We have developed a collection of early literacy resources for families and early childhood professionals and a framework for service providers to lead families through when discussing how to support their child’s early literacy development. We also assist families to obtain the necessary materials and equipment for use in the home (manual and electronic brailleers, braille labellers, story boxes, print/braille books, adaptive technology etc.) to support their child’s early literacy development.

Our ultimate aim is to have children who are braille users enter mainstream kindergarten classrooms with literacy skills on par with their sighted peers. Sadly, this isn’t the case currently. Children who are braille users often start school without knowing the letters in their name or how to write their name in braille, a skill most of their sighted peers have spent their preschool years mastering.

Fellowship Tour

My fellowship tour was undertaken between September 15th, 2010 and November 5th, 2010. The aim of my fellowship was to investigate approaches and strategies being used by specialized early childhood programs and a range of vision impairment specialists (teachers of the vision impaired, early childhood vision specialists, adaptive technology specialists) to support families with the development of their child’s early literacy skills. Strategies that support the needs of dual media (print/braille) users and the development of early technology skills were investigated. Programs that supported families to play an active role in supporting their child’s literacy development through the first few years of school were also of particular interest.

The focus of the tour was on how to best support families. As parents play a critical role in the development of their child’s early literacy skills prior to school and support their child’s learning in the first few years of school. Research has identified a strong link between literacy success and the frequency of shared storybook reading, active participation in storybook reading, frequency of trips to the library, parental enthusiasm for reading, parental teaching of literacy skills and high family expectations (Whitehurst & Lonigan, 1998).

Over the course of eight weeks, I visited nine specialized early childhood programs that provide direct home and centre-based support to families, three specialized early childhood services that provide outreach vision consultancy support to local early intervention programs, six schools for the blind, three national library services for the vision impaired, observed Yr 2 braille users in mainstream classrooms, spoke with four technology specialists, met with four early literacy specialists, attended two Vision Teachers Training Conferences and spoke with a number of parents and a grandparent along the way.
I selected specialized early childhood programs and teachers of the vision impaired that are highly regarded in the field of vision impairment for their excellence, as well as programs or services that were particularly innovative in supporting families with their child’s early literacy development. Individuals were identified from my research and by experts in the field.

**Approach**

It is my hope that the information in this report will assist the Australian community of vision impairment specialists (early childhood vision specialists, teachers of the vision impaired, adaptive technology specialists) and the key blindness agencies who work with children and their families to further develop the support available to families in relation to early literacy development. This report is not intended to be a summary of the early literacy materials or strategies that are well established within the field and currently being successfully used in Australia. The aim is to make recommendations on how current practices and services could be expanded and improved to better meet the needs of families and children who are vision impaired and to highlight valuable international resources for families and professionals in Australia.

Rather than describe each program/site that I visited, I have chosen to present my findings in the form of five key themes that emerged over the course of my fellowship tour and struck me as critical pieces for professionals to be incorporating into their practice:

- Key Predictors of Reading Success
- Engagement
- Early Tactile Graphics
- Assessment
- Technology

A list of early literacy resources collected has also been included in the report (Appendix A).

**Clarification of terms:**

*Across both Canada and the USA, there are slight variations in the terms used and the scope of services provided to children who are vision impaired. The term ‘Teacher of the Vision Impaired’ (TVI) has been used throughout this report to refer to a certified teacher who has received specialized training in meeting the needs of young children and students who are vision impaired in Canada, USA and Australia.*

*I have used the term ‘specialized early childhood program’ to refer to those programs that provide early childhood intervention services exclusively to young children (0-3 yrs or 0-5 yrs) with vision impairments.*

*In some states in the USA, TVIs provide early intervention support to children with vision impairments from birth onwards. Vision support is home-based from 0-3 years of age and then often moves into preschool-based support after three years of age until the child begins school. In Canada, early intervention support provided to young children (0-5yrs) with vision impairments is often provided by early childhood vision specialists (early childhood educators and therapists with vision training), similar to the practice in Australia.*
Acknowledgements

I want to thank the Winston Churchill Memorial Trust for giving me this incredible opportunity - to further my study of early literacy among children who are vision impaired and to learn first-hand from such gifted and talented teachers. I am deeply grateful to the Trust for their flexibility and understanding of the personal challenges I have had along the way and for continuing to support me to complete my fellowship.

I thank Vision Australia for their ongoing support for enabling me to take time away from my work with families so that I could complete my fellowship study tour. I would also like to thank Marion Rivers and the Children’s Services staff for their support of this valuable Fellowship experience and its responsibilities.

To my overseas colleagues who welcomed me so warmly and shared so generously their expertise and knowledge. Thank you for being so open to sharing your work with me and for making all of my learning opportunities so rich.

To my husband, Steve, for your endless encouragement and support every step of the way in helping me to realize this dream.

It has been a great honour to travel and study as a Churchill Fellow.
EXECUTIVE SUMMARY

Rochelle Hutson, Paediatric Occupational Therapist, Vision Australia
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email: rochellehutson@yahoo.com

The aim of my fellowship was to investigate approaches and strategies used by specialized early childhood programs and vision impairment specialists in Canada and the USA to support families with their child’s early literacy development.

Highlights:

- To meet so many young children who may be future braille and print/braille users and watch them explore and learn about the world around them.
- To have met so many very gifted and creative teachers and vision specialists, who were so open to sharing their knowledge, experiences and thoughts on fostering a love of reading and working with families.
- My visit with Dana Lee Fox at Governor Morehead Preschool. Tragically, Dana passed away very suddenly a few days after I visited with her. Dana was an extraordinarily gifted teacher. To have been able to sit in on her preschool class and watch her bring literacy to life was magical.
- Attending the British Columbia Vision Teachers’ Conference – learning about Canadian standards of practice with respect to access to technology and training, best practices in literacy instruction and the impact of low vision on literacy acquisition.

Recommendations:

- Standardised assessment (Learning Media Assessment & Functional Vision Assessment) processes to be used across Australia to determine and monitor a child’s visual functioning and appropriate literacy and learning media. Specific training to be provided to TVIs and early childhood vision specialists.
- Recognition of the critical impact that the parent-child relationship has on the development of early literacy skills. Early childhood vision specialists to be provided with specific training on methods to foster secure attachment between parents and infants with vision impairments.
- Parents to be provided with specific guidance on how to make story time interactive and meaningful for their child.
- Students who are vision impaired to be provided with the equipment and technology they require to meet their educational needs.
- Vision Australia, other key blindness organizations and families to collectively lobby for adequate government funding to provide the necessary equipment and technology that students who are vision impaired require to fully access the school curriculum and reach their full potential.
- Investigation into the feasibility of centralized equipment pool for students with vision impairments.
- Teachers of the Vision Impaired and students to receive regular ongoing training on how to use recommended equipment and technology to meet a student’s educational needs. Training to be provided by a national or state-based service.
• Greater use of technology and adaptive equipment in early childhood programs to encourage exploration and greater acceptance.

• Vision Australia to investigate building an interactive Children’s Portal connected to their national library service and a Summer Reading Club to support the development of children’s literacy skills, early technology skills, facilitate a peer support network and promote leisure reading.

• Early childhood vision specialists to strongly support parents/caregivers to learn braille so that they are able to play an active role in their child’s early literacy development prior to school and through their formative primary school years.

• Parents to be linked up to online family support networks and face to face support groups to share their experiences and learn about valuable resources.

• Widespread support for and further development of recently established online parent support network in Australia, the VI family network.

• Early tactile graphics to be incorporated into the early learning program of children who will be tactual learners.

• Specialized education vision support services (TVIs) be extended to the preschool years.

**Dissemination and Implementation:**

• To incorporate Fellowship findings into ‘Dots for Tots’ early literacy program materials and resources accessible to early childhood vision specialists across Vision Australia.

• Implement and share findings directly with families and early childhood professionals I work with on a daily basis.

• Presented summary of findings at regional South Pacific Educators for the Visually Impaired (SPEVI) conference on January 18th, 2011 (see abstract Appendix B).

• Presentation to Vision Australia’s Sydney area Children’s Services staff in June 2011 and to the national Children’s Services staff at upcoming Professional Development Day (date yet to be determined).

• Presentations to local teachers of the vision impaired to be arranged.

• Recommendations to be shared with Vision Australia Board and Policy & Advocacy Department.

• Work to further develop and enhance early literacy and technology support provided by Vision Australia.

• Maintain the valuable international links that I have established and continue to exchange information and ideas on supporting families with their child’s literacy development.
## FELLOWSHIP PROGRAMME

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| 15th-17th September | Toronto, Ontario Canada        | Ontario Foundation for Visually Impaired Children, Preschool Program and EI services Children's Discovery Portal, Library Services, CNIB | Lindsay Hillier,  
|                     |                                |                                                                          | Program Director                                                             |
|                     |                                |                                                                          | Karen Brophey,  
|                     |                                |                                                                          | Library, Content & Programs Coordinator                                        |
| 20th-24th September | Toronto, Ontario Canada        | W. Ross MacDonald School for the Blind Vision Resource Services, Preschool Outreach Vision Support Services,  
<p>|                     |                                |                                                                          | Toronto District School Board                                                 |
|                     |                                |                                                                          |                                                                 |
|                     |                                |                                                                          | Don Neale, Principal                                                           |
|                     |                                |                                                                          | Jocelyn Cook, Educational Resource Consultant                                |
|                     |                                |                                                                          | Dr. Carol Farrenkopf, Program Coordinator                                     |
|                     |                                |                                                                          | Natalie Kinal, Teacher of the Vision Impaired                                 |
|                     |                                |                                                                          | Cathy Ashley, Teacher of the Vision Impaired                                   |
|                     |                                |                                                                          | Kevin Stewart, Program Coordinator                                            |
|                     |                                |                                                                          | Kerrie St. Jean, Professional Practice Leader                                  |
|                     |                                |                                                                          | Heather Edmonds, Early Childhood Consultant                                    |
| 27th-29th September | Boston, Massachusetts USA      | Perkins School for the Blind Early Learning Center                      | Tom Miller, Educational Partnerships Supervisor                              |
|                     |                                |                                                                          | Norma Drissel, Director Early Learning Center                                 |
|                     |                                |                                                                          | Jean Petrone, Technology Specialist                                           |
|                     |                                |                                                                          | Joanne Sullivan, Customer Relations Manager                                    |
|                     |                                |                                                                          | Tammy Reisman, Teacher of the Vision Impaired                                  |
| 30th – 1st October  | New York City, New York USA    | Child Development Center, Lighthouse International                      | Greg Santamoor, Principal                                                   |
| 4th-8th October     | Atlanta, Georgia USA           | BEGIN program, Center for the Visually Impaired American Foundation for the Blind Georgia Teacher of Visually Impaired (TVI) Training Conference | Anne McComiskey, Program Director                                             |
|                     |                                |                                                                          | Ike Presley, National Project Manager                                         |
| 11th-12th October   | Raleigh, North Carolina USA    | Governor Morehead Preschool Program Carolina Assistive Technology       | Dana Lee Fox, Teacher of the Vision Impaired                                 |
|                     |                                |                                                                          | Diane Brauner, O&amp;M Instructor                                                 |</p>
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| 13th - 16th October | Louisville, Kentucky USA          | Visually Impaired Preschool Services (VIPS) American Printing House for the Blind (APH) | Melinda Atkins, Education Coordinator  
  Paulettla Feldman, Family Services & Special Projects Coordinator (retired)  
  Suzette Wright, Emergent Literacy Project Leader |
| 18th - 26th October | Vancouver, British Columbia Canada | Early Childhood Visual Impairment Program, Sunny Hill Health Centre,  
  Provincial Resource Centre for the Visually Impaired (PRCVI),  
  Special Education Technology British Columbia (SET-BC)  
  British Columbia Vision Teachers Conference,  
  Early Literacy Program for Children with Visual Impairments (ELVI) Project | Dr Roberta Heaven, Team Leader  
  Anne Wadsworth, Manager  
  Michael Merza, Vision Outreach Coordinator  
  Carolyn Northcott, Teacher of the Vision Impaired  
  Dr Cay Holbrook, Associate Professor  
  Dr Kym Zebehazy, Assistant Professor |
| 28th - 29th October | Austin, Texas USA                 | Texas School for the Blind and Visually Impaired (TSBVI) | Cyral Miller, TSBVI Outreach Director  
  Holly Cooper, Technology Specialist  
  Sharon Nichols, Technology Specialist  
  Debra Sewell, Curriculum Coordinator  
  Jeri Cleveland, Curriculum Teacher |
| 2nd - 5th November | San Francisco, California USA     | Blind Babies Foundation                                                                | Julie Bernas-Pierce, Executive Director  
  Rebecca Allswang, Program Director |
KEY PREDICTORS OF SUCCESSFUL READERS

In the last decade, there has been a significant amount of research looking at early reading and reading interventions to gain a better understanding of the factors that lead to reading success. Within the field of vision impairment, there has also been a growing recognition that findings from the general early literacy field have implications for children who are vision impaired. A common assumption has been that literacy for a child with a vision impairment develops differently than for a child who is fully-sighted. Though the methods used to teach the skills may differ, the same core foundational skills are necessary for a child to become a successful reader.

Implications of National Early Literacy Panel Findings

In 2008, the National Early Literacy Panel (NELP) released its findings from an extensive meta-analysis of over 500 studies with the primary goal of identifying interventions, parenting activities and instructional practices that promote the development of early literacy skills in children birth through to five years of age. Firstly, the Panel set out to identify the early skills and abilities that are the precursors of later conventional literacy skills (abilities of decoding, reading comprehension, spelling and writing) and then to identify the types of methods and instructional practices that promote these early literacy skills in young children. The NELP determined that the skills that demonstrated some of the strongest predictors for conventional literacy skills are alphabet knowledge, phonological awareness and oral language (National Institute for Literacy (NIFL), 2008).


Wright & Stratton (2007) identify how these critical early literacy skills can be encouraged in young children who are vision impaired:

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**Alphabet Knowledge** – letter recognition, knowledge of letter-names and sounds, letter writing ability.

**What to do?**

- Actively explore letters and sounds together (braillewriter, Braille labels in the home)
- Find daily writing opportunities to link letters to sounds - shopping lists, messages to family members, calendar, experience stories
- Create alphabet boxes with household objects (socks, balls, toothbrush)
- Share appropriate alphabet books (Alphabet Scramble (APH))
- Pointing out familiar letters and sounds


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Phonological Awareness is the ability to detect, manipulate, and analyse the sounds in oral language, including the ability to distinguish, segment, and blend syllables, rhymes, and phonemes (NIFL, 2008). Phonological deficits are now recognized as a leading cause of reading difficulties (Lonigan et al., 2009). Early stages of braille reading are dependent on phonological skills and require the development of the same graphemic knowledge that is used by readers who are sighted to learn sound-symbol relationships (Wormsley & D’Andrea, 2000). Gillon and Young (2002) tested children
who were blind on several tasks that measure phonological awareness and found a profound relationship between phonetic abilities and performance on reading tests. Building a child’s phonological awareness is a key area for early childhood professionals and parents to be focusing on in the early years.

**Phonological Awareness – What to do?**

- Play with words, rhymes and alliteration – in daily conversation, read-aloud from books with word play/rhyme, songs and chants
- Play games that draw attention to beginning sounds of words – gather household items with same beginning sound
- Use real objects to substitute for pictures in storybooks

*Source: Wright & Stratton (2007)*

Literacy is about connecting the written word with spoken language that has meaning for the reader (Wright & Stratton, 2007). Children who are vision impaired need lots of concrete hands-on experiences with the world so that every word that is learned is meaningful to the children. Oral language is the ability to produce and comprehend spoken language, including vocabulary and grammar (NILF, 2008).

**Oral Language – What to do?**

- Interactive shared reading – relate the story to your child’s own experiences, talk about the story, ask questions about the story, talk about unfamiliar words, add noises related to story, share opinions
- Hands-on experiences with everyday activities
- Talk with your child about their experiences, connect words to experiences, extend their language
- Dialogic reading—specific interactive reading technique shown to boost language skills [http://www.readingrockets.org/articles/400](http://www.readingrockets.org/articles/400)

*Source: Wright & Stratton (2007)*

**How Can We Help Parents?**

The NELP findings are of great value in understanding how parents and early childhood professionals can provide young children with a strong foundation for future success in reading. Many online resources have been developed for parents and early childhood educators which include how-to videos, podcasts, and step by step instructional materials to enrich story time. Some of these are:

- **What Works:** Videos demonstrating Shared Reading and Oral Language Strategies & Phonological and Alphabet Awareness Strategies [http://www.famlit.org/free-resources/what-works/](http://www.famlit.org/free-resources/what-works/)
- **What Works:** An Introductory Teacher Guide for Early Language and Emergent Literacy Instruction (based on NELP Report) [http://www.famlit.org/pdf/what-works.pdf](http://www.famlit.org/pdf/what-works.pdf)
- **Reading Rockets** – great sections for parents with tips, videos and guides for how to support your child with reading and has number of interactive and fun online literacy activities for children of all ages [http://www.readingrockets.org/article/20035](http://www.readingrockets.org/article/20035)
- **Zero to three** – [www.zerotothree.org](http://www.zerotothree.org)
- **Podcasts for Parents of Preschoolers** - Talking about Stories: a series of podcasts from Thinkfinity.org, presents easy activities to do with young children while reading popular

Figure 3 - Basket of objects that begin with a /b/ sound: ball, boot, bear
children’s books. The Very Hungry Caterpillar.
http://literacynetwork.verizon.org/fileadmin/technology/Very_Hungry_Caterpillar_Activities.mp3

The tremendous growth of online resources highlight the value of parents being provided with specific activities that develop their child’s early literacy skills, being able to watch others model techniques and the use of the internet as an effective and accessible tool for sharing this information with parents. Many of the above mentioned resources contain valuable general early literacy information for parents of children with vision impairments.

Early literacy information that is specific to children with vision impairments is also becoming increasingly available online in a parent-friendly format. Online resources enable families to access information at a time that suits them, to refer back to topics discussed and techniques demonstrated by their early childhood vision specialist and to easily share it with other family members and carers. Parents want to know the specifics of how to introduce their child to a tactile book, how to talk about the dots on the page, what types of questions to ask their children while they are reading.

Online family resources specific to children with vision impairments that are providing information, resources and support networks for families:

- **FamilyConnect : For Parents of Children with Visual Impairments** [www.familyconnect.org](http://www.familyconnect.org)
  online multimedia community for parents developed by American Foundation for the Blind (AFB) & the National Association for Parents of Children with Visual Impairments (NAPVI).
  Features parent forums, social network, blogs, videos, and articles by parents and experts in the field of blindness on multiple disabilities, technology, education and more.

- **WonderBaby** [www.wonderbaby.org](http://www.wonderbaby.org)
  Site designed and managed by a mother of a young child with a vision impairment, collection of resources and articles on vision impairment, Q&A

- **Early Literacy Program for Children with Visual Impairments (ELVI)** [www.earlyliteracyvi.org](http://www.earlyliteracyvi.org)
  (See description below)

- **VI Family Network** [www.vifamilynetwork.org.au](http://www.vifamilynetwork.org.au)
  new Australian-based online support network for families participating in the Australian Childhood Vision Impairment Register (ACVIR) & link to resources

Online technologies like Youtube are also enabling parents to easily upload videos of their children and many parents are starting their own blogs, as way of sharing their child’s successes with their family and friends and also sharing valuable resources that they have found with other families.

Examples of videos posted on Youtube by a parent of their child learning braille:

- Brian reads a braille note from Mum [http://www.youtube.com/watch?v=4aSAF_fR3-g](http://www.youtube.com/watch?v=4aSAF_fR3-g)
- Brian spelling with his Tack-Tiles [http://www.youtube.com/watch?v=yS1wJeHtTrk&feature=related](http://www.youtube.com/watch?v=yS1wJeHtTrk&feature=related)

A very recent addition to these online family resources is the **Early Literacy Program for Children with Visual Impairments (ELVI)**. In Vancouver, Canada, I met with Dr Cay Holbrook and Dr Kym
Zebehazy to discuss their new project - the Early Literacy Program for Children with Visual Impairments (ELVI). They have developed ‘literacy toolkits’ that are being distributed to families with young children on Vancouver Island by local vision teachers. The kits are used to start important conversations with parents about some of the critical issues, concerns and questions that arise in the early years of learning and to build earlier connections between families and their local vision teachers. This program advocates a “toolkit” approach to literacy, in which children are encouraged to use all their senses to support their literacy learning. This project plans to be rolled out across British Columbia in the future. In April this year, a website was launched to support the project and provide a platform for resources with a focus on early literacy development for young children with vision impairments to be shared with families and teachers and create a forum for sharing research-based practice in early literacy and foster best practice. ELVI is also on Facebook so families can be easily notified of new postings. This website is well-positioned to be a great early literacy resource for families. Early childhood professionals and teachers should share this valuable resource with families.

**Professional Training**

A significant need for early childhood vision specialists is to have access to training in supporting early literacy development that is based on recommended and evidenced-based practice and to have access to high-quality materials (videos, handouts) that can be shared with a child’s carers, other service providers and family. The training modules developed by the **Early Intervention Training Center for Infants and Toddlers with Visual Impairments** (FPG Child Development Institute, University of North Carolina at Chapel Hill) are being widely used across Canada and the USA to train early childhood vision specialists and teachers in working with young children with vision impairments and their families. The interactive multimedia training modules were developed to enhance the capacity of universities to prepare personnel to serve infants and toddlers with visual impairments and their families. Feedback received was that the modules provide practitioners with step-by-step guidance through the key developmental skill areas and that video clips and handouts in the modules are parent-friendly and useful in educating families and other service providers about the specialized needs of young children with vision impairments. The resource also contains training on functional vision assessments and developmentally-appropriate learning media assessments for young children.

The following five training modules are available online at no cost. [http://www.fpg.unc.edu/~edin/Resources/modules/index.cfm](http://www.fpg.unc.edu/~edin/Resources/modules/index.cfm):

- Family-Centered Practices for Infants and Toddlers with Visual Impairments
- Visual Conditions and Functional Vision: Early Intervention Issues
- Developmentally Appropriate Orientation and Mobility
- Communication and Emergent Literacy: Early Intervention Issues
- Assessment of Infants and Toddlers with Visual Impairments

The video component of the modules can be requested by contacting Deborah Hatton, Principal Investigator/Project Director, deborah.hatton@vanderbilt.edu
This group of modules was referred to by many of the leading specialized early childhood programs visited as a key teaching resource for their staff.

**ENGAGEMENT**

Throughout my study tour, in various forms, ‘engagement’ frequently was an underlying theme in supporting families with the development of early literacy skills in their child; children being engaged in learning and with story time, parents feeling supported with adjusting to raising a child with a vision impairment, learning about how to encourage their child’s interest in stories and feeling successful with interacting and engaging their child in activities.

**Parent-Child Relationship**

The last stop on my fellowship tour was to the early intervention team at the Blind Babies Foundation (BBF) in San Francisco, California. BBF has been providing home-based early intervention and educational services to infants and preschoolers who are blind and visually impaired for over 60 years across 14 counties in California. The visual impairment (VI) specialists have experience in early childhood development, education of the visually impaired and early orientation and mobility. The team invited me to attend their monthly two day meeting.

We had a very rich group discussion about the importance of the parent-child relationship in the fostering of a child’s learning and early literacy skills and the important role of early childhood professionals in helping parents to establish an attachment with their infant.

Early attachment between a parent and an infant is facilitated by mutual eye gaze and reciprocal interaction, often during feeding. For a mother who has an infant with a severe vision impairment these seemingly naturally-occurring interactions, do not occur in the same way. Due to a lack of eye contact from an infant who is vision impaired, parents need to be shown alternate ways of building this critical bond. The BBF staff spoke about the importance of teaching parents and caregivers how to interpret and respond to their child’s often subtle communication cues in order to build joint attention and a secure attachment. Infant massage and touch communication techniques are taught to families by the VI specialists at BBF. The staff also shared the power of music and sing song to engage children, build joint attention and strengthen bonds with parents/caregivers.

The formation of early attachments with a parent or caregiver is critical to a child’s healthy physical, emotional and social development. Research has shown that children who are securely attached are more likely to cooperate with their parents, actively explore their environment, and build strong relationships with others. These behaviours all in turn contribute to the development of communication, language and emergent literacy (Dodici, Draper, & Peterson, 2003).

**Engagement of the Child**

Early literacy begins with the building of joint attention and the forming of a close relationship with a parent/caregiver. From this secure base a young child then becomes confident to reach out into their world. Children with vision impairments need many opportunities for hands-on experiences in order to build complete and accurate concepts. It is these experiences that form the concepts that give meaning to the language a child hears, speaks, reads and writes (Wright & Stratton, 2007).
Families greatly benefit from being provided with specific guidance with how to provide appropriate experiential learning opportunities to facilitate their child’s development and understanding of the world around them. Many of the specialized early childhood programs that I visited offered families ‘experience’ days, individually or in a group - the focus being on guiding families with how to introduce new experiences and environments to their child in a meaningful way. All of these concrete hands-on experiences build on a child’s understanding of the world, so that they can relate to the ideas and concepts that they read about in storybooks. Families are also shown how to make simple but meaningful ‘tactile experience’ story books related to these experiences which build on their child’s interest in storybooks and enable them to re-tell their story.

The early childhood vision specialists at the Governor Morehead Preschool (GMP) spoke about the immeasurable value of ‘experience’ days with families, to unfamiliar places in the community that parents want help with in introducing to their child, such as McDonald’s Play land, in anticipation of an upcoming birthday party or on how to build literacy rich experiences, like making a shopping list and going to the supermarket together.

The Governor Morehead Preschool (GMP) provides community-based early intervention and preschool services to children with vision impairments from birth through five years of age. Twenty three years ago, the service was developed by Deborah Hatton, a very well-respected Senior Research Scientist in the field of vision impairment and blindness. I was very fortunate to spend two days visiting the early intervention team of GMP and was hosted by Dana Lee Fox. Dana worked closely with Deborah Hatton on the Early Intervention Training Center Training Modules and Project Emerge at the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill. While visiting I observed the preschool program taught by Dana and sat in on a number of preschool and home visits with the early childhood vision specialists.

My discussions with Dana centred around what she had observed to be the critical pieces in the development of early literacy skills for a young child who is vision impaired. Dana stressed the importance of getting a child engaged with story time. She highlighted the interaction and connection with the storyteller as one of the most significant factors that she had observed. Does the parent/caregiver use a sing-songy voice while they read? Do they stop and relate parts of the story to experiences that the child has had? Do they use real objects during story time?

Over the course of a preschool day at GMP, I observed a group of four year olds move through their daily routine – signing-in, choosing their job, participating in morning circle, learning centres,
lunchtime, outdoor playtime and story time.

The day was rich with learning opportunities and the level of engagement of all of these children was truly incredible, as was their parents’ at pick-up and drop-off, a true reflection of the great skill and connection they had with their teacher, Dana. One of the magical moments that I observed was Evan, a four year old braille user writing a letter to his grandmother about his day at the farm (see photo below). He dictated the letter to Miss Dana while brailling it on the braillewriter and then chose to draw a picture. Evan’s motivation to write about his experience, his comfort with the braillewriter, his clear understanding of the meaning of braille and the ease with which he told his story were remarkable to watch at such a young age. We then talked about how I was going to take the letter on the plane with me and hand deliver it to his grandmother, who happened to work at the early childhood program that I would be visiting the next day in Louisville, Kentucky. Evan was so excited to phone his grandmother the following evening to see if she had received his letter.

Learning to write has been recognized as a process that like learning to read, begins early in life, starting with early attempts at ‘scribbling’ and ‘writing’ messages. Learning to write is a social process that develops as a child shares their attempts with adults who read their ‘writing’ and offer encouragement (Wright & Stratton, 2007). There was great recognition in the specialized early childhood programs that I visited of the importance of providing lots of opportunities for young children to experiment with the tools for writing braille (braillewriter) and tools used for making tactile lines and shapes (screen boards, raised-line drawing kits, Quick-Draw paper, PIAF machine); to develop as ‘writers’ and tell their own stories, for adults to ‘read’ scribbled braille like marks and
gradually help children to make specific braille letters i.e., the first letter of their name.

Diane Brauner, from the Carolina Assistive Technology Team in North Carolina introduced me to **SamiSays**, the latest tool for young children from the team that developed the Hark the Sound Games. SamiSays promotes creative writing in children who are blind. Children who are blind often have difficulty with creating their own stories, as they lack the detailed knowledge and range of experiences. SamiSays replaces illustrations with interesting and familiar sounds (something they have lots of experience/knowledge of) to help them write their own stories. The mechanics of recording the stories are very easy, you simply push down on the space bar to record your voice and choose from a list of pre-recorded sounds (i.e., house noises, animals, weather, cartoon sounds). Very quickly, a young child is able to create their own story. Sami Says is available for free download from [http://code.google.com/p/samisays/](http://code.google.com/p/samisays/)

**Parents Learning Braille**

In order for parents to feel confident in how to encourage the critical early literacy skills, such alphabet knowledge, phonological awareness and oral language in ways that meet their child’s sensory preferences and learning styles, parents need to feel comfortable with the range of literacy tools (which can include both braille and print) that their child may use to support their literacy learning.

In the past, there has been a perception that learning to read braille was difficult for a sighted person and that it was not necessary for a parent. Recent research is challenging that way of thinking. **Project Emerge: Understanding Emergent Literacy in Young Children with Visual Impairments**, a three year unpublished study conducted by Deborah Hatton & Karen Erickson, looked at the critical predictors of and contributors to successful literacy learning for children with vision impairments. They found that adult braille readers attributed having had a parent or caregiver who learned braille to be a key factor in their literacy success (D.L. Fox, personal communication, October 12, 2010).

How does a parent build literacy rich experiences and environments for their child if they do not have an understanding of braille? How does a parent help their child with their homework if they do not know braille?

Early childhood programs are constantly faced with the challenge of how to engage a larger portion of their families in educational and support activities. Low attendance rates for educational workshops and group programs were common across the programs visited and occur due to a multitude of reasons: busy family schedules, transportation issues, fear, denial, feelings of inadequacy (Mason & Wicker, 2009).

Visually Impaired Preschool Services (VIPS) in Louisville, Kentucky has developed an innovative approach to meet parents’ needs for information and support in their own homes. The program is **VIPS@Home Parent University** and it consists of four courses: Power at Your Fingertips: An Intro to Braille; Emergent Literacy; Tour through the Jungle: School System/IEPs and Magical Moments. Each
of the two hour courses are delivered by veteran VIPS parents. The program aims to provide information to families who do not regularly participate in VIPS events and to give these families access to a parent support network. The full curriculum kit is soon to be published by the American Printing House for the Blind (APH) so that other early childhood programs can deliver this material to their families.

Programs like these show parents that it is possible for them to acquire the skills and materials needed to help their child become literate.

Support Networks
A critical part of supporting families in raising a child with a vision impairment is providing them with the necessary emotional support. Parents need regular opportunities to share their experiences in raising a child with a vision impairment, their concerns and their fears, both with trained counsellors and with other families. At BEGIN (Babies Early Growth Intervention Network), the early childhood program at the Center for the Visually Impaired (CVI) in Atlanta, Georgia families are offered support through weekly and monthly parent groups, family groups, individual counselling and family-matching.

“I’ve learned that you can have a cleft lip, visual impairment, and a heart defect- and still have a wonderful quality of life.” – Wake Up and Sing Parent

BEGIN also provides families with lots of opportunities throughout the year to participate in family recreational activities. These outings provide opportunities for families to meet one another and to learn from one another.

A significant component of many of the online family resources (VI-specific ) previously mentioned in this report, is to offer families another means of building a support network. Families who are unable to attend face to face groups can access and build their network from home.

Another valuable support offered to parents by the Blind Babies Foundation early intervention team is to accompany families to key medical appointments (Ophthalmologists, Neurologists) to assist with taking notes, reviewing key information given and providing emotional support through often very stressful times for families.
EARLY TACTILE GRAPHICS LEARNING

Increasingly, educational, professional and personal instructional materials present key information in graphical form. “Graphicacy” is an extension of literacy and increasingly expected competence of educated adults. Children as young as 3 years of age are being introduced to simple graphical symbols, maps and graphs (Ryles & Bells, 2009). The subjects of maths and sciences are full of graphics, subjects which few students who are vision impaired continue to take past Yr 9.

There is a growing recognition that children who are tactual learners (braille users) need to be taught the skill of interpreting tactile graphics and that these skills require advanced tactile and cognitive skills which are acquired over time. In Vancouver, Canada I met an exceptionally bright Yr 2 braille student who was being taught to read a world map and could correctly identify the equator, a number of continents and interpret a tactile legend.

Research on the ability of adults who are blind to interpret tactile graphics supports the need for early experience with raised-lined drawings. Dulin and Hatwell (2006) found that adults who were congenitally blind who had early childhood experiences with tactile drawings had a greater capacity for mental imagery and spatial competence in adulthood.

There has also been a clear distinction made between early tactile graphics learning and concept development. Before tactile pictures can make sense to a child they need to have an understanding of real, concrete objects. Children need to be taught the skill of ‘actively’ tactually exploring a 3D object first, before learning how 3D objects are represented in 2D tactile drawings.

![PROGRESSION OF TACTILE SKILLS (Sewell & Cleveland, 2009)]

<table>
<thead>
<tr>
<th>Real objects</th>
<th>Object representations</th>
<th>Graphic representations</th>
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<td></td>
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<td>2D objects (thermoform)</td>
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<td>Solid embossed objects</td>
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<td>Outlines of objects</td>
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<td></td>
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<td>Raised lines (solid and broken)</td>
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<td></td>
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<td>Symbols/letters</td>
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Tactile graphics for young children is an underdeveloped and under-researched area. There is a need for the development of early materials in tactile graphics. Children need to become familiar with a variety of tactile modes including thermoformed graphics, embossed paper, and raised-lined drawings. The American Printing House for the Blind (APH) has recently developed a number of resources with this aim:
Setting the Stage for Tactile Understanding:

The interpretation of a raised-line drawing is an advanced skill that requires a child to connect individual pieces of information to form whole mental (3D) images. This requires systematic searching skills. Raised-line representations introduce tactile complexity on many different levels and therefore require more effort and practice on the child’s part to make accurate interpretations. Thermoformed objects serve as an intermediate tactile format between real objects and less detailed raised-line illustrations.

Other early tactile graphics resources available from APH:

- Tactile Treasures
- SQUID Tactile Activities Magazine (5 years and older)
- Quick-Draw Paper – paper that swells to become tactile when used with water-based textas
- Picture Maker Wheatley Tactile Diagramming Kit

National Braille Press and Creative Adaptations for Learning (CAL) have also developed early tactile graphic materials for children and a guide for families and teachers:

- CAL-tac Pathfinder Cards
- Touch and Learn Tactile Activity Book

Children who are tactual learners need early tactile graphics materials to be incorporated into their early childhood and school programs.
Parents often have questions about how the choice is made regarding their child’s literacy medium (print, braille, or print/braille). They express concerns about whether their child should be primarily a print reader or a braille reader, and want to know how and when decisions about literacy media are made. Currently in Australia, there isn’t a clear consistent process for how this is done.

Ongoing assessment is critical in ensuring that a child’s learning needs are being met and that they are able to continue to access the curriculum as the educational demands increase. In the USA, both a Functional Vision Assessment (FVA) and a Learning Media Assessment (LMA) make up the core assessments that a child has on regular basis.

**Functional Vision Assessment**

FVA is a systematic observation and assessment of visual and sensory behaviours to determine how a child uses their vision in different activities and across different learning environments (EIVI, 2005). It identifies needed accommodations to successfully access the curriculum and identifies ways to increase efficiency of visual functioning. In the USA, FVA are usually completed by a teacher of the vision impaired.

In Vancouver, Canada I observed a travelling low vision clinic from the Children’s Low Vision Project (CLVP) in British Columbia. The clinic is modelled after the Children’s Vision Rehabilitation Project in West Virginia. The CLVP team was created to supplement the needs of low vision students in British Columbia to provide a functional vision assessment, a clinical vision assessment, an orientation and mobility assessment, an assistive technology assessment and an optical aids assessment. The CLVP lending library provides optical aids for near and distance free of charge to students attending a CLVP clinic. The CLVP team’s primary focus is to improve the literacy skills and quality of life for these students. Clinics are held in a classroom-type atmosphere so that a student’s vision can be assessed from a functional perspective.

**Learning Media Assessment**

The Learning Media Assessment (LMA) is another key assessment usually conducted by the teacher of the vision impaired. The learning media assessment is a process of gathering objective information to provide a basis for selecting appropriate learning and literacy media for blind and vision impaired students. The assessment examines both general learning media (instructional materials and methods1) and literacy media (the tools for reading and writing) needed to facilitate learning (Koenig & Holbrook, 1995).

The LMA is a decision making tool, it offers teachers a framework or decision making process for the selection of literacy media. The most widely used LMA for school-aged children was developed by Koenig & Holbrook (1995). A developmentally-appropriate LMA for younger children can be found within the EIVI-FPG Visual Conditions and Functional Vision module (Topor, Rosenblum & Hatton, 2004).

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1 Instructional materials such as pictures, real objects, tactile symbols, videos, worksheets, audio format, and augmentative communication devices. Methods such as modeling, demonstrating, prompting, questioning, pointing, and lecturing.
The general consensus in the USA appears to be that a LMA should begin no later than age 3 when a child transitions into preschool and be updated annually and/or as visual functioning changes. It is seen as a primary tool to monitor progress of students over time. In the USA, a learning media assessment is mandated by the State Board of Education Rules to determine a student’s eligibility as vision impaired and is required every three years as part of the reevaluation process to maintain eligibility.

Teachers of students with vision impairments require specialized training in order to accurately administer both of these assessments and objectively evaluate their findings. There have been a number of instructional materials developed to assist teachers with completing a LMA. Project LMA (Koenig & Holbrook, 1998) consists of videotapes and interactive CDs. While at Perkins School for the Blind, I also learned of Project SLATE – Supporting Literacy Achievement and Teacher Effectiveness for Students who are Blind or Visually Impaired (Holbrook, Croft & Koenig, 2005). A collection of instructional materials intended to provide additional practice and experience in making decisions based on data collected during the learning media assessment process. Six comprehensive case studies are presented on interactive CDs that provide practice in the learning media assessment process from data collection and interpretation to making decisions and recommendations regarding the student’s literacy media and planning for instruction.

**Literacy Toolbox**

Many VI students need an array of literacy tools and perhaps several literacy media to be successful in school. For example, a student might use Braille for note taking, speech output for the computer, audio format for reading novels, and print for math.

In my research for my fellowship, I came upon the concept of ‘transliteracy’, which is the ability to adapt, to read, write and interact with a range of tools and media (Karp, 2010). The idea is that in today’s age of rapidly expanding digital technologies, students need to be able to adapt to any medium. This is no less true for a student who is vision impaired, but perhaps even more so now that there is the general expectation of all students to be able to access information across multiple media. The successful older students that I met along my tour were those that had the skills to choose from a range of literacy tools, as to which tool was most suitable for the task.

Both the FVA and LMA would help us in Australia address some of our current challenges – for example, correctly identifying potential dual media users (a student who uses both print & braille for their learning) and give us a means of monitoring their progress. Ongoing systematic assessment would also enable us to ‘catch’ students whose primary medium is no longer proving to be an efficient means of learning, as their educational demands increase, as well as to provide objective data to better inform future students’ educational paths. A more ‘functional’ vision assessment would enable recommendations to be more specific and meaningful to a student’s individual learning environments. It would also allow greater instruction of how to use prescribed optical aids in these environments and the ability to experience some of the challenges faced by classroom teachers and teachers of the vision impaired to implement recommendations made in a clinic setting.
TECHNOLOGY

I had the great pleasure of meeting Ike Presley, National Project Manager for the American Foundation for the Blind (AFB) in Atlanta, Georgia. As a member of the Literacy Team at AFB, Ike develops materials and delivers training workshops for service providers on issues related to literacy and the use of technology to develop literacy skills. He is co-author of the recently published ‘Assistive Technology for Students Who Are Blind or Visually Impaired: A Guide to Assessment’. Ike has spent the last thirty years working with both adults and students in grades K-12 to determine the most appropriate assistive technology for their educational program. While talking about the latest technologies, Ike commented “a student who is vision impaired needs a toolbox full of tools, there is no Swiss army knife for a student who is vision impaired. We will need to pick and choose the right tool for the job. “

In order for students to be able to do this, they need access to a range of suitable equipment and the training to learn the skills to efficiently use the equipment and adaptive technologies, so that they may select the “right tool” for the job. For the most part students who are vision impaired in Australia, are not able to build a literacy toolbox because there isn’t adequate funding for the equipment/technologies they require or access to regular skilled training and ongoing technology support.

Early Childhood

The role of technology in early childhood settings is a very hot topic at the moment. Computers are an integral part of most early childhood classrooms and most children are well on their way to developing early computer skills by the age of 3 and now with the iPad we are seeing exposure to technology even earlier. Throughout my visits to specialized early childhood programs, teachers of the vision impaired (TVIs) were in the midst of working out how best to use technology in the preschool setting for children who are blind and vision impaired. Acknowledging what a critical time the preschool years are for the development of concepts through concrete experiential learning, along with tactile skill development, exposure to routines and social interactions.

What I found was teachers imbedding technology into the daily routine and learning activities. Scanners being used to read the daily morning message at the sign-in table; video magnifiers (CCTVs) used to have a good look at storybooks before and after group story time and at objects collected on field trips; binoculars and monoculars used for scavenger hunts to find signs and clues on the walls in the hallway. So cleverly placed, that a child, vision impaired or not, would not question its use but revel in its magic. The main aim being exposure and exploration and an introduction to its value for helping to get information.
The technology specialists I spoke with believed that children need to have exposure to technology long before they need it to actually accomplish educational tasks. Not only so that they have the time it will take to learn to use them but also so that they become an integrated part of their world and experience their benefits. The hope is that early exposure will lead to greater acceptance when they are older. This is a significant barrier for students who are vision impaired when introduced to adaptive technology and equipment when they are in later primary and/or high school.

**Primary School Years**

In the early primary years (Kindergarten – Yr 2), I observed a focus on building a firm foundation of braille reading and writing skills, inclusion into mainstream classroom activities and the school day routine. There was an emphasis on braille reading, not listening. Koenig & Holbrook (2000) reported that too many children become dependent on listening to recorded materials and live readers and do not develop their braille reading skills to their full potential. Students in British Columbia, Canada who often have access to electronic braille notetakers from Yr 3-4 may not be introduced to the speech output function until late primary school (12 yrs), so that their braille reading skills become firmly established.

Holly Cooper, Technology Specialist from the Texas School for the Blind and Visually Impaired (TSBVI) Outreach team recommends that technology be put into place in a slow and progressive way so as not to overwhelm students, beginning in the primary years. She spoke about the need for teachers to recognize that technology does not necessarily make class work to go faster in the early years, in order to avoid anxiety and discouragement. TVIs need to make a plan for a progression of skills and use of technology and implement consistently.

Skill training with new pieces of equipment (DAISY player, Victor Stream Reader, talking calculator, video magnifiers, electronic notetakers) are introduced with the use of backward chaining (steps of a task are taught in the reverse order). Ensuring students experience success and completion of task with every attempt. The focus being on the task, not the technology and teaching the specific skills required to complete the task.

Teachers are advised to look at WHEN their students are going to need the equipment to complete educational tasks and prepare and skill students up for their next setting (i.e., high school). Ike Presley stressed keeping in mind the small percentage of features (approx. 10%) of a computer and
adaptive software that the majority of people use on a regular basis. Keyboard familiarity and touch typing training are being introduced as early as Kindergarten/Yr 1. Ike identified that keyboarding, learning shortcut keys and exposure to synthesized speech are critical skills in the primary school years.

In many parts of Canada and the USA, electronic braille notetakers (BrailleNote) are introduced from Yr 3 onwards, with the aim of proficiency by Yr 7 - a device that the majority of students who are braille users in Australia never see in their school years. The wide use and recognition of the electronic braille notetaker as a necessary literacy tool for a student who is blind in Canada and the USA, to thrive in school and work environments, highlights that its price can no longer be an acceptable rationale for why students in Australia do not have access to this device. It is recognized as a standard literacy tool in the USA and Canada for students who are braille users. While visiting the National Braille Press in Boston, I learned that their President, Brian MacDonald has setup the Center for Braille Innovation which is taking on the challenge of making accessible products affordable. The first product is a low-cost refreshable braille PDA/notetaker that will be launched in late 2011.

Skill expectations for a student who is blind can be difficult to determine with varying student abilities, experience, and access to funding and training. Sadly, the latter is often the determining factor of when a student is introduced to technology. I was referred to the following documents as providing useful guidelines for skill progression and training:

- California School for the Blind Technology Curriculum Guides
- Student’s Computer Abilities (TSBVI)
- Evals – Evaluating Visually Impaired Students Technology Skills (TSBVI)

Training

One of the critical factors in a student’s success with learning to use and adopt adaptive technology is that their TVI requires adequate and ongoing training and support with how to use the equipment and have easy access to troubleshooting. Both Texas and British Columbia have made this a priority in their service provision to students and TVIs. Holly Cooper, Technology Specialist on the TSBVI Outreach Team provides TVIs with 1:1 training, group training in regional service centres, regular presentations and individual follow-ups via video conferencing (using Dim Dim or Accessible Event for JAWS users). Parents are encouraged to attend training sessions, so that they are aware of what a device or type of software can do and will encourage their child to use it.

SET-BC (Special Education Technology British Columbia), is a Ministry of Education Provincial Resource Program in British Columbia, Canada established to assist school districts in educating
students whose access to the curriculum is restricted primarily due to sensory impairments, autism spectrum disorder and/or cognitive and physical disabilities. The program’s mandate is to lend assistive technologies (reading, writing, and communication tools) where required to ensure students’ access to educational programs and to assist school districts in providing the necessary training for students and educators in the use of these technologies. Their website is full of online training support resources for the Mountbatten brailler, Braillenote, Windows 7 accessibility, Kurzweil, etc.

**SET-BC’s Vision Learning Center** [http://www.setbc.org/lcindexer/default.aspx](http://www.setbc.org/lcindexer/default.aspx)

In Australia, we could greatly benefit from these high quality online training materials, as well as many of the online webinars and podcasts available from Canada and the United States. A number of the key blindness organizations have developed online learning tools for professionals. For example:

- **Perkins School for the Blind Webcasts**: [http://www.perkins.org/resources/webcasts](http://www.perkins.org/resources/webcasts)
- **Perkins Scout** searchable database of carefully evaluated online resources related to blindness and visual impairment [http://www.perkins.org/resources/scout/](http://www.perkins.org/resources/scout/)
- **Braille Institute Podcasts** [http://www.airsla.org/brailleprograms.asp](http://www.airsla.org/brailleprograms.asp)

**First Years of School**

One of the areas that I explored on my fellowship tour was what other national blindness organizations are doing to support families and their children with literacy and technology in the first few years of school. Overall, I was surprised to discover that more is not being done in this area by the key agencies. As once a child goes to school, direct support is provided by the TVI in the classroom with often limited support available to parents.

The **Canadian National Institute for the Blind (CNIB)** has developed an online **Children’s Discovery Portal (CDP)** [www.cnib.ca/cdkids](http://www.cnib.ca/cdkids) for kids (between 6-14 yrs) where they can play accessible computer games; access moderated chat rooms; a ‘homework helper’, enables kids to send questions to the reference librarian to assist with appropriate resources; links to databases to do searches; E-magazines for kids; and games that can be played with other kids in a challenge room. The Portal is also used by the Library to highlight new children’s books for different age groups and support children with learning to use the online library catalogue to select their own books from the library. The CDP is currently under review, with plans to incorporate more games that promote early keyboard use and to include more features that are accessible for JAWS users.
CNIB also runs a very successful Summer Reading Club which encourages children to read throughout the summer months and chat with other children online. Children earn points for reading books in a variety of formats (DAISY, mp3, Braille), writing stories, book reviews, and answering mystery questions. Groups of children across Canada compete against one another and win prizes. The CNIB library also has a specific ‘Kidsline’ for children to ring and order their books. Children can send in their responses via the internet, phone, post or fax - a fantastic way for children to learn about different modes of communication and how to use different technologies.

**Computer Games for Children who are Blind**

A common question, Children’s Services staff from Vision Australia are asked by parents, early childhood staff and TVIs is for accessible and suitable computer games for their children and students who are blind. Surprisingly, there are few games on the market that are designed for children (5 yrs and up) who are blind that are fun, engaging and build early computer skills that are relevant for a child who is blind. Generally speaking, there is a large gap between very simple cause and effect games and much higher level computer games designed for ‘blind gamers’.

The best work to date, I believe, is coming from the Carolina Assistive Technology (CAT) team at University of North Carolina at Chapel Hill. A group of computer science students led by Dr. Gary Bishop, Professor of Computer Science and advised by Diane Brauner, an Orientation and Mobility Specialist have been collaborating and creating assistive technology games for the past seven years. **Hark the Sound** Games is a collection of sound-based games that have been specifically designed for young children (preschoolers and up) who are vision impaired – from simple naming games, like name that animal, musical instrument or musical tune to math and spelling games for primary students and Braille letter games which can be used with a Playstation Dance Mat for games like Braille twister. The games are designed to be simple – using only the arrow keys and escape key – they provide an introduction to the keyboard layout, exposure to synthesized speech and how information is organized on a computer, in files and folders.

A Hark the Sound website is currently being developed which will allow users to upload games they have created using the Hark software, as well as training videos and teaching hints. A new version of Hark the Sound game is soon to be released which will be compatible with Apple Macintosh computers. Hark the Sound games are available for free download from [http://www.cs.unc.edu/~gb/research/hark-the-sound/](http://www.cs.unc.edu/~gb/research/hark-the-sound/). An overlay for Intellikeys for children with multiple disabilities is also available for download.

Diane is currently working on designing computer games which will be based upon popular preschooler storybooks and build upon the concepts in each story. It was a great stroke of luck that I got to meet Diane while I was in North Carolina. We have communicated many times since my return. Diane has helped me to bring Braille Twister and SamiSays to children in Australia. Vision
Australia has also shared their experience with her, in setting up a successful national story box library – the Feelix Library. Diane has begun to set up the very first lending story box library in the United States for children who are vision impaired in North Carolina.
CONCLUSIONS

Though the specialized early childhood intervention support received by families differed across countries, states, provinces and even within cities, there was wide recognition of the critical role that families play in fostering their child’s early literacy skills and the need for families to receive specialized hands-on support in the early years with how to encourage these skills.

Over the course of my eight week study tour, I had the opportunity to observe current practice, discuss universal challenges and questions with respect to how early literacy develops in young children with vision impairments and be introduced to new resources and approaches to working with families. The wide range of learning experiences that I have had abroad will continue to nourish and inform my work with families in Australia for years to come.

After observing the tremendous benefits for children who are severely vision impaired (future braille and print/braille users) receiving direct specialized vision support (TVI) in the preschool classroom, I strongly believe that in order for these children to have the best chance of starting school with early literacy skills on par with their sighted peers, they need a combination of direct vision support at preschool and in the home, in the form of parent education and support. Parents need specific guidance with supporting their child’s early literacy experiences - how to read stories interactively to their child, how to use tactile materials and introduce braille to their child and how to provide their children with meaningful hands-on experiences. Parents need to be shown how to encourage the critical early literacy skills that will lead their children to become strong and confident readers. In Australia, we also need to find more effective ways of sharing information and resources with families and make better use of social networking technologies. A broader approach to early literacy support also needs to embrace the critical role of early communication, joint attention, attachment and the parent-child relationship in the development of a child’s learning and literacy.

Families in Australia are fortunate in that in most states, they have access to support from a key blindness organization, like Vision Australia during their child’s school years. Many parts of Canada and the USA, do not have services which directly support families through the school years. Further developing the school-age support services that Vision Australia offers with respect to supporting families in continuing to play an active role in their child’s literacy learning would be a natural extension to existing services. These new services could include parent education and advocacy workshops, technology workshops, equipment pools, access to a larger range of children’s books across formats (large print, uncontracted braille, contracted braille, DAISY) through the national library service, a child-accessible online library catalogue, and a children’s portal with suitable games, chat rooms and a ‘homework helper’.

The most startling discovery was the relative ease with which students in Canada and the USA are able to access the necessary equipment and technology they require to fully access the school curriculum. It was very helpful to get a sense of timeframes and standards of practice in terms of when and how equipment, such as electronic braille notetakers are being introduced to students. A great learning was the concept of a literacy toolbox and how vital a component it is in a student’s success at school and to build the necessary skills required to secure employment. If we hope to address the staggering unemployment rate amongst young adults who are vision impaired in
Australia, we need to focus our efforts on ensuring that there is adequate funding for students to get the tools and the training that they require to learn.

I believe, Vision Australia is well-positioned to fill the gap in terms of technology training for TVIs, students and families. This is a significant unmet need in Australia. Programs like, SET-BC and TSBVI provide valuable models for how such training can be offered and funded. Better use of online technology training materials would enable limited resources to be used to deliver training workshops using these materials.

Through my fellowship tour I have developed a strong network of vision specialists across Canada and the USA who will be a valuable resource in further developing the early literacy support available to families in Australia.

**Recommendations**
To further develop the early literacy support available to families and to improve the literacy outcomes for students with vision impairments in Australia the following recommendations are made:

- Standardised assessment (Learning Media Assessment & Functional Vision Assessment) processes to be used across Australia to determine and monitor a child’s visual functioning and appropriate literacy and learning media. Specific training to be provided to TVIs and early childhood vision specialists.
- Recognition of the critical impact that the parent-child relationship has on the development of early literacy skills. Early childhood vision specialists to be provided with specific training on methods to foster secure attachment between parents and infants with vision impairments.
- Parents to be provided with specific guidance on how to make story time interactive and meaningful for their child.
- Students who are vision impaired to be provided with the equipment and technology they require to meet their educational needs.
- Vision Australia, other key blindness organizations and families to collectively lobby for adequate government funding to provide the necessary equipment and technology that students who are vision impaired require to fully access the school curriculum and reach their full potential.
- Investigation into the feasibility of centralized equipment pool for students with vision impairments.
- Teachers of the Vision Impaired and students to receive regular ongoing training on how to use recommended equipment and technology to meet a student’s educational needs. Training to be provided by a national or state-based service.
- Greater use of technology and adaptive equipment in early childhood programs to encourage exploration and greater acceptance.
- Vision Australia to investigate building an interactive Children’s Portal connected to their national library service and a Summer Reading Club to support the development of children’s early technology skills, facilitate a peer support network, encourage leisure reading and build writing and research skills.
• Early childhood vision specialists to strongly support parents/caregivers to learn braille so that they are able to play an active role in their child’s early literacy development prior to school and through their formative primary school years.
• Parents to be linked up to online family support networks and face to face support groups to share their experiences and learn about valuable resources.
• Widespread support for and further development of recently established online parent support network in Australia, the VI family network.
• Early tactile graphics to be incorporated into the early learning program of children who will be tactual learners.
• Specialized education vision support services (TVIs) be extended to the preschool years.

Dissemination and Implementation

• To incorporate Fellowship findings into ‘Dots for Tots’ early literacy program materials and resources accessible to early childhood vision specialists across Vision Australia.
• Implement and share findings directly with families and early childhood professionals I work with on a daily basis.
• Presented summary of findings at regional South Pacific Educators for the Visually Impaired (SPEVI) conference on January 18th, 2011 (see abstract Appendix B)
• Presentation to Vision Australia’s Sydney area Children’s Services staff in June 2011 and to the national Children’s Services staff at upcoming Professional Development Day (date yet to be determined)
• Presentations to local teachers of the vision impaired to be arranged
• Recommendations to be shared with Vision Australia Board and Policy & Advocacy Department
• Work to further develop and enhance early literacy and technology support provided by Vision Australia
• Maintain the valuable international links that I have established and continue to exchange information and ideas on supporting families with their child’s literacy development.
References


Appendix A: Resource List

Early Literacy Guide Books for Parents


Online Vision Impairment Family Early Literacy Resources:

*FamilyConnect : For Parents of Children with Visual Impairments* [www.familyconnect.org](http://www.familyconnect.org)
Online multimedia community for parents developed by American Foundation for the Blind (AFB) & the National Association for Parents of Children with Visual Impairments (NAPVI). Features parent forums, social network, blogs, videos, and articles by parents and experts in the field of blindness on multiple disabilities, technology, education and more.

*WonderBaby* [www.wonderbaby.org](http://www.wonderbaby.org)
Site designed and managed by a mother of a young children with a vision impairment, collection of resources and articles on vision impairment, Q&A

*Early Literacy Program for Children with Visual Impairments (ELVI)* [www.earlyliteracyvi.org](http://www.earlyliteracyvi.org)
Comprehensive collection of early literacy resources for parents and teachers; forum for sharing research-based practice in early literacy; and connecting parents with teachers of vision impaired in their community.

*VI Family Network* [www.vifamilynetwork.org.au](http://www.vifamilynetwork.org.au)
Australian-based online support network for families participating in the Australian Childhood Vision Impairment Register (ACVIR) & link to resources

Professional Training Resources


Supporting Classroom General Education Teachers of Braille-Reading Students (2009)
Learning module developed by Dr Cay Holbrook to help classroom teachers work with Braille-reading students [http://www.setbc.org/setbc/vision/classroom_teachers_braille.html](http://www.setbc.org/setbc/vision/classroom_teachers_braille.html)

Perkins School for the Blind Webcasts: [http://www.perkins.org/resources/webcasts/]

Perkins Scout searchable database of carefully evaluated online resources related to blindness and visual impairment [http://www.perkins.org/resources/scout/]


Braille Institute Podcasts [http://www.airsla.org/brailleprograms.asp]

**General Early Family Literacy Resources:**

*National Early Literacy Panel Executive Summary*  


*What Works: An Introductory Teacher Guide for Early Language and Emergent Literacy*  
[http://www.famlit.org/pdf/what-works.pdf]

*Reading Rockets* – great sections for parents with tips, videos and guides for how to support your child with reading and has number of interactive and fun online literacy activities for children of all ages [http://www.readingrockets.org/article/20035]

*Dialogic Reading* – article [http://www.readingrockets.org/articles/400]

*Zero to Three* – [www.zerotothree.org]

[http://literacynetwork.verizon.org/fileadmin/technology/Very_Hungry_Caterpillar_Activities.mp3]

**Early Tactile Graphics Resources:**

*Guide to Designing Tactile Illustrations for Children’s Books* – free download available from [www.aph.org]


Early Tactile Graphics Resources Available from American Printing House for the Blind:
- Setting the Stage for Tactile Understanding
- Tactile Treasures
- SQUID Tactile Activities Magazine (5 years & up)
- Quick-Draw Paper – paper that swells to become tactile when drawn on with water-based textas
- Picture Maker Wheatley Tactile Diagramming Kit

- Touch and Learn Tactile Activity Books
- Let’s Learn Shapes with Shapely-Cal
- Humpty Dumpty and Other Touching Rhymes
- CAL-tac Pathfinder Cards

**Technology:**


Evals – Evaluating Visually Impaired Students Technology Skills (TSBVI)


Student’s Computer Abilities (TSBVI) [http://www.tsbvi.edu/resources/1079-students-computer-abilities](http://www.tsbvi.edu/resources/1079-students-computer-abilities)

SET-BC (Special Education Technology British Columbia) [www.setbc.org](http://www.setbc.org)
  Developed by Graham Cook, this series of ten Mountbatten Pro lesson plan modules contains strategies and ideas that will serve as a resource and teaching guide for vision professionals. The second document, MB Pro - A Visual Guide, was developed to help teams become familiar with the hardware

Computer Games for Children who are Blind:

Priory Woods School & Arts College (UK)

Appendix B: Abstract from Conference


Families play a powerful role in preparing young children for school, in supporting their academic learning and in their children becoming self-confident and motivated learners. Families need to feel confident in meeting their child’s early literacy needs and playing an active role in supporting their child’s learning once they begin school.

This presentation will look at the approaches and strategies that are being used by early childhood programs in Canada and the US to support families with the development of their child’s early literacy skills in the home and in the community prior to school and in the first critical years of school. The author visited early intervention programs, preschools and visiting teachers working with children who are incorporating ‘best practice’ in early literacy support into their daily work with young children who are braille and print/braille users and their families.

The aim of the research project, funded by the Churchill Trust and supported by Vision Australia, is to learn from our colleagues overseas how we can better support families in these critical years and ensure that children with severe vision impairments develop a firm foundation of literacy in the early years of school, to meet the academic challenges ahead and enable success at school and beyond.

Information will be shared about how children with severe vision impairments are building early computer literacy skills alongside their fully sighted peers and how the needs of dual media users are being met in early learning programs.