EPL Resource Brochure for Adults with Neurological Communication Disorders

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Short Header: EPL Communication Resources Brochure

#### **Abstract**

The Edmonton Public Library (EPL) is a community resource that offers a variety of materials, technology and services as well as an extensive on-line database of digital materials for the public to utilize. The purpose of this project was to identify EPL's existing resources and assistive technologies that would benefit adults with neurological communication difficulties and summarize these resources in a document that could later be used to facilitate interactions between adults with neurological communication disorders and the Edmonton Public library.

The final document, an aphasia-friendly brochure, was developed based on information gained from multiple sources. All of the team members explored the EPL website and also went to a branch of the EPL, making observations regarding accessibility and available services. This was followed by a meeting with EPL staff, and a review of current literature to gather evidence and rationale to support which resources to include in the resource guide. These resources were divided into categories based on challenges individuals with neurological communication disorders may face (e.g. difficulties with mobility, memory, and attention) to facilitate identification of materials and supports best suited for the target population. The brochure was designed to be aphasia-friendly (e.g. reading level, font, pictures, and amount of whitespace). The final product was a four-page aphasia-friendly working prototype brochure of resources at the EPL for adults with communication disorders.

EPL Resource Brochure for Adults with Neurological Communication Disorders

The Edmonton Public Library (EPL) is a community resource made up of 17 branches throughout Edmonton with a variety of materials, technology and services available on-site at the various branches as well as an extensive on-line database of digital materials for the public to utilize. The services that the EPL already have in place (e.g. audiobooks, computer stations, and home delivery services) may be beneficial for individuals with neurological communication difficulties. Adults with communication disorders may benefit from an enriched communication environment (Janssen et al., 2014), which the EPL can help to foster.

Research by Cruice, Worrall, Hickson, and Murison (2003) indicates that individuals with neurological communication disorders list communication, social life, autonomy and choice, and community participation as important factors in determining their perceived quality of life. Our project, identifying EPL services and resources that could benefit adults with neurological disorders, is consistent with the philosophy of the EPL of "fostering collaborative relationships to build relevant and responsive library services" (Edmonton Public Library, 2013a). The EPL philosophy also includes working with community members and groups to identify any barriers to service which may include a "lack of awareness of library services" to ensure inclusivity and accessibility for all patrons (Edmonton Public Library, 2013b).

With that in mind, the focus of this project was twofold. In stage one, we identified materials, resources and technology that the EPL currently offers and, based on evidence in the research literature, we established how these materials could be used to benefit individuals with neurological communication disorders. The focus of stage two was to design an aphasia-friendly brochure that highlighted the existing EPL resources, where they could be found, and by whom they could be used. While the primary audience targeted by the brochure was adults with

communication disorders, the brochure may be of use to family members and care partners, as well as clinicians who might not be familiar with resources available through the EPL.

Through this project we hope to facilitate use of the EPL by adults with neurological disorders to support their communication needs, create opportunities for social interaction and community participation, and invoke a sense of autonomy, all factors that contribute to a positive quality of life. What follows is a description of our target audience for this project, a description of the development of the brochure and a description of its contents.

## **Adult Neurological Communication Disorders**

Neurological communication disorders are those that arise specifically from conditions or events that affect the brain's typical functioning such as with strokes, traumatic brain injuries (TBI), and degenerative diseases like Alzheimer's disease, Parkinson's disease, multiple sclerosis, or amyotrophic lateral sclerosis. Each communication disorder has its own unique profile of relative strengths and weaknesses, in terms of an individual's ability to understand others and express ideas, wants, and needs. As such, individuals with neurological communication disorders may display difficulties in one or more of the following areas: comprehending spoken language, reading written language, expressing spoken language, and formulating written language (Hallowell & Chapey, 2008). Additionally, individuals may have concomitant mobility, attention or memory issues (Teasdale & Engberg, 2005).

Presently, the leading cause of neurological communication difficulties within Canada is cerebral vascular accidents (i.e. strokes). A stroke is a sudden loss of brain function, either due to an interruption of flow of blood to the brain (i.e. ischemic stroke) or the rupture of blood vessels in the brain (i.e. hemorrhagic stroke). The interruption of blood flow or the rupture of blood vessels causes neurons in the affected area of the brain to die (Heart & Stroke Foundation, 2012).

There are between 40,000 to 50,000 strokes experienced in Canada each year and approximately 300,000 Canadians living with the effects of a stroke. Of these individuals, 25% recover to have only minor residual impairments, while 40% recover to have moderate to severe impairments (Heart & Stroke Foundation, 2012). The types and severity of these impairments vary depending on which areas in the brain are affected; therefore, each individual presents with his or her own unique set of impairments (Staines, McIlroy, & Brooks, 2009).

The second most common cause of neurological communication difficulties in Canada is traumatic brain injury. A TBI occurs when there is a change in brain function caused by an external force (Brain Injury Association of America, 2013). These external forces can cause hemorrhaging (i.e. bleeding), contusions (i.e. bruising) as well as diffuse axonal injury, where the nerve fibres are stretched and deformed as the brain is jolted back and forth (Papathanasiou, Coppens, & Potagas, 2013). While there are many causes of TBI, among the most common are falls, motor vehicle accidents, and sports-related injuries (Papathanasiou et al., 2013). Approximately, 500 out of 180,000 people will experience a TBI in Canada each year (BrainTrust Canada, 2011). Currently, almost 150,000 people are living with impairments from a brain injury.

Degenerative conditions such as Alzheimer's disease and related dementias can also cause neurological communication disorders. Currently in Alberta, there are approximately 8,500 people living with the effects of Alzheimer's disease or related dementias (Government of Canada, S. C., 2013). Dementia occurs when areas of the brain are damaged by neurofibrillary tangles and neuritic plaques (Papathanasiou et al., 2013). Symptoms include loss of memory as well as changes in judgement and reasoning, mood and behaviours (Alzheimer's Society of

Canada, 2011). These changes greatly affect the individual's ability to function in everyday life, especially in their ability to understand others as well as to express their thoughts and ideas.

As our population ages and the baby boomers reach the age of 65 and on, more individuals will experience strokes or start to show the deficits related to Alzheimer's disease and related dementias. This trend greatly increases the likelihood of individuals developing neurological communication disorders as a concomitant factor.

## **Project Overview**

As previously stated, the EPL has materials, technology, and services (e.g. audiobooks, computer stations, home delivery services) already in place that, while not designed specifically for adults with neurological communication disorders, may be beneficial for this population.

The EPL represents a community environment that is equipped and able to assist with facets of personal importance such as communication, social life, autonomy and choice, and community participation, all of which contribute to quality of life (Hoen et al., 1997; Le Dorze & Brassard, 1995; Zemva, 1999 as cited in Cruice et al., 2003). While it is not known how many adults with neurological communication disorders access the resources, there is a consensus, after speaking with staff at the EPL, that the public is currently underusing several of the services that we identify through this project. The goal of this project was to identify these resources and create a brochure that outlines the resources and how to access them through the EPL. It is hoped that by connecting individuals with the EPL's assistive materials, self-advocacy and additional opportunities to participate more fully in their community are promoted (Beukelman, Fager, Ball, Dietz, 2007).

## **Development of the Brochure**

#### **Identifying Existing Resources**

Our first step in development of the brochure was to visit a branch of the EPL, the purpose of which was twofold: to identify existing resources and services that may be applicable for individuals with neurological communication disorders; and have the experience of being new to a library. Each group member visited a library branch that she had never been to before, which allowed group members to experience what it felt like to be unfamiliar with a branch of the library, the services available and where they were located. We also endeavoured to think about how our targeted population might feel walking into an unfamiliar place and how to navigate feelings of being overwhelmed or unsure of where to seek assistance. Four out of the six members of the project had never been to an EPL branch. Three members of our team went to the Stanley A. Milner Library located in downtown Edmonton and three went to the Old Strathcona Library located near Whyte Avenue.

After meeting to discuss initial impressions of the EPL, the group compiled a working document which listed the resources the library offers using the library's website. This list was later used to guide discussions of how each resource could be beneficial to an individual with a neurological communication disorder. The group then met with Associate Managers, Caroline Land and Katie Turzansky, to learn more about EPL and the services offered to individuals with disabilities. Ms. Land and Ms. Turansky noted a few additions to the list that the website did not list explicitly.

# General Considerations & Design of the Brochure

With EPL's Community-led Service Philosophy of fostering collaborative relationships to build relevant and responsive library services, in mind, we began our project by conducting a preliminary literature review (Edmonton Public Library, 2013a). During this literature review, we examined evidence-based peer reviewed journals by searching through online databases for

information relating to the technology and services offered at EPL that could benefit adults with neurological communication disorders. Key search terms included: adults with neurological communication disorders; library resources, assistive technology, AAC; and adults with visual difficulties, mobility difficulties, attentional difficulties, and memory difficulties. Articles relevant to our project were catalogued according to the support they provided for the use of existing library resources (e.g. computers, large print books, and assistive technologies) with adults who have neurological communication disorders. This literature review allowed group members to examine the characteristics of the technology and services found within EPL and to determine the potential benefits of these resources for individuals within our target population.

Resources identified for inclusion in the brochure were those that facilitated access to the EPL by the target population, and that took into account the physical and cognitive communication challenges experienced by adults with neurological communication disorders. Decisions regarding the format of the brochure were made following recommendations put forth by Dietz, Ball, and Griffith (2011) and Van de Sandt-Koenderman (2004), who advocate for the delivery of information through multiple parallel modalities (e.g. text and images) in combination with increased font size, reduced overall amount of text, and increased presence of white space on the page. In addition, our group designed a colour-coding system so that users could navigate the brochure with as much support as possible. Coloured letters were added beside each resource; each letter representing a different challenge an adult with a neurological communication disorder may have (e.g., Vision, Mobility, Memory, Communication, Attention, and Reading). This system is anticipated to allow brochure users to locate beneficial resources based on their needs in an efficient manner.

This brochure was designed for use by a variety of individuals including professors, clinical educators, student clinicians, practicing Speech-Language Pathologists, residents of assisted-living and long-term care facilities, and adults who have neurological communication disorders. Further work, including trialing the brochure with a sample of adults with neurological communication disorders, will aid in the refinement and utility of the brochure prior to its anticipated release to the general public. This in turn will hopefully facilitate increased use of the EPL resources.

#### **Content of the Brochure**

### **Services**

Communication boards. Individuals with communication disorders often rely on devices such as communication boards to convey their message to a listener. Communication boards typically contain letters, words, pictures of frequently occurring topics, and core phrases such as "I want \_\_\_\_\_\_". Individuals can use these boards to construct a message, establish the context at the beginning of a conversation, or repair communication breakdowns should they occur (Beukelman & Mirenda, 2013). EPL has several communication boards available on their website under their assistive services tab that can be printed off and brought in to the library to facilitate communication with staff. These include an ABC board, a QWERTY board, a symbol board, and a word board. The ABC and QWERTY board consist of letters arranged in different patterns for ease of scanning that allows individuals to spell out words by pointing. The symbol board consists of a grid of picture and word combinations that allow individuals to indicate topics and respond to questions that are relevant to accessing materials at EPL. The word board consists of a grid of words and phrases and does not include any pictures or symbols.

Reserves shelves/holds. Each EPL location features a reserve shelf which enables individuals to place holds on desired items through the library's online catalogue. Individuals can access the library catalogue from a computer at any library location or from their personal computer, tablet, or mobile phone. When the materials become available, staff members collect the items, label them with the cardholder's name, and place them on the hold shelf, located near the front of each EPL branch. Items can only be signed out by the cardholder who placed them on hold.

This service is important to adults with communication disorders because a common complaint among individuals with neurological communication disorders involves the attitudes and perceptions of others. In Dykstra, Hakel, and Adams's (2007) research study, individuals who had difficulty speaking clearly reported feeling that they were often assumed to have reduced intelligence and that others treated them with of a lack of respect. Although individuals may be capable of identifying what they want and need, they may experience barriers related to others' perceptions and attitudes, especially when having difficulties expressing their message clearly. Therefore, EPL's reserve shelves/holds feature is ideal for individuals who find navigating the entire library overwhelming or stressful, or for those who find it difficult to communicate verbally with unfamiliar listeners.

Home delivery service. As previously mentioned, cerebral vascular accidents (e.g. strokes), are one of the leading causes of neurological communication disorders. Individuals who experience cerebral vascular accidents may present with physical difficulties such as poor balance and weakness that may reduce their mobility and alter their confidence in their ability to carry out activities of daily living (Wood, Connelly, & Maly, 2009). The Transportation Research Board (2005) reported that individuals who have experienced a cerebrovascular

accident tend to present with decreased cognitive abilities and are less able to access typical modes of transportation. Thus, people with neurological communication disorders may experience hardships associated with travelling to an EPL branch to access EPL's resources and services due to their associated physical limitations. The EPL provides a home delivery service for individuals who have difficulties with mobility and are unable to travel to their local EPL branch. Individuals who wish to utilize this service are required to contact their local branch to register. EPL also provides a book-cart service, through which they deliver an assortment of reading materials to most seniors' lodges and extended care homes in Edmonton.

**Extended loans material.** Individuals with communication difficulties often have difficulty understanding written messages due to reduced cognitive abilities and/or visual impairments (Dietz, Ball, & Griffith, 2011). As a result, these individuals may need to keep library materials out for longer periods of time. At EPL, patrons can arrange to keep items for a longer amount of time without penalty by speaking with their local EPL branch. The length of time allotted depends on the demand for and type of material.

Library elf. According to Beukelman et al. (2007), individuals with neurological communication disorders, specifically dementia, may demonstrate difficulties with memory or organization. Library Elf is a free service that sends electronic notifications (i.e. emails) to cardholders to help them keep track of when items are due, overdue, or ready for pickup. Originally designed for parents to help them keep track of their children's/dependent's library books, this feature would assist adults with neurological communication disorders in keeping track of the items they have borrowed or placed on hold. In addition, individuals can choose to grant access to their care-partners or other trusted individuals to help organize and manage their library account

Online ask us feature. Found on the top left-hand corner on any page of the EPL website, the online "Ask us" chat box allows individuals to ask EPL staff members questions about the services, materials, and programming available at the library during regular business hours. Instead of phoning the library or travelling to the nearest branch, patrons can type their questions into the chat box. Given that some individuals with communication difficulties may find searching the website overwhelming due to the quantity of data provided, the chat box may alleviate these feelings by allowing them to speak directly with an EPL staff member (Dietz et al., 2011). Not only does this feature allow for instantaneous feedback, it also allows the individual the opportunity to compose messages at their own pace in their own home. Furthermore, using a keyboard to formulate a message rather than their voice or pen and paper may allow some individuals to bypass any voice or writing difficulties that they may have (Dietz et al., 2011).

Tours of the library. For someone who has a communication disorder, the library may seem overwhelming given the number of other patrons, noise level, and amount of text to decipher (Garcia, Laroche, & Barrette, 2001). To alleviate potential strain, individuals can book a tour of any EPL branch through the EPL website, over the phone, or in person. EPL staff will customize tours to match the interests and abilities of each individual or group and provide one-on-one instruction for how to access the materials, technology, and services available at their branch.

## **Technology**

Library equal access program (LEAP) station & computer workstations.

EPL's Library Equal Access Program (LEAP) computer workstation provides individuals with physical limitations the opportunity to access the internet and a variety of computer

programs. Individuals can adjust the station to fit motorized chairs and scooters, and can raise or lower it to any height to accommodate both standing and seated positions. The LEAP station is equipped with Screen Magnification Software that allows the user to make the text on the computer screen larger. Users can also change the colours of the text and background so that texts are easier to see. If the user has difficulty reading, Screen Reading Software reads the text on the computer screen aloud for the user. Similarly, users can scan any print document (e.g., newspapers, books, recipes) and use the Optical Character Recognition Scanner to display the document on the screen and read the text aloud. If the user has difficulty navigating the LEAP station physically, the Voice-Operated Dictation Software allows the user to speak into a microphone in order to control the computer using simple verbal instructions. Finally, the LEAP station's Word Prediction Software can assist individuals with neurological communications difficulties with word retrieval or spelling given that it flags spelling errors and suggests potential word choices when formulating sentences. These programs can also reduce the number of keystrokes necessary, which can be beneficial for individuals with physical limitations (Dietz et al., 2011).

There is one LEAP station available at the downtown library location (Stanley A. Milner Library) on the first floor, just behind the library staff's desks. They have a second LEAP station at the Stanley A. Milner Library, but it is currently under maintenance. This area of the library is where equipment for patrons with physical, visual, or learning needs is located. EPL staff members will provide orientations and answer questions about any of the equipment. The LEAP station offers a variety of valuable resources to many members of the community who may otherwise feel that they are unable to access current technology.

Computer exercises support many domains of language and cognitive-linguistic skills. Golasheky (2008) found that work with computers promotes development in "word retrieval, grammar, reading, spelling, reasoning, memory, pronunciation skills, sentence production tools, and functional skills (such as telling time, following directions, counting money, etc." (p. 581).

Alternative keyboards and mice. Individuals with neurological communication may have physical, visual, or cognitive difficulties and therefore may find it difficult to use a traditional keyboard or mouse. Dietz et al. (2011) identified alternative keyboards as a tool to help individuals bypass their physical impairment and allow them to type effectively. The EPL offers alternative keyboards and mice, which can be used with traditional computers found at the library. This allows individuals with various visual, cognitive, and gross and fine motor needs to use the computers at the EPL. The alternative keyboards and mice are found at the LEAP stations at the Stanley A. Milner Library.

Internet access. The internet (via branch computer stations) and wireless internet connections (via personal devices such as laptops and iPads) are available at all EPL branches, free with EPL membership. Individuals can use the internet to access websites, personal email accounts, and social networking sites. Stoddard and Nelson (2001) indicate that the internet "is particularly relevant to individuals with disabilities and other groups who have been underrepresented in or underserved by traditional information, communication and educational systems." (p.14). In addition, the internet has the ability to reduce barriers (e.g., difficulties with hearing, communicating, or travelling into the community) by providing opportunities for individuals with neurological communication difficulties to stay connected to their friends, family and other social networks (Stoddard & Nelson, 2001; Beukelman et al., 2007).

Computer software & programs. Word processing programs are available at all of the library branches in Edmonton and can be very useful for individuals with neurological communication disorders. Standard word processors such as Microsoft Word come with supports such as spelling and grammar checks, a thesaurus, formatting options, and document templates. These supports may allow individuals with neurological communication disorders who have difficulty with sentence structure, word choice, grammar, spelling, and editing to type documents (e.g. letters, stories, or recipes) and better organize and communicate their ideas (Graves 1984, as cited in King & Hux, 1995).

E-readers. E-readers are available for use at any of the EPL branches. E-readers can be placed on hold and then picked up by library patrons. They are a relatively new technology that may allow individuals with neurological communication disorders increased access to books and magazines. E-readers allow users to make the size of the print as large as they want and to highlight key words, which can make the task of reading easier. Increasing the size of the print can benefit those with visual difficulties and highlighting key words can help individuals with neurologic communication difficulties focus their attention to the most important details (Dietz et al., 2011). E-readers also have "a text to speech feature that allows the reader to benefit from 'multi-modality input' while reading" (p. 761, Dietz et al., 2011), i.e., receiving visual and auditory input simultaneously. Research has shown that individuals with neurological communication disorders may benefit from access to information in multiple modalities (Van de Sandt-Koenderman, 2004).

E-readers may also connect to social network sites (such as Facebook and Twitter) and allow individuals to show friends and family magazines, books and news articles they have read

and recommend (Dietz et al., 2011). Additionally, according to a study by Van de Sandt-Koenderman in 2004, many users of assistive technologies such as augmentative and alternative communication (AAC) devices or communication books are often hesitant to do so in public, but may feel that typically used digital devices are less associated with a disability (e. g. e-readers, iPhones, or palmtop computers). Furthermore, many individuals who use these AAC book systems will do so in unfamiliar settings therefore achieving communication independence (Van de Sandt-Koenderman, 2004).

Hand held magnifiers. Research exploring reading ability in individuals with neurological communication disorders shows that increasing the amount of whitespace on a page and using larger print aid in successful and accurate reading (Dietz et al., 2011). While EPL carries a variety of book collections and electronic devices that allow the individual to adjust these features, they also have a collection of hand held magnifiers for use by the public to increase accessibility to other written materials. They can be found at most library locations. Any member of the library staff can give library users access to magnifiers upon request. A hand held magnifier is an easy and discrete way to increase the print size of a text that cannot be otherwise easily manipulated.

## **Special Collections**

**DAISY books.** Research shows that 92 percent of individuals with neurological communication disorders experience visual deficits, and although some of these individuals will recover visual function, the majority will have lifelong visual impairment issues (Rowe et. al, 2008). Some common occurrences include visual field impairments, known as hemianopia, a condition where certain dimensions of the visual field are blurred, or completely cut off from processing. As a result, written text can be difficult for people with neurological communication

disorders to access (Brennan, Worrall, & McKenna, 2011). Fortunately, many of these difficulties can be allayed by using written materials that are presented in alternative formats (Brennan, Worrall, McKeanna, 2011; Dietz et al., 2011).

DAISY books are a collection of digital talking books that are played on a specialized player. The patron can bring the book to the DAISY player, insert the accompanying CD, and listen to the text as it is read aloud. Unlike an audiobook, individuals can mark where they have stopped reading with ease, allowing them to return to the book later without needing to recall where they have left off, which reduces the cognitive load required for individuals with memory difficulties. This specific collection is intended for those who are blind or visually impaired; however, it is also appropriate for many individuals with neurological communication disorders who are experiencing vision difficulties or visual processing deficits such as alexia (Papathanasiou, Coppens, & Potagas, 2013). The auditory playback feature of this collection allows its users to bypass the visual system entirely. DAISY players and DAISY books can be borrowed from the library upon request. The request must be made with any librarian at the Stanley A. Milner library.

Audiobooks. Collections of audiobooks are available at all library locations and provide an alternative method of access for individuals with neurological communication disorders who have reading difficulties. Those who enjoyed reading prior to their communication disorder can continue with the activity through the use of audiobooks. Forsblom et al. (2010) found that listening to an audiobook stimulated the mind and evoked memories of the past in individuals recovering from stroke. These individuals also showed an enhanced recovery of auditory sensory memory functions. These benefits to recovery compounded with increased quality of life make this collection a powerful potential tool.

"High interest - low literacy books." This collection of books offered at the downtown EPL branch provides adults with the opportunity to read popular fiction at a lower literacy level. The lower literacy level of this collection ensures that the reading material has a simpler writing style, featuring less complex grammatical structure, and fewer challenging vocabulary words (Brennan et al., 2011; Dietz et al., 2011). In addition, this collection boasts discreet book covers that blend in with other adult novels. Therefore, patrons do not need to identify themselves as lower-level readers to the general public. These discreet covers allow the individual to feel free to participate in literacy activities they may have enjoyed prior to their stroke, such as reading on public transportation or in a community park, and not feel the need to disguise their reading materials (Cruice et al., 2003). The "high-low" books are shelved among the rest of the library collection and are not located in a specific area. As this collection is dispersed throughout the library to allow for anonymity, individuals who wish to gain access to these books are encouraged to speak with a librarian who can locate available novels.

Large print books. This collection of books is available at all EPL locations with the greatest selection residing downtown in the Stanley Milner Library. The larger print and increased amount of whitespace within these books make them an ideal resource for adults with neurological communication disorders. The larger print size is not only easier for the eye to focus on and therefore optimal for those with visual deficits or impairments, but it can also aid in increasing reading comprehension in individuals as larger print is easier to read (Dietz et al., 2011). Similar to the high interest - low literacy books, the covers of the large print books resemble typical book covers.

### **Summary and Next Steps**

EPL currently houses an abundance of materials, technology, and services that have an immense potential to benefit individuals with neurological communication disorders. This SPA 900 project created a working prototype, which is only the first step in creating a functional brochure for this population. The brochure includes information on the services, materials, and technology that the EPL provides for public use. It features a colour coding system for easy identification of appropriate materials as well as large amounts of whitespace to assist users with reading and comprehension. The next step will be to trial the brochure with a sample of individuals with neurological communication disorders, to observe the usability of the brochure and gather feedback to make improvements. Once the brochure has been amended according to the feedback received, the brochure may be made available to adults with neurological communication disorders and their current and potential communication partners. Distributing the brochure to a widespread audience will provide individuals who may benefit from these resources with the opportunity to access them.

Once in the community, the content and design of the brochure may be adjusted further by future SPA 900 groups as a result of feedback from EPL staff, S-LPs, and clients with communication disorders. This would ensure that the brochure is meeting the users' needs. Furthermore, a research synthesis/summary of the feedback received will inform researchers and practitioners of best practices when developing resources for individuals with neurological communication disorders.

As the library is currently taking data on how often the equipment and resources at the library are being used, a future project could include evaluation of this data. Data from both before and after brochure distribution could be analyzed to determine whether the brochure was

successful in raising awareness of the EPL resources that may be beneficial for adults with neurological communication disorders.

Finally, it is hoped that a collaborative relationship can be maintained with the EPL to ensure continued usefulness and relevance of the brochure. If there is interest within the EPL, inservices can be provided to EPL staff members for the purpose of educating them on how the resources within the brochure can be useful for individuals with neurological communication difficulties. In addition, the in-service would provide information to EPL staff members about the nature of communication disorders as well as strategies for successful communication interactions. Overall, these in-services would allow staff members to gain a better understanding of how they can make the library more accessible for this population.

In conclusion, this project completed the first phase in the development of a new brochure that highlights the applicable resources that the EPL has to offer to adults with neurological communication disorders. Future SPA 900 research groups will assess the validity of this brochure as a community tool for increasing awareness and use of the resources that EPL branches across the city have to offer.

#### References

- Alzheimer Society of Canada (2011). What is dementia? Alzheimer Society of Canada. Retrieved

  November 24, 2013 from http://www.alzheimer.ca/en/About-dementia/Dementias/Whatis-dementia
- Beukelman, D. R., Fager, S., Ball, L., Dietz, A. (2007). Augmentative and alternative communication use and acceptance by adults with traumatic brain injury AAC for adults with acquired neurological conditions: a review. *Augmentative and* Alternative Communication. 23(3), 230-242.
- Beukelman, D. R., Mirenda, P (2013). Augmentative & alternative communication: supporting children and adults with complex communication needs. Baltimore: Paul H. Brookes Publishing.
- Brain Injury Association of America (2013). About brain injury. *Brain Injury Association of America. Retrieved November 24, 2013 from http://www.biausa.org/about-brain-injury.htm#definitions*
- BrainTrust Canada. (2011). A Second Can Last a Lifetime. [Brochure]. Kelowna, BC: Author. Chua, K.S., Ng, Y.S., Yap, S.G., & Bok, C.W. (2007). A brief review of traumatic brain injury rehabilitation. *Journal of Ann Acad Med Singapore*, 36(1), 31-42.
- Brennan, A. D., Worrall, L. E., McKenna, K.T. (2005). The relationship between specific features of aphasia-friendly written material and comprehension of written material for people with aphasia: an exploratory study. *Aphasiology*. *19* (8). 693-711.
- Cruice, M., Worrall, L., Hickson, L., & Murison, R. (2003). Finding a focus for quality of life with aphasia: social and emotional health, and psychological well-being, *Aphasiology*, 17(4), 333-353.

- Dietz, A., Ball, A., & Griffith, J. (2011). Reading and writing with aphasia in the 21st century: technological applications of supported reading comprehension and written expression. *Top Stroke Rehabil.* 18 (6), 758-769.
- Dykstra, A. D., Hakel, M. E., & Adams, S. G. (2007). Application of the ICF in reduced speech intelligibility in dysarthria. *Seminars in Speech and Language*. 28 (4). 301-311.
- Edmonton Public Library. (2013a). *EPL's Community led service philosophy*. Retrieved from http://www.epl.ca/community-led-philosophy
- Edmonton Public Library. (2013b). *Community-led service philosophy toolkit*. Retrieved from http://www.epl.ca/sites/default/files/pdf/CommunityLedServicePhilosophyToolkit.pdf
- Forsblom, A., Särkämö, T., Laitinen, S., & Tervaniemi, M. (2010). The effect of music and audiobook listening on people recovering from stroke: the patient's point of view.

  \*Music and Medicine. 2(4). 229-234.
- Garcia, L.J., Laroche, C., & Barrette, J. (2001) Work integration issues go beyond the nature of the communication disorder. *Journal of Communication Disorders*. 35 (2002), 187-211.
- Golasheky, C. (2008). Technology applications at the Adler Aphasia Centre. *Top Stroke Rehabil.* 15 (6), 580-585
- Government of Canada, S. C. (2013, September 25). CANSIM 105-1305 Neurological conditions in institutions, by age, sex, and number of residents, Canada, provinces and territories, 2011/2012. Retrieved November 5, 2013, from http://www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=1051305
- Heart & Stroke Foundation (February 2012). What is a stroke? *Heart & Stroke Foundation*.

  Retrieved September 29, 2013, from

- http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3483935/k.736A/Stroke\_\_What\_is Stroke.htm
- Hallowell, B., & Chapey, R. (2008). Introduction to language intervention strategies in adult aphasia. In R. Chapey (Ed.), *Language intervention strategies in aphasia and related neurogenic communication disorders* (5th ed.) (pp. 3–19). Philadelphia, PA: Lippincott Williams & Wilkins.
- Hoen, B. Thelander, M., & Worsley, J. (1997). Improvement in psychological well-being of people with aphasia and their families: evaluation of a community-based programme. *Aphasiology*, 11(7), 681-691.
- Janssen, H., Ada, L., Bernhardt, J., McElduff, P., Pollack, M., Nilsson, M., & Spratt, N. J.
   (2014). An enriched environment increases activity in stroke patients undergoing rehabilitation in a mixed rehabilitation unit: a pilot non-randomized controlled trial.
   Disability and Rehabilitation, 36(3), 255–262. doi:10.3109/09638288.2013.788218
- King, J.M., & Hux, K. (1995). Intervention using talking word processing software: an aphasic case study. *AAC augmentative and alternative communication*. *11*(3),187-192. doi:10.1080/07434619512331277309
- Le Dorze, G., & Brassard, C. (1995). A description of the consequences of aphasia on aphasic persons and their relatives and friends based on the WHO model of chronic diseases.

  Aphasiology, 9(3), 239-255.
- Papathanasiou, I., Coppens, P., & Potagas, C. (2013). *Aphasia: and related neurogenic communication disorders*. Burlington, MA, USA: Jones and Bartlett Learning.

- Rowe, F., Brand, D., Jackson, C. A., Price, A., Walker, L., Harrison, S., Freeman, C. (2009).

  Visual impairment following stroke: do stroke patients require vision assessment? *Age*and Ageing, 38(2), 188–193. doi:10.1093/ageing/afn230
- Shepperd, T. A., & McDougall, S. (2008) Communication access in the library for individuals who use augmentative and alternative communication. *Augmentative and Alternative Communication*. 24 (4). 313-322.
- Staines, W. R., McIlroy, W. E., & Brooks, D. (2009) Functional impairments following stroke: implications for rehabilitation. Current Issues in Cardiac Rehabilitation and Prevention. (5-8).
- Stoddard, S. & Nelson, J. (2001) Math, computers and the internet: Better employment for persons with disabilities. *American Rehabilitation* 26 (1), 9-14.
- Teasdale TW, Engberg AW. (2005). Psychological consequences of stroke: a long-term population-base follow-up. *Brain Injury 19*(12):1049-1058.
- Van de Sandt-Koenderman, M. (2004). High-tech AAC and aphasia: Widening horizons? Aphasiology. 18 (3), 245-263.
- Wood, J.P., Connelly, D.M., & Maly, M.R. (2008). 'Getting back to real living': a qualitative study of the process of community reintegration after stroke. *Clinical Rehabilitation*. 24, 1045-1056. DOI: 10.1177/0269215510375901
- Zemva, N. (1999). Aphasic patients and their families: wishes and limits. *Aphasiology*, 13(3), 219-234.