

Running Head: A PROPOSAL FOR INCLUSION

A Journal to Inclusion

by

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Dedication

To my inspiration.
Oliver Bernard Bosma
Nov. 28. 2011

To my biggest supporters.
Trevor and Ivy

To the reason I can see the beauty in all children. In memory.
Bernard Briske
Sept. 29. 1956- Feb. 23. 2009

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Abstract

Traumatic Brain Injury is constantly on the rise however the budget allotted towards inclusive education is not. Teachers and educational staff are not properly prepared to support children in the school systems with Traumatic Brain Injury. This paper looks at the key factors affecting children upon their re-entry into the school system following a Traumatic Brain Injury. It provides ideas and supports for teachers as well as families while taking a look into current models in the education systems.

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Chapter One

Oliver's Story

Next time you see an expectant mother ask them if they are hoping for a boy or girl. The response you will get will be along the lines of “it doesn't matter as long as it's healthy”. That baby is born, “happy and healthy” and you are naïve to the world of a medical child. You don't realize that just because a baby is born healthy does not mean they will always be healthy.

Oliver was born on November 28, 2011. He was born happy and healthy seven pounds and seven ounces of pure joy. Happy, healthy until one day in the blink of an eye, everything changed. The world as I knew it no longer existed.

It is said that a mother must trust her intuition. At 15-months old when my son Oliver was going on 3 weeks of being sick I knew something was not right. It was then, that he was diagnosed with Type 1 diabetes. The truth of diagnoses which came with my first intuition that led to Oliver's Type 1 diagnoses and my knowledge due to my academic background of how a child should develop, is what then led me to a quick, painful and scary diagnoses of 21 month old Oliver.

On August 12, 2013 after approximately one month of watching my son decline before my eyes- lose his ability to walk, have severe and permanent headaches, completely lose his appetite and starting to experience vision problems and eye crossing, he was diagnosed following an emergency MRI with a brain tumor, the size of a Christmas orange located on the brain stem. The tumor had debilitated his ability to walk, he had hydrocephalus (a build up of fluid in and around the brain), poor vision and difficulty breathing. He was declining rapidly right before our eyes. We were informed by a world-renowned neurosurgeon that we would not be going home, not for a long time, and when the time came we may not be going home with our son. We learned that Oliver would undergo emergency brain surgery lasting up to 16 hours, the potential

for months in recovery and an unknown and possibly fatal outcome. At the time of his diagnosed I was 9-months pregnant with our daughter, working on my Master's degree in Education and learning the in's and out's of managing a child with Type 1 diabetes.

His diagnosed tumor, a Choroid Plexus Papilloma is a non-cancerous (benign) tumor of the choroid plexus. Upon diagnoses it is not determined what type of tumor a child has, that comes weeks later after a biopsy is performed. From diagnoses of a tumor to determination of the type, parents go through a long and difficult waiting process to see if their child will have successful abstraction surgery and if they will be required to undergo chemotherapy and radiation.

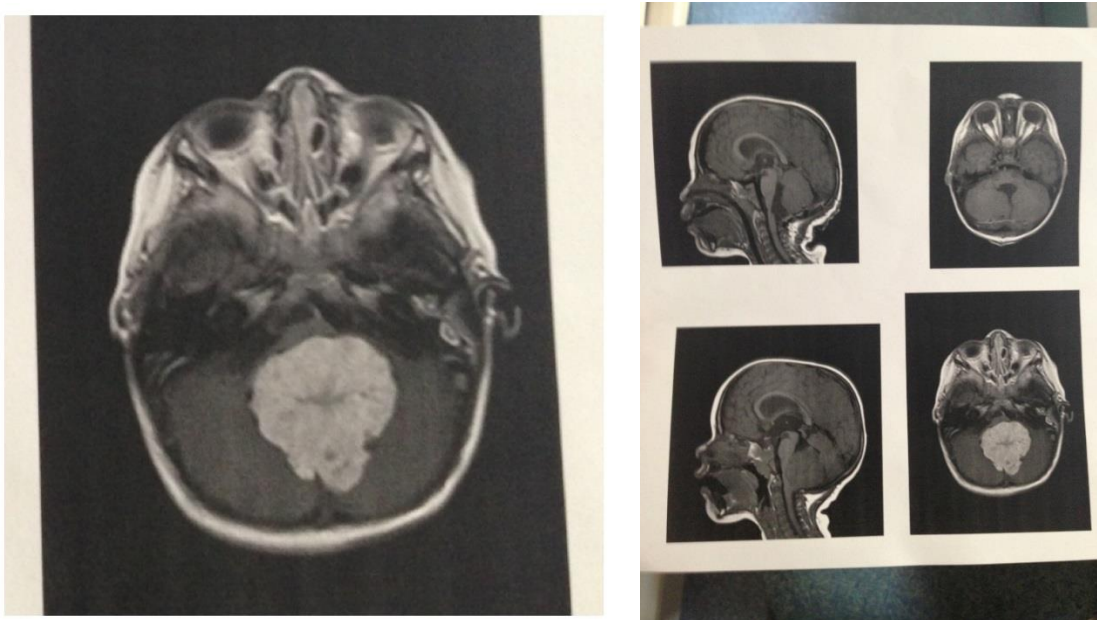


Figure #1: MRI Scan August 2013

**The white mass in the photo is Oliver's brain tumor. You can see constricted airways, pressure on the brain, and a compressed brain stem. In picture 2, the top two frames show Oliver's skull and brain post-surgery.*

Among the list of potential outcomes of brain surgery was; inability to walk, inability to talk, inability to feed himself, reliance on a breathing tube, seizures, strokes, debilitating headaches, severe mood and behavior changes, learning disabilities ranging from moderate to severe and of course, the possibility of death.

I will never forget the feeling of hearing those words “and of course, the possibility of death”, I’ll never forget the crushing pain I felt when I realized that the time I had left with my son could be limited to a meager 12-hours. You cannot catch your breath, you are suddenly useless and the life of your child is the hands of someone you just met. I couldn't imagine how I would survive if I lost my son. I also could not imagine how I would survive if all of a sudden my "healthy" son became a child with a severe special need. I wondered how I would manage if he was in a wheelchair for the rest of his life, on a breathing tube or G-tube forever, what if he had severe learning disabilities. It was in that moment that I began to see children with special needs in a whole new light. I remember a good friend saying "at least it was you, if anyone can handle it, it's you, because you're a teacher and you deal with this all the time, you know exactly what to do".

I realized that this statement could not have been farther from the truth. I decided that I wouldn't let myself entertain the possibility of death; instead I would focus on the positives. However, my "teacher" mind started wandering towards the thought of him going to school. If he leaves this surgery with a severe special need, what would this mean for his future in school? How would we work with his school to ensure the best possible inclusion and supports for him?

I was now on the "other side" no longer the less-than understanding teacher, but now the mom walking in the shoes of all the moms before me with a medical child. Suddenly I understood why these parents were often over-bearing, sometimes "too" involved as I once thought, worried and

ridden with anxiety.

Now I understood. The prospect of emerging your medical child into the school system is terrifying. You have a child who depends on you every second of the day just so they can survive. I finally understood, I got it, the pain of watching your child experience something beyond your control, something that as a parent we wish we could take away but we can not.

These parents have sometimes experienced the fear of losing their child, these parents are aware of the reality that comes with children; that they are not always blessed with a perfect and healthy life.

Trust me when I say that once you have experienced the life of your child change in the blink of an eye, when the harsh reality hits you that not everyone is privileged enough to live a long healthy life, it becomes extremely difficult to let go of your control over your child especially once they are put into a care system whether that be daycare, day homes, babysitters or school.

The majority of parents are thrown into the role of "medical Mom or Dad" as the result of an unfortunate event. These parents aren't ready for this and they aren't prepared; are we ever?

Going back to what my friend said, I knew that just being a teacher didn't give me any kind of "head start" or any special understanding. I realized I had spent my first few teaching years nodding and smiling when a parent came to me with "my son has.." Or "my daughter has.." I would promise them that their child would be fine and I would make sure to give them the best opportunities possible. I knew I would take good care of the children while they were in the classroom and I would keep them safe, but I never knew if I could go much above and beyond that. I knew that as a teacher there just aren't enough resources out there to support us in the classroom with all these many different special needs.

I started to realize that prior to Oliver's diagnoses I did not have the empathy towards these

children that I should as a teacher. I did not have any type of connection, personal experience or feelings that made me more understanding. It was clear to me that the way I was feeling is a way that many other teachers probably feel when they have a child put into their classroom with a special need. As teachers we are educated on how to teach these children, how to give them a fully supportive and inclusive environment. We are not taught how to fill the rest of our “un-written” job description. With that comes the lack of knowledge of inclusion of children with special needs. The resources available and PD sessions are slim or too vague and there is typically poor communication (if any) between the hospital or treatment center and the school. Parents have to put some level of trust in the school system; they can work with the school to create the best experience possible. In my current role I cannot confidently say that all children with severe needs receive the very best supports and experience possible. I know that teachers truly do not have the knowledge or resources available to set these children up for a bright and successful future.

Schools are often moving students along because we really don't know or understand what more we can do with these children. This is what scared me about the current situation with my own child. If anything happened to him, would he become the child that is passed along through school, between teachers who do not understand until somewhere along the lines he falls through the cracks?

After diagnoses, Oliver was admitted straight up into the intensive care unit. I laid down in his tiny hospital bed and cuddled my son the whole night. Holding him, tears streaming down my face, worried about the future, worried about his school future, worried about his next hour, his tomorrow.



Figure #2: Admission to PICU

**Oliver 3 hours after diagnoses in ICU.*

At 7:00am, the day after diagnoses he was wheeled away to the operating room. I kissed his cheek and told him I loved him while the anesthesiologist put him to sleep. I walked out of the operating room, leaving Oliver behind and feeling useless and helpless. My last moments on the operating floor were spent begging the surgeons and nurses to please take care of my baby. Oliver's surgery lasted a grueling 8 hours and we received the incredible news that it had gone even better than expected, they removed the whole tumor, and he would be up in recovery soon.



Figure #3: Post-Surgery in PICU

**Oliver after returning to ICU from surgery*

While this was a relief there was still plenty of worry and unknowns. Once he finally opened his eyes I wondered, would he breathe on his own, would he be able to talk, would he ever walk again, was he now blind, did the surgery leave him paralyzed?



Figure #4: Post-surgery day 2 in PICU

**Oliver 8 hours post-brain surgery*

To the surprise of the staff at the Stollery Oliver had a fast and miraculous recovery. From diagnoses to surgery to a full recovery it had only been two weeks. We returned home with Oliver on August 25th and embraced his new lease on life and his brand new baby sister.



Figure #5: 6 days post-surgery

**Oliver 6 days post-brain surgery, Ivy 13 hours old.*

Upon returning home Oliver was walking, running, laughing, talking and eating; doing everything on his own, he was a happy healthy little boy. We were lucky, we knew we were lucky and we knew Oliver was lucky. Not everyone is as lucky.

Following this experience I could not stop thinking about these children with brain injuries and other special medical needs. The school system is a key building block for the future of children, yet we as teachers know little to nothing about children with brain traumas or injury.

While staying in the ICU I met a family with an 8-year old boy. The pictures that covered his hospital room showed a happy, energetic, typical grade 3 student. The boy lying in the hospital bed was no longer this same child. His life, and the life of his family had changed in the blink of an eye.

On the August 2013 long weekend the family had been at their community swimming pool. A regular day turned into tragedy when the boy slipped under the water and drowned. In the

medical world, drowning is classified as “a process resulting in primary respiratory impairment from submersion in a liquid medium. Implicit in this definition is that a liquid-air interface is present at the entrance to the victim's airway, which prevents the individual from breathing oxygen. Outcome may include delayed morbidity, delayed or rapid death, or life without morbidity.” In this situation the boy was underwater for long enough that he was now paralyzed from the neck down.

Through conversations with the mom of this young boy many of the worries she had for her sons future were about the unknown. She didn't know where he would go for school, how his friends would react to him now or would he still have friends, would he still be able to learn. Many of her worries were the same that I had thought of during our experience with Oliver.

The experience with my son and with spending time with other families got me thinking further into the futures of these children. If a previously healthy child leaves school on Friday and is in a life changing accident that results in a severe brain trauma, what does that mean for the child's future in school?

What if a child is diagnosed with a brain tumor as my son was, and returns to school a month later after undergoing brain surgery now no longer the healthy happy child that left but as a child with a severe disability due to his surgery, radiation or chemotherapy.

What if a young child who is not yet in the school systems undergoes a Traumatic Brain Injury (TBI) and as a consequence will later struggle socially, emotionally, behaviorally or academically in school?

What becomes of these children and how do we as educators ensure that we are giving them and their families all the necessary supports that we are capable of?

This leads me to the question; "how can education system best support students/families who are

returning to class with a TBI or entering school following a TBI as a pre-school aged child?”

Chapter Two

Literature Review of Traumatic Brain Injury (TBI):

A literature review of 22 articles and scholarly websites published between March 1996 and February 2013 identified 10 categories of relevant characteristics to the inclusion of children into the school system following traumatic brain injury (TBI).

These categories are identified as the following:

1. A Background of Traumatic Brain Injury
2. Statistics of Traumatic Brain Injury
3. Age of injury
4. The Initial Return to School- Importance of early Intervention and Important factors that predict successful reintegration
5. Struggles and Consequences in the Classroom: Academic, Behavioral and Social-Emotional
6. Carry through to middle school and adulthood
7. Impact on Family Environment and Supports currently in place for Families
8. Current inclusion models of TBI in Education systems
9. A look at Edmonton Catholic Schools Inclusion Policy

A Background of Traumatic Brain Injury:

Traumatic Brain Injury (TBI) according to Jantz (2007) “occurs when an external mechanical

force causes brain dysfunction”. TBI means “an acquired injury to the brain caused by an external physical force, resulting in total or partial functioning disability or psychosocial impairment” (p. 87)

Traumatic brain injury usually results from a violent blow or jolt to the head or body. An object penetrating the skull, such as a bullet or shattered piece of skull, also can cause traumatic brain injury. Mild traumatic brain injury may cause temporary dysfunction of brain cells. More serious traumatic brain injury can result in bruising, torn tissues, bleeding and other physical damage to the brain that can result in long-term complications or death.” (p.89). Children are strongly represented in the statistic of TBI’s, with the age group of 9 and under being the highest represented.

Traumatic Brain Injuries are often a life-changing event, occurring in the blink of an eye. Following motor vehicle accidents are falls, violence and sports injuries. The rate of TBI’s is steadily on the rise each year reaching “823.7 per 100,000” hospital visits in the United States in 2010. Of those 823.7 there are close to 100 hospitalizations and 20 deaths. The research done by Farmer (2010) states that children and adolescents represent more than 60,000 hospitalizations and an additional “631, 146 children are seen in emergency rooms and released” (p. 88) Of those children, at least “1 child in 500 receives injuries severe enough to cause lasting learning or behavioral problems.” (Tucker, 1992). Currently that means “nearly 145,000 children aged 0-19 years are living with long-lasting, significant alterations in social, behavioral, physical and cognitive functioning following TBI” (Farmer, 2010, p. 89). Jantz (2007) found that impairments following TBI can occur in many different areas including “cognition, language, memory, attention, reasoning, abstract thinking, judgment, problem solving, sensory, perceptual and motor

abilities, physical functions, information processing and speech” (p. 85)

In the school system Farmer (2010) suggests that “students are expected to become more independent learners, demonstrate self-regulatory skills, and master increasingly complex skills and more abstract concept” (p. 88). For a school aged child with TBI these can all cause challenges.

Research done by Farmer (2010) has suggested that the “lack of awareness [of TBI] leads to a perception amongst school staff that TBI is a low incidence disability” (p. 87) and the need for education on this topic is un-necessary.

Statistics:

Traumatic Brain Injuries are quite often overlooked with their severity and rate of instance. The effects of TBI can often mimic other health or behavioral conditions and as a result students are treated as though they have a behavioral struggles. In reality the statistics of brain injuries amongst young children is alarming. With “more than 60,000 children and adolescents hospitalized annually in the United States after sustaining moderate-to-severe brain injuries from motor vehicles crashes, falls, sports, physical abuse; an additional 631,146 children are seen in emergency rooms and released” (Farmer, 2010, p. 89). A review of the literature concludes that traumatic brain injuries are on a steady rise, “between the period of February 2001 and August 2003 the prevalence rate for pediatric admissions to Intensive Care after a TBI was 5.6 per 100,000 per year” (Boylan, 2009, p. 265). Thankfully, due to improved ER and hospital care, the number of TBI related deaths has decreased.

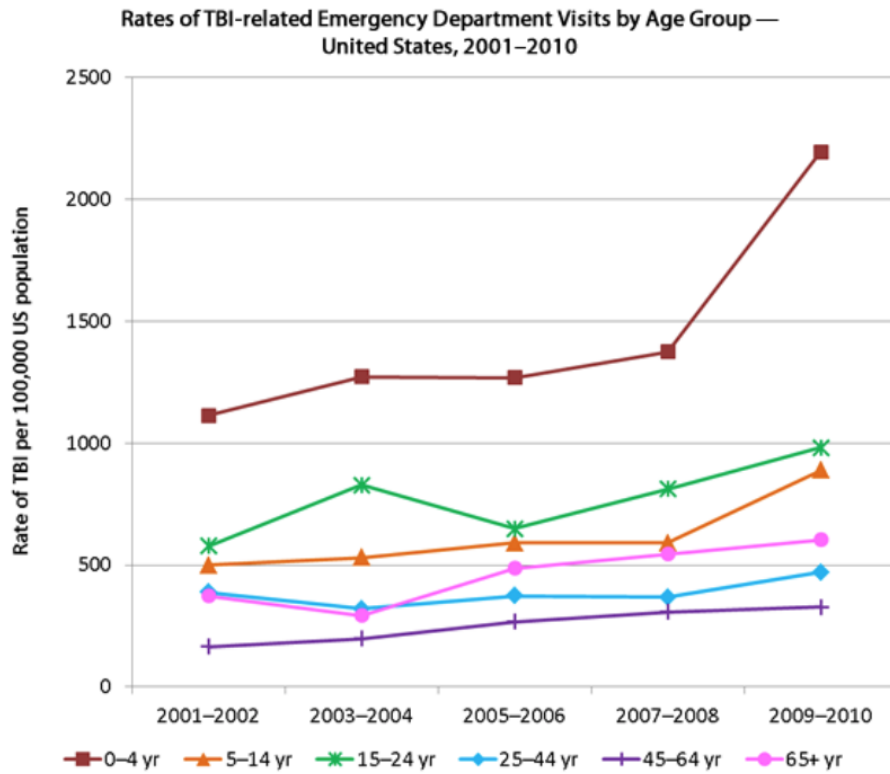


Figure #6: Rates of TBI-related emergency room visits by age group

According to the center for disease control and connection, in 2010, about 2.5 million emergency department visits, hospitalizations, or deaths were associated with TBI in the United States. TBI contributed to the deaths of more than 50,000 people, was a confirmed diagnosis in more than 280,000 hospitalizations and 2.2 million ER visits. In 2009, an estimated 248,418 children (age 19 or younger) were treated in U.S. A common trend throughout TBI research suggests that one of the leading causes which accounts for over 40% of brain injury is falls. Falls are what affect our youngest and most vulnerable age group of children. These are the children who are often not yet in the school system and therefore we do not see the affects of their TBI until they are

school aged. Second, “unintentional blunt trauma (e.g., being hit by an object) was the second leading cause of TBI, accounting for about 15% of TBIs in the United States for 2006–2010.” Not surprisingly, the third leading cause of TBI (14%) is motor vehicle accidents. The last and least likely cause of TBI in young children is due to assault, however assault is the leading cause of death in children aged 0-5. Assault “accounted for 3% of TBIs in children less than 15 years of age”. A connection between the type of TBI in young children and family income has not been conclusively made however research by Boylan (2009) suggests that “TBI is common in children from poorer backgrounds who have been involved in [some type of] accidents” (p. 265)

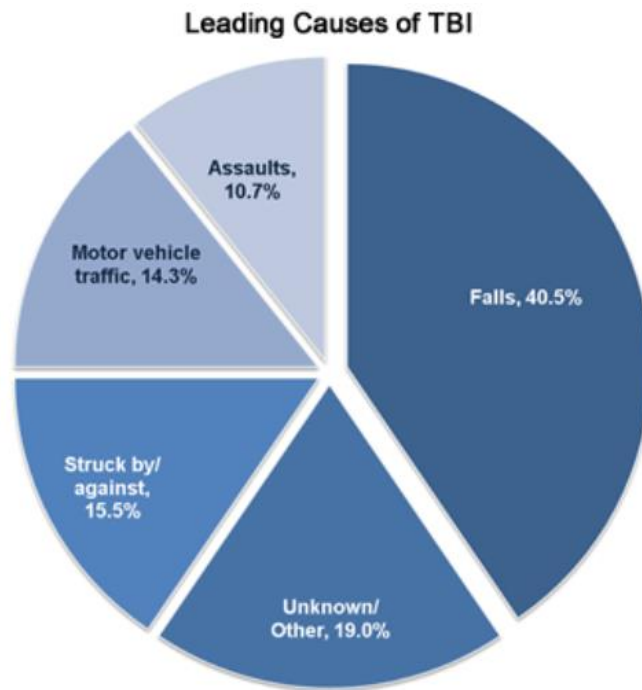


Figure #7: Leading causes of TBI

Medical statistics prove that there is a high rate of children with some degree of TBI. On the educational side of TBI teachers are lacking knowledge within the school systems and TBI's are in desperate need of attention.

Traumatic Brain Injuries are considered low-incidence disabilities, amongst others including “autism, deaf-blindness and deafness” (Stonnington, 1996). Literature states that “effective instructional and behavioral support strategies implemented by trained educators can help mitigate the academic and behavioral challenges associated with childhood brain injury” (Stonnington, 1996). There are a very limited amount of teacher preparation programs in Canada that provide pre-service or in-service teachers any type of training for student support with these low-incidence disabilities. Research conducted by Glang (2010) that focused on pre-service teacher education concluded that “the training provided by university teacher preparation programs is clearly inadequate, a problem that cuts across the professions that work with school-aged students” (p. 428). Amongst different researchers the information determined that “educators need training in methods validated for students with traumatic brain injury (TBI) and in adapting strategies validated for students with other disabilities” (p. 430). The current statistics of TBI mean that over 145,000 children are currently living with “some type of long-lasting, significant alterations in social, behavioral, physical and cognitive functioning” (Farmer, p. 32). With that prevalence of TBI in the United States and Canada, especially for young school-aged children programs of support and teacher education are needed to be put into place to help students re-integrate and support teachers in creating a successful inclusive plan and positive learning environment. Support for teachers will help reduce teacher burnout, workload and stress when related to assisting and educating children with TBI.

Age of injury:

The age of injury at which a child receives a TBI can determine the child’s long-term outcome for recovery and success (academic, behavioral and social-emotional). A assessment of the literature concludes that a shocking “40% of all attendees for traumatic brain injury are under the

age of 14”(Tonks, 2009, p. 8) With Tonks (2010) researching showing that the instance of “moderate to severe head injuries in urban males and females under 5 years of age [being] highly represented.”(pg.8)

A child under the age of 5 years old can often have a TBI that is misdiagnosed, improperly documented or more often consider un-important in the child’s long-term development, specifically when they reach school age. Recent studies have examined the effects of very early TBI and they “suggest that the timing of brain injury is important, with younger age being associated with more severe outcomes”. (McKinlay, 2010, p. 23). It is proven that the brain is “undergoing the most marked developmental changes prior to age 5, especially in terms of the prefrontal cortex” (McKinlay, 2010, p. 22). Damage and injury to the brain before this age can create long-term lasting effects.

	0-4 yr	5-14 yr	15-24 yr	25-44 yr	45-64 yr	65+ yr
2001-2002	1112.6	498.8	576.9	388.3	164.8	373.1
2003-2004	1272.3	529.8	827.5	320.3	197.3	293.3
2005-2006	1268.3	591.4	648.3	373.0	267.0	485.8
2007-2008	1374.0	590.2	811.3	366.7	307.4	544.7
2009-2010	2193.8	888.7	981.9	470.0	328.2	603.3

Source:

- [National Hospital Ambulatory Medical Care Survey](#) — United States, 2001-2010 (Emergency Department Visits)

Figure #8: Emergency Department Visits

Appropriate medical personnel deal with TBI’s at this young and fragile age and once the child has gone through the recovery process the TBI is dismissed as recovered. Many TBI’s such as mild concussions and falls are not properly followed up- especially long-term, as it typically appears that the child has appropriately recovered. When the child begins school they often struggle with behavior or academics and are diagnosed with a condition un-related to their TBI. Many parents and caregivers do not believe that it is important to inform the schools of pre-

school age brain injury. McKinley (2010), states that what parents and caregivers fail to realize is that “early [age] insult to the brain may interrupt normal development” (p. 22).

In many cases McKinlay (2010) research in the literature suggest that “more severe instances of TBI in pre-school childhood are likely to produce long-term, adverse behavioral developmental outcomes” (p. 27) and in a large number of these children “increased symptoms of ADHD and ODD were evident.” (p. 27).

When children enter the school system and have experienced a TBI early in life according to Tonks (2009) it is important for parents and school staff to consider the effects of “age, possible critical periods in development, and potential delayed developmental effects” (p. 9) as a result of the TBI. Research done by Farmer (2010) suggest that, the major effects “on cognitive and school readiness skills” (p. 28) are affected in children with TBI and this includes “memory, spatial reasoning and EF.” (p. 28). Literature strongly supports that “injury at an early age is associated with the poorest long-term outcomes including cognitive skills recovery” (p. 28).

The age at injury is extremely sensitive because younger children still have developing brains which are “more resilient to trauma because of neuroplasticity [which is] the flexibility of the young brain to reorganize or reassign tasks from one functional area to another” (p. 32) The age of early “injury is associated with poorer outcomes than later injury” (p.33) and the earlier the child’s age at injury the more negatively impacted the child is in “outcomes in likelihood of postsecondary education enrollment, employment and independent living”(p.33).

While traumatic brain injury is significant and potentially devastating at any age the literature (as shown) strongly supports the facts that the earlier a child experiences TBI the more important it is for intervention and supports to create a successful environment and recovery for the child.

The Initial Return:

When dealing with a child with TBI the literature strongly supports that early intervention is key to success of these children. Children with early TBI very frequently make a quick physical recovery, they are discharged from pediatric or hospital care, and are returned to mainstream schools. Tonks indicates that “Their future need for psychological support may remain unmet or may be misattributed to other causes (p. 8). The success of school re-entry is aligning peer support and preparing the student for possible problems” (p. 200 & 202).

Research according to Farmer (2010) indicates that children returning to the school system following a TBI have experienced “shorter inpatient rehab programs” (p. 25) which cause children to return to school not quite ready for integration back into the school system. Following discharge from medical services families experience that there are “not enough services dedicated to” (p. 25) them and in addition there is “lack of access to services” (p. 25) for teachers and schools. “Children are released from treatment with no long term rehab plans and families are left responsible for their recovery, much of the weight of rehab ends up falling on the schools” (p. 26) often due to an unstable or exhausted family environment.

Additionally, many of the effects of TBI are not apparent until the child returns to the school environment leaving the teachers with the full responsibility to properly integrate and educate these students. Jantz suggests that “School personnel should be alert to the range of possible consequences that result from head injury, including subtle manifestation that can be often overlooked or misinterpreted” (p. 84).

Returning to school can be as daunting for the school as it is for the student. Following hospitalization and rehab of a TBI “the majority of surviving children and youth return to school” (Tucker, 1992, p. 199) however, due to lack of knowledge and resources “most schools are not prepared to meet the changed educational needs of the TBI student” (p. 198). It is

hypothesized that many teachers will use strategies frequently used with children who have learning disabilities or behavioral disorders, however recent research suggests, “children post-TBI display a variety of characteristics that are not the same as learning disabilities or behavioral disorders”. (p. 198). This inevitably results in frustrated teachers who are not able to teach to the students needs, and students who are not experiencing the best education. Therefore, not only is education for the teacher necessary but “it is critically important that teachers have a basic understanding of the wide range of obvious and subtle physical, emotional, cognitive and psycho-social outcomes of brain injury” Jantz (p. 84).

In order to have successful reintegration Tucker (1992) suggest that “ a few planned, short visits to school prior to full time re-entry will give the students, peers, and teachers opportunity to get reacquainted” (p. 202). Most children who have sustained a traumatic brain injury, even a severe brain injury, will eventually return to a school or classroom setting following discharge from hospital Klonoff, (1974) The recovery process of TBI can take months to years so these children return to school while still in a phase of recovery. Successful reintegration to school would require the “adaptation of the learning environment, reacquisition of previously learned skills, provision of compensatory aids and strategies, as well as support services from special education providers” Bowen (2015)

The literature supports that successful reintegration or first time integration of a student with TBI requires the process of steps taken. These steps are as follows:

- Setting the Stage:

Regardless of the severity of the injury and length of rehabilitation services, “advance communication and coordination between the hospital, therapists, family, and the school system

is a critical first step in re-integration” Bowen (2015). Communication between hospital’s-care facilities-pediatrician- other medical personnel and school personnel should be ongoing and “the reentry plan determined prior to the student’s return to school” Bowen (2015).

- Assessment

In addition to formalized assessment of cognitive skills that may be conducted, the special education team at the school should “examine, measure, and treat many deficits associated with TBI, particularly behavioral changes related to increased impulsiveness, inappropriate emotional outbursts, aggression, and inattention” Gardner (2003). An assessment of the “environmental variables that contribute to the occurrence of a behavior that is negatively impacting school functioning will assist” in developing effective strategies Gardner (2003).

- Structuring the Environment

Because a TBI involves a progressive recovery process, a student’s physical and mental endurance may be limited during their initial return to school and steadily improve over time. Therefore, consideration “of different schooling options may be necessary, including homebound instruction, gradual increase in school attendance, or change in class schedules to a less demanding course load” Bowen (2004). Academic programming and scheduling must be flexible and customized to fit children’s changing needs. Class enrollment and expectations should be based on students’ current, rather than previous, academic performances. “Rather than push students quickly through classes and require them to make up missed assignments, students should be allowed additional time to relearn concepts and regain skills” Farmer, (1995). Teachers need to focus special attention on the physical arrangement and structure of the classroom to “facilitate mobility and accommodate physical needs” Bowen, (2015). A student with poor mobility may need assistance to participate in typical classroom activities. The school

may need to ensure the availability of accessible bathrooms and ramps. “Frequently traveled areas should be sufficiently wide for smooth transition and be free of obstacles” Bowen, (2015).

It is important that students are “taught and allowed to rehearse the routines of the learning environment, including building orientation and room design” Bowen, (2015). Classroom structure should also include a predictable and consistent routine.

School personal and parents should give some amount of consideration “the length of school day that students can tolerate, their nutritional needs, and their fatigue levels and need for rest breaks; classes should be scheduled to capitalize on optimal attention periods” Mateer,(1997). Students recovering from a TBI are often easily fatigued and benefit from a “schedule consisting of alternating instruction, activity, and rest periods may be needed” Mateer (1997). Students with challenging behaviors are more likely to engage in appropriate, on-task behaviors when presented with a positive, well-understood daily routine. Providing a written schedule or posting a visual chart of the daily routine will help reduce confusion. Students may need simplified instructions, written or picture checklists of task steps, maps, or strategically placed signs to carry out tasks. It is important to involve the student in reviewing the schedule at the beginning of the day or period and verbally review the steps. Transition times and out-of-classroom activities should be preplanned and structured to reduce stimulation and emotional distress. Using auditory or visual cues to signal changes in the routine and giving the student advance warning is also helpful. Teachers of the same student should agree on environmental strategies and apply them consistently throughout the school day.

- Typical Classroom Accommodations

“Another way of altering the environment is to provide external devices and cues that the student can use to compensate for organization, memory, and motor deficits” Mateer (1997). Assistive

devices can include “technical equipment and materials such as tape recorders, calculators, electronic spellers, computers or word processors, augmentative communication devices, timers, alarms, and beepers or equipment for mobility” Greenspan (1994). Other external cues used to remind students include “labels, maps checklists, pictures or icons, photograph cues, post-it-notes, calendars, planners, and journals” Greenspan (1994).

- Available Resources and Services

School districts have a variety of options and resources to accommodate the particular learning needs of students returning to school following a TBI. Because of the extreme variability in outcome following brain injury, a wide range of services and accommodations may be needed and highly individualized planning is required. Many students with mild to moderate TBI can be integrated into existing school programs in regular education with some adaptations and modifications.

- Specialized Teaching Strategies

Some teaching strategies that are effective with students with different types of learning difficulties also may prove useful for students with brain injury. However, teachers must still strive to find what works best with a particular student.

A model of teaching that has proven to be successful with children with TBI's is “Direct Instruction” Engelmann (1982). The term "Direct Instruction" refers to a “rigorously developed, highly scripted method for teaching that is fast-paced and provides constant interaction between students and the teacher” Engelmann (1982). Some recommended steps in using a DI method according to Glang (1992) include the following:

- Select a meaningful goal or skill the student will need to learn and present it at the level of the student;

- Provide a simple rationale to help the student understand the relevance of the skill;
- Give clearly stated task directions (limit the number of steps) and ask the student to repeat or paraphrase the directions to ensure understanding;
- Break tasks into small steps and demonstrate each step;
- Provide opportunities for student response and practice at an appropriate pace;
- Provide immediate feedback and error correction when necessary—feedback should be positive and systematic; and the use of positive reinforcement is a valuable strategy used to create a rewarding environment and successfully reintegrate children with brain injury into school settings (Glang et al., 1992).

Struggles in the Classroom: Social-Emotional and Behavioral and Academic:

The biggest struggle and leading cause of worry for children, teachers, parents and staff facing the re-integration or academic planning of a child with a TBI is the child’s academic abilities, behavioral concerns and social/emotional difficulties.

Physical Impairments	Cognitive Impairments	Emotional Impairments
speech	short term memory deficits	mood swings
vision	impaired concentration	denial
hearing	slowness of thinking	self-centeredness
headaches	limited attention span	anxiety
motor coordination	impairments of perception	depression
spasticity of muscles	communication skills	lowered self-esteem
paresis or paralysis	planning	sexual dysfunction
seizure disorders	writing	restlessness
balance	reading	lack of motivation
fatigue	judgment	difficulty controlling emotions

Figure #9: Impairments as a result of TBI

Throughout research it is commonly noted that “social/affective difficulties, sensory/psychomotor problems, and cognitive/intellectual problems are common and may be permanent.” (Tucker, 1992, p. 199). This can lead a child to stress, anxiety and depression during their time at school, which can also carry through to their home life.

Children who have sustained a TBI may exhibit a wide range of newly acquired deficits or alterations in “cognition, physical mobility, self-care skills, and communication skills as well as changes in emotional and behavioral regulation, which may significantly affect school functioning” (Fletcher, 1988, p. 267). It is important to remember that when it comes to struggles for these children “each child will present a unique pattern ranging from mild to severe.”

(Bowen, 2015)

Depending on the type of injury and the area of the brain affected by the injury, children can experience a wide range of difficulties. “Children with frontal lobe injury typically experience greater difficulty with executive function, which includes attentional processes, self-regulation, goal setting, initiating, and inhibiting behavior. Many behavior and social problems observed in children with TBI are related to poor executive functioning” (Ylvisaker, 2003). These children may experience problems with organization, while different cognitive impairments may include “memory problems, slowed information processing, and language disturbances” (Ylvisaker, 2003). Physical functioning may also become impaired following a TBI. Losing function is “all or some extremities, spasticity, decreased motor speed, and poor coordination in fine or gross motor movements may require physical and environmental accommodations and/or assistance with self-care skills (feeding and toileting) in the school setting” (Ylvisaker, 2003).

Social-Emotional and Behavioral:

Socially, children with TBI's often struggle with peer relationships- making friends, developing friendships and keeping friendships long term. "Children with an early brain injury (before age 2) are at risk for significant social impairment" (Deidrick, 2005, p. 602).

According to Tonks (2009) children with TBI experience friendship and social difficulties because they "typically experience difficulty in understanding the social situations in which they find themselves" (p. 9), resulting in often over or under reacting to social cues and situations. Research supports the social struggles of children with TBI stating that they often "make poor social judgments and lack communication skills essential in negotiating conflict situations" (p. 9). Since these children have difficulty recognizing and reacting appropriately to social cues "brain injuries that result in difficulties in recognizing emotional expression would have profoundly negative consequences for children. Understanding of the communicative emotions of others and the capacity for mutual influence would be lost. Such deficits would have devastating effects on social and intellectual development." (p. 12)

The literature repeatedly supports the following key points regarding children's struggles following TBI:

- Children are significantly less adept at reading emotional expressions.
- There is clear supporting evidence that there are significant detrimental effects of TBI on children's social functioning and behavior.
- The social-emotional effects of TBI cause a significantly lower level of self-esteem and much higher levels of loneliness and lack of friendships.
- TBI in pre-school aged children is frequently related to compromised brain development resulting in lack of and impairment to cognitive control.

- The younger the age at the time of TBI the more frequent the child will experience socio-emotional behavioral difficulties in the classroom.

Children who have experienced a TBI often have significant emotional and behavioral problems, which are closely related and lead to the following major struggles in the classroom:

- Restlessness and agitation
- Emotional instability
- Irritability
- Impulsivity
- Socially inappropriate behavior
- Poor initiative
- Lack of emotional response
- Paranoia, depression and anxiety
- Attention difficulties

Deidrick (2005), suggests that once entered or re-integrated into the school systems “educators might observe social withdrawal behaviors, poor adaptive behaviors, or apparent egocentrism as a result” (p. 603) of the child’s TBI. This will include children who were previously very socially active and had many positive social relationships and experiences. These children miss “important social cues [and] fail to regulate behavior” (p. 603).

It is important for teachers and school staff to understand that the effects of TBI can lead to deviant misbehavior that is not willful. Children with TBI are often blamed for their behaviors and choice of actions when it is typically not their fault. Symptoms of brain injury can be misconstrued as “common behavior or academic problems” (p. 84).

Students who have experienced TBI “might display disruptive behavior, emotional distress, poor conduct and problems with empathy, moral reasoning and peer relationships” (p. 603).

As educators it is important to recognize that very often we are not aware of the struggles that children with TBI face, especially when it comes to their behavior. This is why the research supports that teachers need to be educated in TBI to provide these students with the proper support and understanding to move them forward with dealing with their TBI consequences.

Intellectual, Behavioral, and Social Outcomes of Accidental Traumatic Brain Injury in Early Childhood

TABLE 4				
CBCL and SSRS Scores Across the 3 Groups				
	Mild TBI, Mean (SD)	Moderate/Severe TBI, Mean (SD)	Control, Mean (SD)	Effect size (d) Mild versus M/S, Control versus Mild, Control versus M/S
CBCL clinical scales	<i>n</i> = 19	<i>n</i> = 15	<i>n</i> = 18	
Emotionally reactive	54.00 (7.17)	52.67 (6.09)	51.00 (2.84)	0.20, 0.55, 0.35
Anxious/depressed	52.78 (5.79)	53.00 (4.26)	52.05 (3.84)	0.04, 0.14, 0.23
Somatic complaints	54.10 (6.37)	53.67 (5.68)	52.61 (6.07)	0.07, 0.24, 0.18
Withdrawn	53.57 (4.77)	53.27 (5.68)	51.11 (1.57)	0.06, 0.69, 0.52
Sleep problems	52.57 (5.30)	51.67 (2.19)	52.83 (5.46)	0.22, -0.04, -0.27
Attention	53.00 (5.82)	51.53 (3.07)	50.72 (1.27)	0.32, 0.54, 0.35
Aggressive behavior	52.52 (5.26)	53.53 (7.11)	52.06 (4.07)	0.16, 0.10, 0.25
CBCL summary scales				
Internalizing problems	45.11 (13.17)	47.60 (9.88)	41.72 (10.12)	0.21, 0.29, 0.59
Externalizing problems	43.74 (12.25)	48.47 (10.26)	42.50 (10.22)	0.42, 0.11, 0.58
Total problems	43.26 (12.22)	46.67 (8.68)	40.11 (9.08)	0.32, 0.29, 0.74
SSRS scales	<i>n</i> = 14	<i>n</i> = 12	<i>n</i> = 17	
Cooperation	12.69 (2.34)	13.50 (4.40)	13.76 (2.77)	0.23, 0.42, 0.07
Assertion	15.61 (3.48)	15.91 (3.62)	16.52 (2.91)	0.08, 0.28, 0.18
Responsibility	12.15 (3.57)	12.50 (4.44)	14.00 (3.04)	0.08, 0.56, 0.39
Self-control	15.00 (3.91)	14.91 (4.16)	15.41 (2.45)	0.02, 0.12, 0.15
Standard score	105.23 (16.05)	106.50 (18.96)	112.35 (13.78)	0.07, 0.47, 0.35

Figure #10: Intellectual, Behavioral and Social Outcomes

Academic (cognitive):

Academic deficits due to TBI can be devastating to a student. Research supports that academic deficits can create extreme problems for the students' education present and future. These deficits can later lead to a decline in future employment prospects, increased risks of deviant behavior and higher rate of school dropout. Academically, TBI affects a students by creating injuries that can often "result in impaired visual or verbal processing speed, poor attention and concentration, visual-perceptual spatial processing problems, poor memory, and impaired language skills" (Tonks, 2009. p. 8). Adding to the child's difficulty in school is:

- A short attention span
- Poor concentration
- Deficient short and long term memory
- Inadequate reasoning
- Lack of insight
- Depression, fatigue and apathy
- Poor organization

All of which lead to academic frustrations and struggles.

In relation to specific academic subjects, research suggests that students most often struggle with language and reading- de-coding, language recognition and spelling. Tucker (1992) shows that as students' progress throughout the grades and enter into middle school they frequently experience "difficulties with higher level reading. Understanding the main idea, understanding an implied main idea, making judgments, predicting outcomes, and sequencing events" (p. 203).

Mathematics (higher level thinking, number recognition, processing skills) is another common area of struggle for students with TBI with mathematical applications being the academic area that is the most negatively affected.

According to Deidrick 2005, it is proven that a “critical factor in children’s lag in academic achievement is a cognitive deficit as a result of brain injury” (p. 602). The recovery of cognitive skills across time may show no improvement or may actually decline demonstrating a “failure to develop age-appropriate cognitive skills at typical rates” (p. 602). These difficulties with working memory can negatively affect the child’s ability to learn new material.

Carry through effects of TBI to middle school and adulthood:

The effects of TBI on a child can be devastating when they progress into middle school, high school and adulthood if the TBI is not properly rehabbed and the child does not learn appropriate coping strategies.

Sadly, the literature suggests that a large amount of children with TBI who are not properly cared for end up becoming delinquent youth. Recent “research carried out with prison populations indicates that untreated childhood brain injury is a factor in predisposing an individual to a violent crime” (p. 8). There is strong evidence that is emerging suggesting the link between brain injury in childhood and violence and crime later in life.

Not only are these children more likely to participate in acts of crime they are also four times more susceptible to mental health issues later in life. As a result they research according to Curran (2010) suggests that “commonly identified problems in the areas of behavioral dysfunction, including anxiety, depression and social withdrawal” (p. 410). Furthermore, these children go on to experience “significant degree of unemployment or reduced work capacity” (p. 410.) as a result of their childhood TBI.

Family Environment/ Supports for Families:

A child's home environment is critically important when it comes to their successful recovery of a TBI. A child needs to be in a stable and supportive environment that also supports their reintegration in to school and is a strong advocate for their needs. Literature from Diedrick indicates that "family environmental characteristics- such as socioeconomically status, overall family functioning, and parenting behavior- can significantly affect student educational performance" (p. 602).

When it comes to the socioeconomic status of families, it is proven that families who are already struggling, prior to the TBI are more likely to "manifest negative post-injury psychosocial effects" (p. 602). In the literature produced by Diedrick (2005) this is often referred to as "the double hazard effect" (p. 604) where a family already has a socio-economic disadvantage and now combining that with a severe trauma typically leads to the poorest long-term outcomes for the child.

Currently "high levels of permissive or authoritarian parenting were associated with increased behavior problems in children with TBI." (p. 602) and the families of children with TBI "may experience major psychological, financial, role and relationship risks due to the child's injury" (Sheridan, 1996, p. 662).

According to the research there is currently no strong support models in place for struggling families of children with TBI's. Most families are left on their own once the child is discharged from hospital care, and this is where we begin to see the children falling through the cracks in the school system.

Current inclusion models of TBI in Education Systems:

Research shows many different attempts at inclusion models for education systems following TBI most of which are websites with limited information or are difficult to navigate. After much research I was unable to find any models which have proven to be successful in the school system. I will speak in regards to this lack of successful models in Chapter 3.

Edmonton Catholic Schools Inclusion Policy:

Edmonton Catholic Schools states that: “An inclusive school is a setting within which students, staff and parents are a community of learners. Diversity is valued as an opportunity to celebrate each individual’s God given gifts. The district believes in the value of the inclusive approach to education and seeks to highlight the tremendous opportunities for individual growth and social awareness through maintaining diversity in classrooms and school communities. Within the inclusive setting, the focus is on how best to support the gifts and needs of every student so that each feels welcome and is successful to the best of his or her abilities” Within this statement the Edmonton Catholic School board implements a plan for continuous growth where it maintains its stance on inclusive education as show in figure 2.1.

- 
- A teal-colored rectangular box containing text. The text is white and includes a numbered heading and a list of five items.
- 2.1 Ensure the educational experiences meet the diverse needs of our learners and are available to all students.**
- a) Continue to implement the strategies originating from the statement of inclusive education – *Katholos: Education for Life for All*.
 - b) Continue to research and consider programs of choice that are aligned with 21st century learning.
 - c) Continue to facilitate transitions for all students among home, school and community, between grade levels and into post-secondary institutions, the workforce, and the world beyond school.
 - d) Continue to implement financial literacy programs in collaboration with community organizations.
 - e) Explore, identify and implement strategies related to the success of our English Language Learners.

Figure #11: Edmonton Catholic Schools Inclusion Policy

Edmonton Catholic Schools superintendent Joan Carr released the following statement regarding inclusion in the schools:



EDMONTON CATHOLIC SCHOOLS

Inclusive Placements

Administrative Regulation 305.1

1. To the greatest extent possible, students with special needs shall receive education programming within the regular classroom setting. This does not negate the fact that some students require individual or small group instruction outside of the classroom setting to enhance the acquisition of specific skills.
2. Flexibility to adapt to the changing needs of students is an important feature of inclusive education programming. Specific delivery models for individualized programs may vary from class to class and from school to school depending on the needs of the individual students attending.

Figure #12: Edmonton Catholic Schools Inclusive Placement

While Edmonton Catholic Schools has an inclusion policy in place, the inclusion that occurs within the schools is in most circumstances mediocre. The written inclusion policy does not show anything in writing regarding TBI or how these children will be reintegrated following a TBI. I will explore possible solutions to this problem in chapter 3.

Chapter Three

After much examination of the resources available on Traumatic Brain Injury (TBI) it became clear that there are limited resources available to parents, teachers, caregivers and children affected by brain injury. When looking for resources I had to sift through many different websites trying to find the information I needed. When my son was first diagnosed- both with Type 1 and then again with his brain tumor- I immediately found myself searching online for resources, stories from other parents, long term effects, outcomes etc. As a parent and as a teacher, I wanted as much information and knowledge as I could get. I also wanted to connect with other parents who can provide me with support during these difficult times. During my experience with Oliver I had a really hard time finding any personally and pedagogically valuable resources. The teacher in me constantly wondered how schools would be able to program for these children when there are no easily reliable resources. As a result, I decided to create a website that would be a “one-stop” location for all the information, links, stories, and pictures needed by teachers, parents and children.

The Website

When creating this website I had to think about all the things I as a parent and as a teacher needed when going through this process with my son. I came up with the name of the website to be called “Somewhere over the Rainbow”. This name came from the popular song which I sang every night to my young son while he was in the ICU. The song always reminded me that dreams really do come true, and through the darkness there is light.

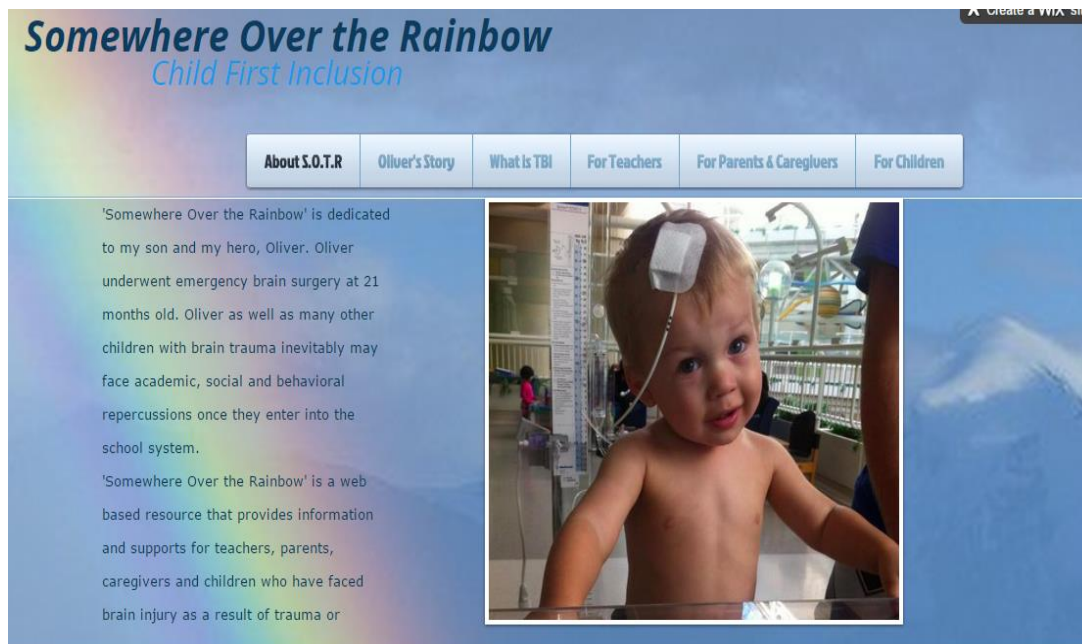


Figure #13: Homepage

The first page gives a brief overview of the reasoning behind the website, involving a dedication to my son Oliver. The picture on the first page shows him at 21-months old, only 4 days after he had brain surgery. I chose this picture but it shows the positive side of a very difficult situation. I also remember as a parent wanting to see pictures and hear stories of children who had gone through similar situations no matter what their outcome was. It was important for me to see all the possibilities of what could happen with my son.

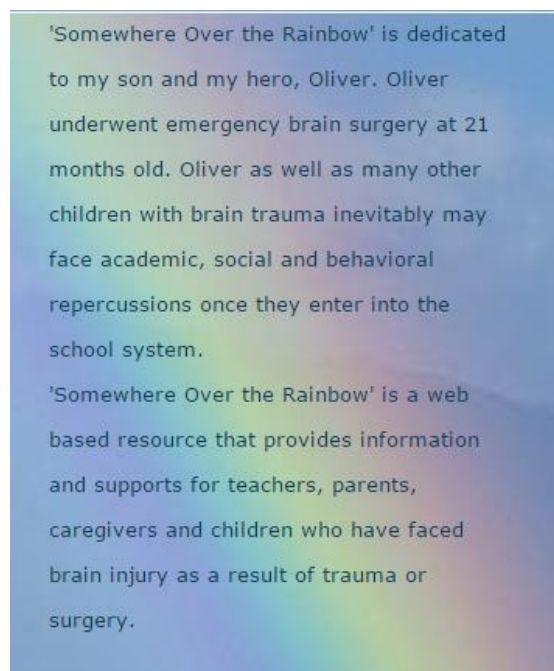


Figure #14: Rationale for Website

At the top of the home page is access to a quick and easy menu. The menu navigates painlessly throughout the website. The headings included on the website home page are:

- About S.O.T.R. (Somewhere Over the Rainbow)
- Oliver's Story
- What is TBI (Traumatic Brain Injury)
- For Teachers
 - Links to information about TBI
 - Program Accommodations
 - Individual Program Plan Goals
 - Professional Development Opportunities
- For Parents and Caregivers

- Links to Information
- Being and Advocate
- Creating a successful Inclusion Team
- For Children
 - Webpals
 - Stories



Figure #15: Header for Website

At the bottom of the page the reader will have access to a contact form. The contact form provides the person navigating the website a quick way to provide feedback, ask questions, or get in contact with myself for additional support or information. As previously mentioned, I found this to be important as many parents immediately seek support when their child suffers a traumatic brain injury. When looking at the research it shows that a child's home environment is critical for their recovery and that supportive family environment leads to supportive school integration. The start of a supportive home environment is essential and this often starts with parents having a place to find supports for themselves.

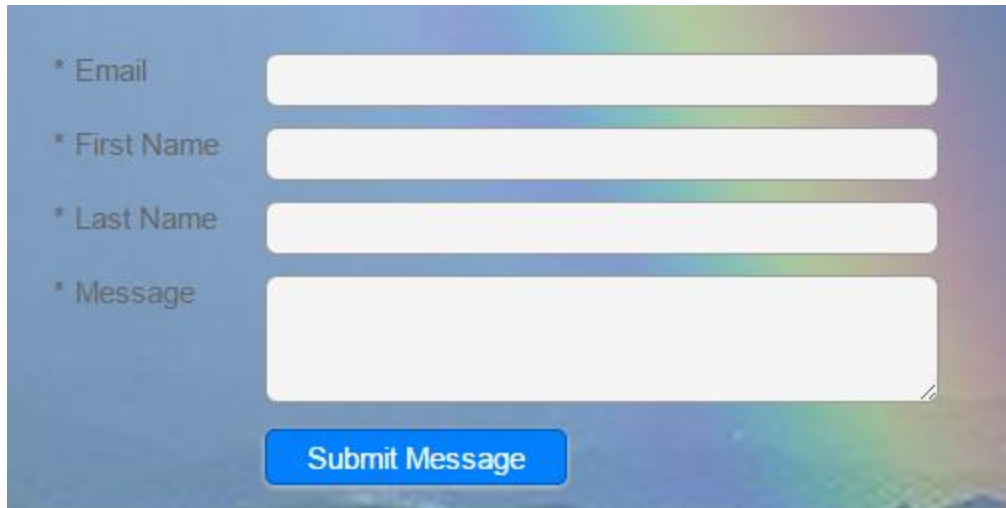
A contact form with a blue background. It features four input fields: 'Email', 'First Name', 'Last Name', and 'Message'. Each field is preceded by an asterisk. Below the fields is a blue button with white text that says 'Submit Message'.

Figure #16: Contact Fields

At the bottom of the page that are links to future Facebook pages and twitter accounts associated with ‘Somewhere over the Rainbow’. Social media provides families and caregivers with many different outlets and opportunities for support and involvement.



Figure #17: Logo

The second page, “Oliver’s Story” provides all of the details of the journey we took through Oliver’s diagnoses, surgery and recovery. It provides a rationale for the reasoning I became interested in brain injury and the inclusion of children into the school system. This page

is important as it continues to provide a personal connection to the website and to the families searching for support with Traumatic Brain Injury.



Figure #18: Oliver's Story

For Parents and Teachers

Getting into the depth of the website the reader navigates to page 3, "What is Traumatic Brain Injury" which provides a medical definition and explanation of TBI including the most common long term lasting effects and statistics. It is important to provide this information as Traumatic Brain Injury varies drastically depending on the injury and age at injury. It is also important to educate parents on the severity of insult that Traumatic Brain Injury can have on a child's growing and developing brain. The research in chapter two shows that children under the age of 5 often have misdiagnosed or improperly documented Traumatic Brain Injury which leads to difficulties with academics as they enter the school system. Statistics show that children between the ages of 0-5 have the highest rate of Traumatic Brain Injury. This can be very

daunting for parents and teachers when these children are ready to enter the school system.

Having this information available gives parents and teachers a chance to become knowledgeable on the most up to date and current statistics and support information regarding Traumatic Brain Injury.

Upon diagnoses of a Traumatic Brain Injury many parents and teachers immediately want access to the statistical information in which they can view outcomes of children with similar cases. “Prognosis” is a word that is very frequently thrown around in the medical world and something that people want to know in regards to their child following injury or illness. The prognosis of the child is important to parents when they are determining the course of action they will take upon re-integration into the school system. The research in chapter two supports that more severe instances of Traumatic Brain Injury especially in pre-preschool aged children are more likely to produce long term behavioral and developmental effects on the child, therefore knowledge and early intervention is key to success. My research through chapter two shows a lot of conflicting information especially when it came to something as simple as the definition of traumatic brain injury. My hope was to combine all of the most credible resources I could find to create one solid definition with reliable statistics on traumatic brain injury.

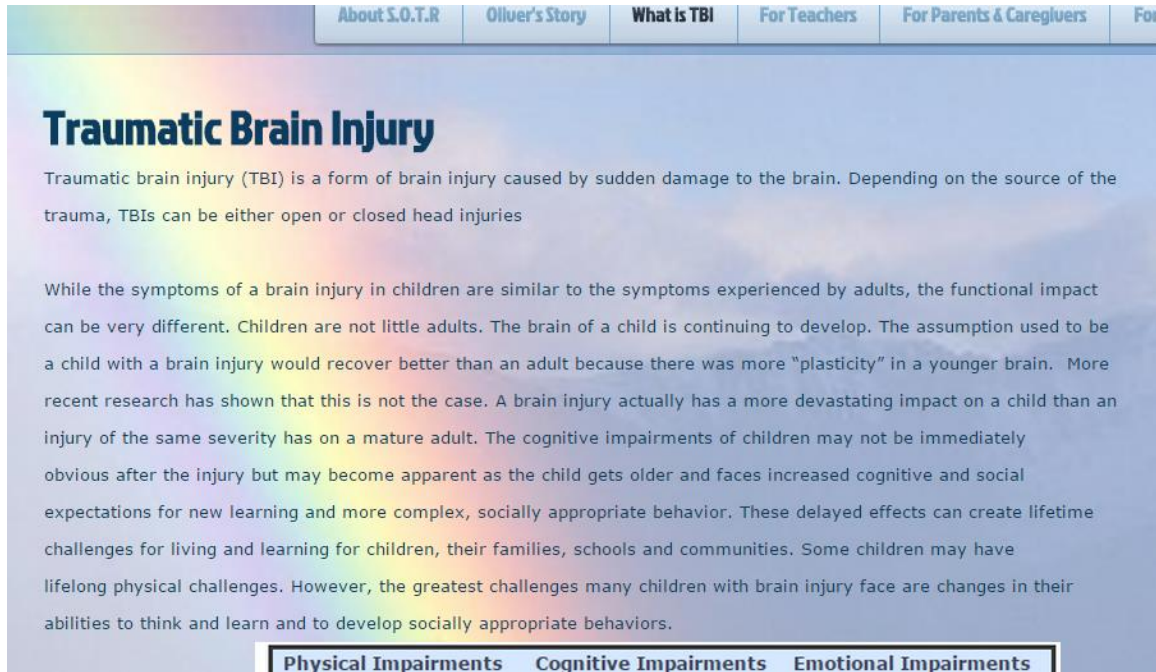


Figure #19: TBI Information

Page 4, “For Teachers” provides many different sub-headings which give quick access to the most important information teachers require for creating a successful environment for children with Traumatic Brain Injury. Traumatic Brain Injury comes with many different behaviors and components that can be very hard to manage. Research shows that these children often have increased symptoms of ADHD and ODD, developmental delays and cognitive deficits. While their behaviors can show very similar characteristics of ODD and ADHD they are not the same diagnoses and require very different accommodations and planning. Research shows that these children often have short rehab programs and integration into the school system can be quite difficult. The links provided would help teachers when programming for the return or initial integration of these children.



Figure #20: For teachers of children with TBI

Many of the links I provide to teachers are the same as the ones that are provided to parents, however there are some major differences in the two sections. The major differences include “Program Accommodations, Individual Program Plans, and Professional Development Opportunities”. As a teacher, and through my research on the topic of Traumatic Brain Injury I have found that this type of information was the most difficult to locate and many of the sites provided contradictory information. As a result I compiled all of the most reliable sources and information into the subheadings on my website.

Most schools are not prepared to meet the suddenly changed and consistently changing educational needs of students with Traumatic Brain Injury, purely due to a significant lack of resources and supports. As seen in the research, many school districts, including the Edmonton Catholic District have inclusion policies in place which are to support children during their time at school. The Edmonton Catholic District states that “diversity is valued” and that during a child’s time in the district there is a “focus on how to best support the needs of every student”.

With that being said however, there is no indication of the resources available in regards to specific conditions like traumatic brain injury.

The first sub heading (on both the parent and teacher heading), 'Links to Information about TBI' provides a list of the best resources I found while doing my research. These links give more information and resources beyond what I have posted on my website. The Links provide good information for both parents and teachers. The research in chapter two showed that following discharge from medical services teachers experience a lack of support for these children. There is a lack of access to services and just not enough services that are dedicated to children with TBI. Teachers often carry a large weight of the child's rehab and this can lead to teacher frustration and burnout. Research also shows how important the home environment is for children with traumatic brain injuries. Families who feel supported and have additional care in place often experience a higher rate of successful recovery with their children, both long term and short term. My hope with this area of the website is to provide teachers with access to all of the resources they will need to help with planning for their student with Traumatic Brain Injury or in finding additional supports for either themselves as the teacher, for the families of the child or for the child alone. These links are important to families because they provide a foundation of support and a wealth of information.

The first link takes the reader to the website of the Stollery Children's Hospital in Edmonton, Alberta. The Stollery website gives parents plenty of information and links to support groups, events within the hospital and volunteer opportunities. The website also showcases many stories of children who have undergone significant medical challenges and procedures. This website is easily navigated and is a good support for families and teachers to use when looking for additional information on all things related to medical children.

The next website is the Mayo Clinic. The Mayo Clinic is based out of the United States but provides a significant amount of highly credible information to parents and teachers. On the front page of the Mayo Clinic is a link to patient care and info which provides direct access to information on Traumatic Brain Injury. This is a good website for both parents and teachers to access for quick information. Under the Traumatic Brain Injury link the reader has access to symptoms, causes, risk factors, complications, tests and diagnosis, treatments and drugs, preventing and coping and support. The Mayo Clinic is famously known for its information and supports of critical diagnoses.

The third website that is provided for teacher support is The Hospital for Sick Kids based out of Toronto. The Sick Kids website is very similar to the Stollery websites but is an alternative for information specifically for families and teachers based out of the east side of Canada. This website provides links to events, information and support closer to home for these teachers and families. The Sick Kids website is easily navigated by drop down tabs on the first page.

The next website is a very useful link called "brainlinekids". This website was one of the easiest to navigate when it came to finding information that would be immediately helpful in the classroom. This website provides the reader with information on assessment, structuring the environment, typical classroom accommodations, available resources and services, specialized teaching strategies, and additional references that can be used. This website was one that I referenced heavily when doing my research as it is not only credible but provides a significant amount of useful information.

The research in chapter two shows that it is critically important that teachers have a basic understanding of the wide range of the effects of brain injury. As previously mentioned this is an area in which I hope to provide some supports throughout the entire website.



Figure #21: Website Links

The next section 'Program Accommodations' is placed under the link for teachers but it is important for parents to have access to this information as well. Being an advocate for their child means that they understand the supports in place at school and all the supports their child should have access to- including program accommodations. On this page I have compiled the most frequent accommodations that I have found through my research, including the ones that were backed up by further research and have been put in to place in an already successful program. A great frustration for teachers is providing programming for children that is beneficial and proves to have positive progress and outcomes. The research shows that the schools are required to adapt the learning environment, providing compensatory aids and strategies and support services from special education providers in order to have the most successful programming. The hope for this link is to give teachers easy access to some accommodations

that can be a starting point for creating specific accommodations that will work when integrating a student with TBI into their classroom.

The Individual Program Plan Goal page plays off of the accommodation page by providing teachers with samples of goals that have been set for children on IPP's who have Traumatic Brain Injury. Since Traumatic Brain Injury varies so drastically these are just sample ideas, however they can be easily altered to work for many different students. This information was gathered from a series of different resources and I compiled the goals that I found to be the easiest and most adaptable. The research in chapter two shows how significant the struggles can be for children with traumatic brain injuries. The most common struggles children will face are academic, social/affective, sensory/psychomotor, and cognitive/intellectual. Deficits in these areas can lead to severe stress, anxiety and depression for children with traumatic brain injuries. It is important for teachers to put program plan goals into place that will support these children through their academics to ensure they do not experience any of these major struggles and are supported through the consequences of their traumatic brain injury. This resource is important for teachers when they are creating an IPP for their student with a Traumatic Brain Injury. If anything, I am hoping that it will give teachers a basis for where to start with programming goals.

Navigation Menu: [About S.O.T.R.](#) [Oliver's Story](#) [What is TBI](#) [For Teachers](#) [For Parents & Caregivers](#) [For Children](#)

Dropdown Menu (under For Teachers):

- Links to information about TBI
- Program Accommodations
- Individual Program Plan Goals
- Successful Inclusion
- Professional Development Opportunities

Classroom Accommodations:

- Allow additional time to complete in-class assignments
- Allow for extra or extended breaks
- Provide student with instructor's notes or help student
- Allow student to audio record lectures for later playback
- Provide both oral and written instructions; clarify instructions
- For lectures, provide student with an outline or study guide
- Allow use of a portable computer with spelling and grammar checks for assignments and note-taking
- In grading work, reduce emphasis on spelling and grammatical errors unless it is the purpose of the assignment
- Permit referencing a dictionary or thesaurus for assignments
- Provide preferential seating at or near the front of the classroom
- Reduce quantity of work required, in favor of quality.
- Avoid placing student in high pressure situations (e.g., short time frames, extensive volume of work; highly competitive)
- Exempt student from reading aloud in front of classmates because of impaired reading skills.

Test Accommodations:

- Allow additional time to complete tests.
- Provide for completion of tests in a quiet, individual environment with the goal of minimizing distractions.
- Administer long examinations in a series of shorter segments with breaks allowed between sections.
- Allow oral examinations and assist student in having responses scribed, as needed.
- Assess knowledge using multiple-choice instead of open-ended questions.
- Allow student to clarify and explain responses on exams (and assignments).
- Permit student to keep a sheet with mathematic formulas for reference, unless memorizing the formulas is required.

Figure #22: Classroom Accommodations

The last link that I provide for teachers is a page about professional development opportunities. I found that it was very difficult to find any information pertaining to professional development related specifically to Traumatic Brain Injury. The research in chapter two found that due to the lack of awareness of Traumatic Brain Injury it leads school staff to believe that Traumatic Brain Injury is a low incident disability. As a result there is very little in terms of supports and services offered to school staff upon the need for inclusion of a child with Traumatic Brain Injury.

My hope for this section is to continue updating with different webinars and online informational sessions that are being provided across Canada and the United States as a way for teachers to access this information in a learning environment. I also will provide, when available, information for sessions that are being offered at various conferences throughout the country. Attached to this page is several links to some of the biggest conferences in Canada. These conferences do not necessarily have direct information on TBI but have a lot of great information and resources for inclusion of children with medical needs. The list of conferences includes the Special Education Conference held in Kananaskis, Alberta, and the Spring Special Education Conference held annually in Ontario. I also provide direct access to the Special Education Council of Alberta which provides frequent updates to conferences held within the province of Alberta with a special education focus.

Moving on to the next heading of the website is the section specifically for parents and caregivers. Being the parent or caregiver to a child with a traumatic brain injury can be extremely overwhelming and exhausting. As previously mentioned in the research, the rate of children which have a full recovery and thrive academically are those who have a strong support system at home. For a parent to create a strong environment they must have support for themselves first. My hope for this section is to provide parents with all the links they need to find the support and information that will help them to feel supported and successful when parenting their child with traumatic brain injury.

The first section has already been discussed above. It is the links to information through websites such as the Stollery Children' Hospital, The Mayo Clinic, brainlinekids and the Toronto Hospital for Sick Kids.

Unfortunately, once a child enters or re-enters the school system there is no guarantee they will get the help they need to successful. Being an advocate for your child is so critically important. Therefore, the next section that I provide information to parents is under the advocacy link. There are many different types of programming available that parents need to consider and research before putting their child in to the school system. The school they previously attended may unfortunately no longer be the right place for them following a traumatic brain injury. Literature has shown that being an advocate means that you need to start early: set up meetings with the teacher and school team prior to your child's arrival, be patient and persistent, make follow up appointments, ask lots of questions and continue to follow up. These are all suggestions and information that is available to parents under the advocacy link.

Creating a successful inclusion team is the next link provided and it ties in nicely with the information about advocacy. The inclusion team is critical to supporting the child in their

schooling. This link provides parents with plenty of information on how to create an inclusion team and who should be a part of the team. Parents may often not consider some of the things that need to go into creating a successful inclusion team. Collaboration, education, having a vision, using supports and knowing what is available to you and your child is critical in creating a support team. On this page I add all of these tips including more information and resources available about school support teams.

The last link I available to parents is “Financial Support”. When your child becomes ill, has a major injury or undergoes a significant medical procedure parents often become very consumed and worried about their financial situation. From personal experience of having a medical child I know how quickly medical bills can add up. Most parents are lucky to have good benefit coverage however it does not cover everything and finances add up quickly. In the two years since Oliver’s diagnoses we as a family are still paying down medical expenses. It is important for families to know that their struggles are not fought alone and there are many different resources available to help through these times. I provided links to government programs that support financial situations such as: Alberta Child Health Benefit, Programs Alberta, Alberta Aids to Daily Living, Disability Tax Credit, and Disability Parking Place card, EI benefits for parents of critically ill children and family support for children with disabilities. All of these programs provide support to families struggling financially through their child’s medical issues. According to the research in chapter two, families who are already struggling financially prior to their child’s brain injury typically lead to the child having the poorest long term outcomes. It is very important for families to seek out this information and know that they have assistance.

For Children:

The last of the resources I have available is for children. The research shows that the effects of traumatic brain injury on children can lead to devastating social and emotional effects when they go into middle and high school. A large amount of children with traumatic brain injury who are not properly cared for end up becoming delinquent youth. These children also end up far more susceptible to mental health issues later in life. For these reasons alone, I think it is extremely important to provide children with supports and resources of their own.

The first resources is a link to WebPals. The aim of WebPals would be in pairing a child with another child of a similar age and with a similar diagnoses. These children would be able to email each other and provide support during difficult times. They can share stories and experiences, helping each other with challenges and celebrating successes. The research shows that depression, anxiety and stress is significantly higher in children with traumatic brain injury than children without. I am hopeful that providing children with this option will help them to create connections that they can rely on and hopefully reduce their depression and stress related to the brain injury.

The last section I have for children is “success stories”. I know from personal experience that it was so important for me to see stories of success and pictures of children who were well and thriving following traumatic brain injury. Since my son was so young at this time it did not affect him but I believe that older children who experience this would benefit from seeing stories of other children that have experienced similar injuries.

Success in Implementation

Implementing this website comes with many successes. For myself, it continued to increase my knowledge on the topic of inclusion and brain injury. As I continued to research I found more and more credible and reliable resources that would benefit parents, teachers and

children. I thought that I successfully implemented a resource that could be used for teachers and parents especially in Alberta.

Challenges and Considerations for Implementation

Creating a site that provides all of these resources and supports would require plenty of time and upkeep. It would be difficult to do this solely on my own. Another consideration would be the audience for which it is created. Many of the resources that I have available to me and many of the resources I used are Canadian based, specifically out of Western Canada. While this addresses the need for this type of resource in Western Canada it leaves a lot of the country without support. My goal was to create something that could be used by any teacher anywhere. This is something that I have found to be a real challenge. Another challenge is that the bigger the website becomes it may require a larger web host. Web hosts can cost a significant amount of money depending on the size of domain you require. I would have to register the domain name and consider the type of funding I would use to maintain the website.

Conclusion

In conclusion, I strongly believe that as an educational system we still have a very long way to go before we see consistently successful inclusion. I believe that I have created a starting point that would help educators to understand the needs that need to be met by children with special medical needs specifically traumatic brain injury. The scope of brain injury is so wide it is difficult to even begin to understand the challenges that teachers, parents, caregivers and children face. With some compassion and understanding I hope to bring awareness to traumatic brain injury and make the inclusion process for children positive and successful.

Chapter Four

Part 1: Professional Impact

Throughout my experiences in the University of Victoria Masters of Education program I have changed and reinforced my professional thinking in many different areas. Some of these areas, as highlighted below were those in which I was hoping to develop as I gained further knowledge throughout these courses.

Inclusion

The first and most prominent aspect of my professional thinking that has been reinforced is that of the importance of inclusion. I have always believed that inclusion is essential and that all school districts need to move their schools towards better models of inclusive education. I myself have seen firsthand how poorly many schools typically execute inclusion, often leaving children to their own devices and the voices of the parent advocates are a quiet whisper in the background, often left ignored.

Through the research that I've done I have seen how many school districts implement an inclusion policy as an attempt to creating a welcoming and inclusive atmosphere. The Edmonton Catholic School District has said in its inclusion policy that "an inclusive school is a setting within which students, staff and parents are a community of learners. Diversity is valued as an

opportunity to celebrate each individual's God given gifts. The district believes in the value of the inclusive approach to education and seeks to highlight the tremendous opportunities for individual growth and social awareness through maintaining diversity in classrooms and school communities. Within the inclusive setting, the focus is on how best to support the gifts and needs of every student so that each feels welcome and is successful to the best of his or her abilities" I always believed this to be true and assumed that schools automatically put these policies in to place.

It wasn't until I entered the school system as a teacher that I began to see how so many children were not included in the capacity of which they deserved to be or could be. I have always believed in the importance of inclusion but am now happy to say that through the knowledge I have gained in this program I am much more confident to implement successful inclusion in my own classroom. These classes have helped me to reinforce my beliefs of inclusion and have given me a better basis to move forwards with.

The journey to becoming an Inclusive School may be long and challenging at times, but ultimately this journey can strengthen a school community and benefit all children. "Inclusion" does not simply mean the placement of students with disabilities in general education classes. This process must incorporate fundamental change in the way a school community supports and addresses the individual needs of each child. As such, effective models of inclusive education not only benefit students with disabilities, but also create an environment in which every student, including those who do not have disabilities, has the opportunity to flourish. My beliefs were reinforced through the Inclusive Schools Network and my research. According to the inclusive Schools Network here are some ways in which inclusive educational practices build a school's capacity to educate all learners effectively:

- Differentiated instruction increases student engagement.
- Academic supports help each student access the full curriculum.
- Behavioral supports help maintain a positive learning environment for everyone.
- Respect for diversity creates a welcoming environment for all.
- Inclusive practices make effective use of a school's resources.

Use of Multimodal Text and Technology

Technology is something that I have always had a love-hate relationship with. To be honest, it has been mostly hate. I am very good with technology, I keep up with all the new advancements, I allow my students at school and my own children at home to use technology to enhance their learning. I always make sure to learn about the technology I have available to me in the school and on loan from the school district. With that being said, I have had enough difficulties with technology that it has got me to the point where I would rather not use it in my classroom.

However, with that being said, I still know the importance and need for children to learn the proper use of technology and navigation of multimodal texts in the classroom.

This is significant to me because I am continuously faced with the task of assistance students with literacy challenges.

Throughout these classes and in articles I have researched, I have found the importance of the use of technology and multimodal texts. One of the articles that I studied during this Masters Program comes to mind when reflecting on technology and multimodal texts. Serafini (2012) focuses on these two complex ideas; it is necessary with the advancements in technology today for students to be able to read, understand, and process texts in many different formats. Serafini takes the original four resource model (Freebody & Luke, 1990) and modernizes two of the roles

to fit the shift to multimodal texts: *reader as navigator (RAN)* is an important step in developing a student who is able to decode in a multimodal (print & visual) world. The ability to decode multimodal texts is especially important to ELL students, struggling readers and young emerging readers- all of whom I have worked with. Serafini sees the ability of the *RAN* as moving beyond basic left-right decoding of traditional print texts and learning to manipulate the text in different ways (left- right in coordination with visual-print, print-visual) and using these navigation strategies together to understand the whole text. In my own classroom I have experienced students navigating multimodal texts in very beneficial ways. ELL students have the ability to navigate through multimodal texts (ie. graphic novels) by going back and forth between the printed text and the visuals to construct meaning of the text and create their own path. The ability to manipulate multimodal texts in this way contributes to the students' ability to make connections. Graphic novels and websites- specifically social media are very important parts of the 21st century child and the ability to navigate these are crucial in their development and success.

As an elementary educator I have witnessed firsthand, students who have struggled with the ability to make connections and comprehend traditional text. With the advancements in traditional text now shifting towards multimodal text I feel that many of these students will only begin to become more overwhelmed with the decoding process unless they are provided with the proper strategies to assist them. One of my first teaching experiences was working in a class with 26 students, 22 of whom were on individualized program plan's (IPP'S) and 15 who were English language learners (ELL). Being an ELL and being on an IPP (specifically those who had a language delay) set a lot of my students back when it came to their ability to successfully and confidently decode texts. At the time of this experience texts were still

primarily traditional but were starting to become more multimodal. Although Serafini's ideas are new to me, I can relate to how they would have been beneficial to my students during that school year. Using Serafini's idea of becoming a *RAN*, students would have developed the skill to decode multimodal texts using both print and visuals coherently to assist them in the process. Since my students didn't have this skill, they used the text and visual separately and weren't able to make a valuable connection.

The idea of becoming a *RAD*, according to Serafini, would have helped to push these students beyond basic decoding and navigation into constructing meaning and using interests and needs to determine their path through a text. Had I been able to help these students develop this knowledge of *RAD* I believe I would have provided them with the skills necessary to be successful with their literacy struggles. Students become very frustrated with trying to decode traditional text, and the use of multimodal can benefit those who have strong visual skills- if they know how to manipulate it properly. Not only does the ability to decode and navigate multimodal text help students with basic literacy but it would extend to other subjects and situations as well. Serafini explores the idea that students must develop the skill of meaning making through a dynamic process and as educators we must explore new literacy practices to make these skills actively available to students. During the school year that I taught this class I was not able to do this for my students as I didn't have the knowledge required to offer them these strategies.

Multimodal texts are now commonly found in the classroom, as well as throughout the students' social world. As an educator it should no longer be an option, but a requirement to learn and explore ideas to benefit our students during their literacy journey.

Differentiated Instruction and Self Directed Learning

Another idea that has been significantly reinforced for me throughout this program is that of differentiated instruction and self-directed learning. With the increased use of technology and need for better inclusion models I believe that one of the first steps in creating this is through proper differentiated learning and self-directed learning. During these courses I have read a lot of research that reinforces my beliefs on differentiated instruction and self-directed learning, especially through the use of constructivist teaching.

I am mostly reminded of an article I read from Mason(2013), that constructivist teaching focuses on a teachers ability to guide their students to build individual meaning in situations and experiences. "Teachers who actively structure classroom experience around such principles seek to ensure that teaching and learning are dynamic and responsive" M.(2013). It is important to provide a connection between Masons(2013) constructivist teaching and its direct correlation with my self-directed learning initiative; a constructivist teachers approach provides the framework for SDL as it is required in this initiative for students to learn to "regulate one's own learning" M(2013). A constructivism approach is a "foundation for learning curriculum" that still allows for the student to incorporate their own point of view, which is a very important basis for self-directed learning to be successful.

The idea of constructivist teaching, and my self-directed learning initiative is supported by one of the Government of Alberta's initiatives: which provides students with a "responsive and flexible approach"(pg8) to learning. Since the Government takes a constructivism direction to education, I think that as a new and developing teacher these are important for me to connect.

The government in correlation with Mason(2013) believe that "children and youth should have meaningful learning opportunities appropriate" to the learner. Learning that is "self-paced" and "multi-disciplinary". These ideas take me back to my own experience of self-directed learning

and the importance it holds in my classroom. The development of my young students as individual self-paced and self-motivated learners is achieved through my approach of constructivist teaching.

Throughout these courses it was reinforced to me that a teacher is viewed as a facilitator and individuals (students) create their own responses and perspective. Like in a self-directed learning classroom where students are simply provided with a curriculum outcome, students begin to create their own response and perspective which proceed to guide their own learning; with the support of teacher as facilitator. "Teaching and learning and learning and teaching ... Means the two exist together" L.(2013) and through these experiences all learners are "confronted by their own identities actions and pedagogical experiences" L.(2013). To me a teaching-learning relationship demonstrates the ability for a teacher and a student to coexist together in a classroom where both perspectives and ideas are considered.

Based on what I have learned in these classes and in my professional experiences with self-directed learning I believe as a fairly new educator in the school system I find myself often pulled in many different directions and forced to wear many "hats". I pride myself on being an innovative teacher, frequently using professional development opportunities to bring new ideas into my classroom. This year I was presented with the idea of creating a self-directed learning classroom. Initially I found the idea to be very overwhelming it sounded to me like another job I would have just adding to my workload.

Upon further investigation of SDL, I was able to see how it could be incorporated into the classroom. Upon implementation of SDL in my classroom I quickly saw how manageable and rewarding it could be. I learned that SDL provides students with the opportunity to take an underlying concept (curriculum outcome), and guide their own learning to meet the required

understanding of that particular outcome. In my own classroom I allowed students to do this in many different ways. Through the use of iPads, computers, texts, social media websites, and research my students were able to not only complete the outcomes but provide myself (the teacher) with examples of self-assessment to demonstrate their understanding of the concepts. Through this process the curriculum suddenly became much less of a burden on my shoulders as I realized that it is not only my responsibility to teach it but also the responsibility of the students to take initiative to learn it (teaching-learning relationship). The students were able to choose a variety of ways to approach their learning including hands-on and project based work. Like Loughran's perspective my classroom became an environment where teaching and learning and learning and teaching came to co-exist together as a harmonious entity.

Doing SDL also made me reflect on my teaching practices and my own teaching philosophy as well as the pedagogy on which I base these. I realized that my own teaching takes a strong constructivist approach- hands on, experiential, collaborative, project-based and task oriented. This helped me to further construct my SDL program for my students. With a constructivist approach I was able to become a teacher as facilitator, providing my students with "I can" statements to guide their learning. I provided my students with what is considered important-meaningful and appropriate learning opportunities. By choosing the amount of time and depth for which they would explore a curriculum outcome the students were able to develop a meaningful relationship with their work. Giving my students a structure to begin their SDL journey (schedule templates- which the students were required to fill in as a way for myself as the teacher to monitor their progress, and a way for them as students to monitor their time on tasks) allowed them to explore the idea of regulating their own learning; another concept that is important to Mason(2013) as a constructivist approach to teaching and learning.

Research and Behavior

Through this master's program, what I have learned the most and really enjoyed discovering was the research on children's brains and how early injury can impact a child's development and behavior later in life, especially during their school years. As I have shown in my focused research the ways in which a child's brain development can affect them is critical. Amongst the most highly contributing factors are:

- Impact of early injury
- Brain Development
- Critical Periods of Recovery
- Long Term Effects of Pre-School aged injury
- Brain Plasticity

I believe that learning these key factors and information has significantly changed my thinking towards children with special needs and the capacity in which we work with them. It has also opened my eyes to the possibilities of certain behaviors and academic struggles due to early brain injury.

Part Two: Graduate Experience and My Professional Career

What I really believe I have gained that will contribute to my career is the ability to critically analyze information and the ability to look deeper into the contributing factors of children's behaviors and academic delays. I now am able to look at children in a much different light. I know that sometimes their behaviors or struggles are the result of an early brain injury that may have been left undiagnosed. I am so grateful that I had the opportunity to learn so much more about children and their development.

I would like to use my Master's degree to further my career by looking into the possibility of a

consulting or administration position. As a specialty I would like to look more at special education and inclusive education in schools.

Recommendations

If I were to make recommendations for someone who was interested in my topic of research I would suggest the following three key ideas:

1. Take the time to understand and research the stages of a child's brain development and the key contributing factors to early recovery.
2. Learn the medical language and terminology. This will help you to connect with doctors, nurses and other professionals in the medical field.
3. Get to know stories about real children and families who have experienced traumatic brain injury and the school system. Listen to stories and testimonials from those who have gone through the experience and know the struggles and achievements.

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