Return to Learning:
Teacher Perspectives of Concussions in the Classroom

By:
Sarah Elizabeth Bach

A research paper submitted in conformity with the requirements
For the degree of Master of Teaching
Department of Curriculum, Teaching and Learning
Ontario Institute for Studies in Education of the University of Toronto

Copyright by Sarah Elizabeth Bach, April 2015
This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 Canada License
Abstract

Concussions are currently a ‘hot topic’ in education, especially since the introduction of PPM 158, which mandated that all Ontario school boards create and implement a concussion policy by January 30, 2015. The purpose of this qualitative case study was to describe the experiences of educators who have played a role in the recovery of a student with a concussion in the classroom. This research aimed to allow educators to learn from the experienced successes and challenges of participants and to educate teachers in the area of concussion management in the classroom. Data was collected via semi-structured interviews with three participants: two educators from Southern Ontario independent schools and an educator from a Southern Ontario public school board. The findings of my study suggest that educators in a leadership role have a strong understanding of what a concussion is and the ways in which a school can support a student with a concussion. The reoccurring challenges that educators face are student honesty, support from parents/guardians, society’s understanding of concussions, the invisible nature of concussions, and the fast pace and difficulty of some courses (e.g. Math and Science). However, utilizing a team approach, schools have found ways to support students during their recovery. Maintaining communication between all stakeholders, accommodations that meet the changing needs of the student, and spreading awareness are ways in which teachers can support a student with a concussion. Moving forward, all participants encouraged the use of a collaborative approach that involves a team of educators from within the school, as well as medical professionals from the community, to support the needs of a student with a concussion and spread awareness to the school community and society as a whole.

*Keywords*: Concussion, teacher perspectives, accommodations, awareness, secondary school
Acknowledgements

This research project has been exciting and exhausting at the same time. It has been full of ups and downs, but I am proud of myself for persevering. I could never have accomplished this momentous task without the support of several key individuals. First, I would like to thank my friend, Theresa, for being my inspiration when it comes to spreading awareness about concussions. I wish I could take away this terrible experience that you have had, but I am proud to see how far you have come and I am thankful that both you and I have been given this platform to educate others based on what we have learned from your experiences. Next, I would like to thank Carolyn Temertzoglou and Dr. Patrick Finnessy for your support in creating this research project. I have never created such an extensive piece of work and I appreciate all of your guidance and support throughout this two-year process. I would also like to thank all of my Master of Teaching I/S colleagues for all of their support throughout this program. It has been wonderful to have such a great group of classmates to bounce ideas off of and I appreciate how you have always been there to answer questions when I was stuck or provide support when I was discouraged. I look forward to learning from your research experiences and I hope that you feel prepared for when a student with a concussion comes into your classroom. Please stay in touch! Lastly, I would like to thank my family for all of their continued support. You have never wavered in your confidence that I will be successful and that means the world to me. Thank you Alyssa for being my editing buddy (payback!) and Dory for being there to keep me calm when things were stressful. I am so proud of what I have accomplished and I hope that others learn from my experiences and findings.
# TABLE OF CONTENTS

Abstract ................................................................................................................................. 2
Acknowledgements ................................................................................................................ 3
Chapter One: INTRODUCTION ............................................................................................ 8
    Introduction to the Research Study ................................................................................. 8
    Purpose of the Study ...................................................................................................... 9
    Research Questions ...................................................................................................... 10
    Significance of the Study ............................................................................................. 10
    Background of the Researcher ..................................................................................... 11
    Assumptions .................................................................................................................. 15
    Definition of Terms ...................................................................................................... 15
        Traumatic Brain Injury (TBI) ................................................................................ 15
        Concussion ............................................................................................................. 16
        Accommodations ..................................................................................................... 18
    Overview of the Study: ................................................................................................. 18
Chapter Two: LITERATURE REVIEW .................................................................................. 19
    Overview ........................................................................................................................ 19
    Theoretical Framework ................................................................................................. 19
        Critical Disability Theory ...................................................................................... 19
        Transformative Theory ......................................................................................... 21
        SETT Framework ................................................................................................... 21
    Learning and Concussions ............................................................................................ 23
        Effects of Concussions on Learning ...................................................................... 23
        Effects of Learning on Concussions ...................................................................... 24
    An Invisible Injury .......................................................................................................... 25
    Gender Differences ....................................................................................................... 25
    Emotional Impact .......................................................................................................... 26
    Concussions and Politics ............................................................................................... 26
        Bill 39 ..................................................................................................................... 27
        PPM 158 ................................................................................................................ 27
Ethical Considerations........................................................................................................53
  Risks and Benefits to the Participant............................................................................53
Limitations of the Research.............................................................................................53
Chapter Four: FINDINGS.................................................................................................55
  Introduction..................................................................................................................55
  Findings in the Field......................................................................................................55
    Concussions and the Community ..............................................................................55
    Return to Learn Policies ............................................................................................57
  Findings from Interviews .............................................................................................58
    Teacher Knowledge ...................................................................................................58
    A Team Approach .....................................................................................................62
    Teacher Challenges ...................................................................................................66
    Teacher Strategies .....................................................................................................72
  Recommendations .......................................................................................................78
Summary ..........................................................................................................................82
Chapter Five: DISCUSSION...............................................................................................83
  Introduction..................................................................................................................83
  Connections to Literature ..........................................................................................83
    The Invisible Injury ....................................................................................................84
    Emotional Impact .......................................................................................................85
    Communication .........................................................................................................85
    Teacher Knowledge ...................................................................................................86
    Team Approach .........................................................................................................86
    Accommodations .......................................................................................................88
    Spreading Awareness ...............................................................................................88
    Advocating for the Student .......................................................................................89
    Subject Difficulty & Course Pacing ..........................................................................89
  Connecting Back to the Research Questions ..............................................................90
    Main Research Question .........................................................................................90
    Subquestions .............................................................................................................90
  Implications & Recommendations ..............................................................................92
Chapter One: INTRODUCTION

Introduction to the Research Study

When it comes to student-athletes, which identity is more important: the student or the athlete? Research on concussion recovery has predominantly focused on how an athlete can return to playing their sport, rather than how a student should return to their academic responsibilities. In 2012, the Ontario government introduced Bill 39, an Education Amendment Act, which aimed to address the growing concerns about concussions in student-athletes. This new policy would authorize the Minister of Education to make new policies and guidelines about the management of head injuries and concussions, as well as require school boards to develop their own policies, based on regulations generated by the government (Legislative Assembly of Ontario, 2012). This new policy, if passed, would help to provide guidance for teachers on how to support student-athletes in their recovery from concussions, but in its current draft, it only focuses on teachers working with students in physical education, competitive sports or intramural activities. Concussions have a direct impact on a student’s ability to be successful academically. Symptoms include, but are not limited to: headaches, sensitivity to light and noise, fatigue, and difficulty concentrating or remembering (Sady, Vaughan, & Gioia, 2011; McCrory et al., 2013). In addition to the effects of concussion symptoms on learning, academic engagement has an impact on the resolution of concussion symptoms. The strain experienced by the student as they attempt to maintain their academic responsibilities can in turn worsen or prolong concussion symptoms (Sady et al., 2011). It is a vicious cycle in which teachers can play a vital role to either hinder or promote proper healing of injured students. During the first reading of Bill 39, the Minister of Education (October 2011 – February 2013), Hon. Laurel C. Bronten,
stated that “experts have estimated that as many as one in three high school students will sustain a concussion” (Legislative Assembly of Ontario, 2012). These kinds of statistics indicate that consistent concussion management is imperative in Ontario schools. As of April 2015, Bill 39 had not received Royal Assent, but the Ministry of Education had brought forward policy to address society’s growing concerns about concussions. In March 2014, the Ministry of Education introduced Policy/Program Memorandum (PPM) 158, which mandated that as of January 30, 2015 all Ontario school boards must create and implement a concussion policy. The effects of PPM 158 are yet to be fully seen, but it is imperative that changes are made to spread awareness about this injury and protect a student’s most important learning asset – their brain.

**Purpose of the Study**

The purpose of this case study was to describe the experiences of teachers who have played a role in a student with a concussion’s recovery in the classroom, as well as promoting the awareness of the academic implications of a concussion to their school’s staff and student body. My research study aimed to allow educators to learn from the experienced challenges and successes of my study’s participants to increase educators’ knowledge of concussion management in the classroom. For my research study, a concussion was generally defined as a traumatic brain injury that directly impacts a student’s ability to function effectively in the classroom. Since a concussion is a subclass of traumatic brain injuries (TBIs), concussions and TBIs were considered synonymous and research on TBI was used as knowledge directly relatable to concussions.
Research Questions

My research study aimed to answer the following central research question: In what ways do secondary school teachers support the learning of a student with a concussion? To aid in the answering of this overarching question, the following sub-questions were investigated:

1. What do teachers know about concussions and the symptoms that impact academic performance?
2. How is the role of the teacher influenced by the support staff available within the school?
3. What have been some of the challenges that teachers have experienced when supporting a student with a concussion and how did they overcome these challenges?
4. How are teachers educating their students on concussions and making their school community more aware of the academic implications of a concussion?

Significance of the Study

Most of the research that has been done on concussions has centred on the management of this injury within the context of returning a student-athlete to their sports arena. This athletic focus is not surprising considering the experiences of high profile professional athletes that have sustained concussions, such as NHL player Sidney Crosby, where this type of invisible injury has huge financial implications. Additionally, a significant amount of research has been conducted to find better ways to prevent and detect concussions, which similarly supports the concerns of professional sports leagues. Despite all the research and initiatives, athletes from all levels of athletic competition are still sustaining concussions and the management of these injuries is therefore important. Recently, there has been a shift in the concerns surrounding concussions; the concept of a Return to Learn protocol is beginning to attract attention and more research has begun in this area. It has been acknowledged that concussions can seriously impact
a student’s ability to learn and that consideration must be given on how to meet a student’s academic needs when they are impaired by a concussion.

The significance of my research study is that it aimed to contribute to filling the gap of qualitative research in the area of concussion management in the classroom. My research study contributes to current literature by providing insight into the perspectives of teachers who are trying to make a difference in the recovery process of a student with a concussion. This research investigated how teachers are working both inside and outside the classroom to promote awareness of concussions and support their students. It is important to consider the overall knowledge of the school staff and student body as a whole, as well as how a teacher can work with students with concussions on an individual basis in their classroom. This area of concussion management is particularly important considering that the cognitive impairments that result from a concussion can be aggravated by academic course expectations. The information obtained in my research study could potentially be used to educate teachers in the area of concussion management so that they are more prepared in the future to handle the recovery needs of a student with a concussion in their classroom.

**Background of the Researcher**

As an undergraduate student I studied Kinesiology with a focus on sports injuries. I took every course I could that would broaden both my theoretical and practical knowledge of the management of sports injuries. To complement my coursework, I volunteered as a student trainer with the University of Waterloo’s Athletic Therapy department. Over four years, I worked with both the Varsity Women’s Basketball and Volleyball teams. In this role, I was responsible for monitoring practices and games in order to prevent injury and provide appropriate treatment, when necessary. As a student trainer, I was responsible for assessing several athletes who
sustained concussions during practices and games, as well as being accountable for ensuring that athletes with concussions were not allowed to play before being medically cleared by the appropriate athletic therapy staff. Additionally, I worked in the Athletic Therapy Clinic as part of the University of Waterloo’s cooperative education program. I assisted in the evaluation of athletes with concussions to determine the severity of their symptoms, which was used to assess whether the athlete was ready to participate in the Return to Play protocol. The Return to Play protocol is a process in which the athlete was supervised gradually increasing physical activity, while ensuring that there was no return of symptoms. An outline of the Return to Play protocol can be found in Appendix C. I worked directly with the Athletic Therapists and Sports Physicians during this process. I also helped with educating the varsity athletes and coaches about concussions through bulletin boards and providing statistics to coaches and athletic administration.

Although my experiences at the University of Waterloo contributed to my knowledge of concussions and the management of these injuries in an athletic context, my interest in concussion management was significantly impacted by the personal experiences of a close friend, whom I will refer to as Theresa in my study. Theresa was recruited to play rugby while attending an Ontario university, but during her first league game in September 2008, before classes had even begun, she was the victim of an illegal high tackle and sustained a severe blow to the head, which resulted in a loss of consciousness and a seizure on the field. I witnessed this injury and it is a memory that I will never forget. Theresa was diagnosed at the hospital with a concussion and sent home. She took a few days off from school to recover and then returned to her university to begin her undergraduate studies. Over the next three years, I watched Theresa struggle academically and emotionally as she tried to come to terms with no longer being able to
be an athlete, as a consequence of recurring symptoms and an increased injury susceptibility, as well as disappointment due to poor academic achievement. It wasn’t until February 2012 that she was referred to the office for accessible learning at her university, which in turn referred her to a concussion specialist. This doctor gave Theresa the horrible diagnosis that, over three years later, she was still suffering from Postconcussion Syndrome, which is defined as persistent concussion symptoms that last beyond what is considered an acceptable recovery time (Leddy, Sandhu, Sodhi, Baker, & Willer, 2012). Theresa was informed that her best option for a meaningful recovery was to withdraw from school and take time to complete the physical and cognitive rest that she should have been prescribed immediately after her injury. In September 2013, Theresa returned to her studies and is currently close to completing her Bachelor’s degree. Surprisingly, even with the support of her doctors and accessible learning, she has still met resistance from university faculty and staff to carry out her prescribed accommodations and modifications. She is consistently being questioned about the validity of her symptoms by educators who do not fully understand the complicated and unique repercussions of a concussion. I will be the first to admit that the circumstances of Theresa’s concussion experience is an extreme case, but this should not distract from the lesson to be learned about the importance of proper management of the recovery of a student following a concussion and the crucial role an educator can play in this process. The focus of Theresa’s rehabilitation was withdrawal from physical activity, when she should have been told to also immediately suspend any academic activities that would further strain her impaired brain. Even with all the resources available to a university varsity athlete, Theresa continues to struggle with what will likely be a lifelong battle for recovery.

My perspective was that most of the research pertaining to concussions has been done on athletes, in particular, athletes in a post-secondary setting, and not enough investigation has
occurred into the unique needs and challenges of supporting a student with a concussion in a secondary school setting. My assumption was that high school athletes are sustaining concussions and having these injuries mismanaged by teachers and educational staff that lack the necessary knowledge and resources to support students with a concussion. The consequences of this mismanagement was not being felt until the students reached university or college and an Athletic Therapist or Sports Physician encouraged them to withdraw from their sport due to the compounding effects of multiple concussions. In January 2013, I was a guest lecturer to a Grade 12 Exercise Science class in an effort to educate high school students about the ramifications of improper recovery from a concussion. The students I talked with seemed interested, but these were Grade 12 students already on their way to a post-secondary educational setting where they would likely find resources to help them through the concussion recovery process. After further reflection about how students with concussions could be better supported, I came to the conclusion that the first line of defense has to be the high school teachers and support staff. Once a student has been diagnosed with a concussion, they need to be supported by their teachers who have the power to influence the student’s cognitive loading following their return to the classroom. I hope that my research study will give insight into what teachers know about concussions and how the symptoms of such an injury impacts a student’s ability to be successful in the classroom. I aimed to determine what kinds of strategies teachers are using to provide support to these students and whether they are doing so in the same way that they would support a student with a broken arm or a learning disability. My research study was my way of connecting the knowledge gained in my undergraduate career, my personal experiences, and my future as an educator to make an impact on how concussions are viewed and managed by secondary school teachers.
Assumptions

The selection of this topic and the subsequent analysis was influenced by the following assumptions:

- The majority of secondary school teachers are not provided with sufficient training to know how to support a student with a concussion in their classroom.

- Concussions are like a temporary learning disability and should be supported in the same way that a student with a diagnosed learning disability would receive academic accommodations.

- Awareness is the key to educating teachers on how to support a student with a concussion in their classroom.

The above assumptions are what drive my frustration with the mismanagement of a concussion, at all levels, and guided how I investigated and analyzed how concussions are currently being supported in the classroom setting.

Definition of Terms

Traumatic Brain Injury (TBI)

A traumatic brain injury (TBI) is defined as “an alteration in brain function, or other evidence of brain pathology, caused by an external force” (Menon, Schwab, Wright, & Maas, 2010). Furthermore, Menon et al. (2010) provided the following examples of an alteration in brain function:

- Any period of loss of or decreased level of consciousness
• Any loss of memory for events immediately before or after the injury

• Any alteration in mental state at the time of injury (e.g. confusion, disorientation, slowed thinking)

Concussions are considered to be a subset of TBI (McCrory et al., 2013) and thus these terms were used synonymously.

**Concussion**

It was determined by a panel of experts at the 4th International Conference on Concussion in Sport that a concussion would be defined as a “complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces” (McCrory et al., 2013). A concussion is most commonly associated with an impact to the head or neck, but may also occur as a result of forces exerted elsewhere on the body that are then transmitted to the head (McCrory et al., 2013). The signs and symptoms of a concussion, as described by Kissick and Johnston (2005), are included in Table 1.

**Table 1:**

*Signs and Symptoms of a Concussion*

<table>
<thead>
<tr>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of consciousness − Confusion</td>
</tr>
<tr>
<td>Unaware of time, date or place − Amnesia</td>
</tr>
<tr>
<td>Unaware of period, opposition or score of game</td>
</tr>
</tbody>
</table>
Physical & Behavioural

- Headache
- Dizziness
- Nausea
- Unsteadiness or loss of balance
- Feeling “dinged,” stunned or dazed, “foggy”
- “Having my bell rung”
- Displaying inappropriate emotions (e.g. laughing or crying)
- Double vision
- Sleepiness or sleep disturbance
- Inappropriate playing behaviour (e.g. running in the wrong direction)
- Vacant stare or glassy eyed
- Personality changes

- Subjective feeling of slowness
- Fatigue
- Poor coordination or balance
- Concussive convulsion or seizure
- Slow to answer questions or follow directions
- Gait unsteadiness or loss of balance
- Easily distracted or poor concentration
- Seeing stars or flashing lights
- Vomiting
- Significantly decreased playing ability
- Slurred speech

(Kissick & Johnston, 2005)
Accommodations

Growing Success, a document by the Ontario Ministry of Education on assessment, evaluation and reporting procedures, defines accommodations as:

Special teaching and assessment strategies, human supports, and/or individualized equipment required to enable a student to learn and to demonstrate learning. The provincial curriculum expectations for the grade are not altered for a student receiving accommodations. (Ontario, 2010)

Overview of the Study:

My study is divided into five main chapters. Chapter One provides an introduction to the topic, purpose of the study, research questions, significance of the study, background on the researcher, assumptions, and definitions of key terms. Chapter Two provides a comprehensive literature review on the existing research surrounding the topic of concussions. Chapter Three outlines the qualitative methodology and procedures used to conduct my study, including participant recruitment, profiles of the participants, description of data collection and analysis, validity and reliability, ethical considerations, and limitations of the study. Chapter Four explores the findings of interviews and fieldwork. Finally, in Chapter Five, the findings of my study are critically examined and reflected upon in the discussion. A complete reference list and appendices are provided at the end of this report.
Chapter Two: LITERATURE REVIEW

Overview

This literature review begins with a selection of the theories and frameworks that influenced the data collection and analysis of my research study and continues with relevant literature that provided a foundation of the current knowledge on concussions and the procedures that influence a teacher in the classroom.

Theoretical Framework

Due to the unique nature of a concussion’s impact on each individual, a pre-determined prescription intervention is not available for every student with a concussion, but one can consider the work done with other disabilities as a framework for concussion management in the educational setting (Bowen, 2005). Bowen (2005) suggests that “validated approaches that are effective for students with other disabilities similar to those of students with brain injury offer practical intervention choices for teachers working with students with TBI” (p. 35). I viewed concussions as a type of learning disability and used theories of disability to guide the directions of investigation and analysis.

Critical Disability Theory

Critical disability theory considers the connection between disability and human rights and how those with a disability can achieve equality. Rioux and Valentine (2005) provided the following perspective of critical disability theory:

It begins with the assumption that theories of human rights and equality provide the necessary foundation for understanding the linkages between the existing legal, economic, political, and social rationales for the full inclusion of people
with disabilities, and the systemic barriers and oppression that continue to construct people with disabilities as inherently unequal and disentitled to citizenship rights. (p. 47-48)

There are many different ways to view critical disability theory, but my study considered the social pathology of critical disability theory, in particular the environmental approach. The social pathology perspective believes that there is nothing wrong with a disabled individual, but rather that there is something wrong with society itself; it is only within the social structure of society that disability can be identified and addressed (Priestley, 1998; Roux & Valentine, 2005). From this perspective it is society’s responsibility to make sure that those with disabilities are treated equally within social, environmental, and economic structures (Roux & Valentine, 2005). This suggests that the school environment and belief structure has an impact on the experiences of a student with a concussion. How a concussion is viewed by a school community will impact a student’s recovery process.

The environmental approach to disability exists within the social pathology perspective and suggests that “personal abilities and limitations are the result, not only of factors residing within the individual but also the interaction between individuals and their environments” (Roux & Valentine, 2005, p. 52). Research has shown that the impacts of disability are a result of the failures of one’s environment to accommodate people’s differences and that the impact of disability can be lessened by a commitment to adapt environments in a way that enables participation by all (Roux & Valentine, 2005). This approach hypothesizes that those who control the environment have the capabilities to ensure that all participants are treated equally. With this belief that those who control the environment have the power to ensure inclusion, it can be assumed that those in a social institution, such as a school, can control the environment in
which they work to ensure that all the participants in that institution are supported. A teacher plays a critical role in establishing an environment that is compatible with the changing needs of a student with a concussion and has the ability to adapt their classroom environment to support all the students who enter it.

**Transformative Theory**

Banks (1993) suggests that “transformative scholars assume that knowledge is not neutral, but is influenced by human interests, that all knowledge reflects the power and social relationships within society, and that an important purpose of knowledge construction is to help people improve society” (as cited in Mertens, 1999, p. 4). Research within the transformative paradigm is interested in investigating the lives and experiences of marginalized groups to help guide understanding of these groups in the areas of social inequity and social justice (Mertens, 1999). The goal of research within transformative theory is to provide “a balanced and complete view of the program processes and effects such that bias is not introduced because of a lack of understanding of key viewpoints” (Mertens, 1999, p. 5). The transformative paradigm seeks to increase understanding by obtaining the perspectives of those involved within the community of interest and including this community in the research process (Mertens, 1999). This theory provided a foundation on which my research study sought to collaborate with teachers to understand how to create an environment in which a student with a concussion can achieve academic success.

**SETT Framework**

The SETT Framework was developed by Joy Zabala and is a tool that can be used to “help teams gather and organize information that can be used to guide collaborative decisions about services that foster the educational success of students with disabilities” (Zabala, 2005, p.
1). SETT stands for Student, Environment, Tasks, and Tools and it is these four components that are used to guide individuals through the process of providing support to a student with a disability. The SETT framework considers the importance of developing an understanding of the student and their specific needs, the environment that the student works within and the tasks that a student must be able to accomplish to learn and be an active participant in the classroom (Zabala, 2005). The elements of using the SETT framework will vary depending on the professionals available to a student, but they rely on the following critical components, as have been outlined by Zabala (2005):

- Shared knowledge: Decisions regarding a student will be made based on the shared knowledge a team has of the student, the environment, and the required task.

- Collaboration: The framework both requires and supports the collaboration of the people involved with the decision making and those impacted by the decisions.

- Communication: It is required that all people involved in the process communicate actively and respectfully.

- Multiple perspectives: The framework supports the fact that all those involved with the process bring a unique perspective and these perspectives allow the development of accurate and complete development of shared knowledge.

- Pertinent information: Although not all information will be required to make a decision, all information will be considered relevant.

- Flexibility and patience: The SETT framework presents a process that should be followed in a precise manner; it is not recommended that individuals progress to establishing
solutions before all of the concerns have been identified and thoroughly discussed. This process requires time and patience to select appropriate tools for a student.

• Ongoing process: Even after conclusions have been made, there may come a time when changes have occurred and the framework must be re-evaluated and new tools will be put into place to support a student.

The SETT framework is a tool that can be used in any educational setting to determine the appropriate accommodations for a student with a disability. This framework was used when I analyzed the data collected as a reference for determining if educators are following a similar method when providing support to a student with a concussion.

**Learning and Concussions**

Concussions and learning have a very interesting relationship in that they have a cyclical effect on one another. Concussions have effects on learning and learning has an impact on concussions. This relationship is one that I have found to be greatly misunderstood during my experiences with concussion management by educators. When making arrangements to support a student with a concussion, teachers must consider the impact that their instruction may have on a student’s recovery.

**Effects of Concussions on Learning**

A student with a concussion may struggle in the classroom since their symptoms can result in difficulty efficiently processing information, which in turn will make learning new content challenging (Sady et al., 2011). Many of the symptoms of a concussion make functioning within the classroom difficult (e.g. light/noise sensitivity, headache, and fatigue), since these irritations will impact a student’s ability to focus on the teacher’s instruction. Learning is also
impacted by the emotional symptoms associated with a concussion since student anxiety can “interfere with students’ compliance with treatment recommendations” (Sady et al., 2011, p. 704). If a student feels anxious about missing classes or disappointing their teachers, they may feel compelled to disregard advice and continue their studies as normal, regardless of the intensity of their symptoms. This in turn has a negative impact on their recovery since their brain does not have time to heal itself and meaningful recovery is delayed. While still recovering from a concussion, a student is impaired and these impairments must be considered when determining which accommodations will be appropriate for each individual. To further complicate things the act of learning, even with accommodations, can change a student’s symptoms so that a repeated re-evaluation of a student’s needs may be necessary.

**Effects of Learning on Concussions**

Learning, since it is a cognitive activity, has a direct impact on concussion recovery. Unlike Return to Play protocols, where students must be entirely asymptomatic before resuming physical activity, a student can return to academic studies while they still have symptoms. Since a student may return to their academic studies before they have fully recovered, “the therapeutic goal during concussion recovery is to find an appropriate level of cognitive exertion that does not exacerbate symptoms or cause the re-emergence of previously resolved symptoms” (Sady et al, 2011, p. 704). Without significant consequences to their academic progress, it is unlikely that a student can delay returning to learning until their symptoms have completely resolved. Thus, a balance must be reached between managing a student’s symptoms and continuing with their academic workload. Finding this balance will be unique to each individual and will need to be modified throughout the recovery process, as the symptoms and the student’s sensitivity to these symptoms will resolve or change throughout this process (Sady et al., 2011).
An Invisible Injury

A significant issue with concussions is that it is an invisible injury. Students with concussions appear physically fine and this lack of a visual reminder may make it difficult for school personnel to accept the need for accommodations (Halstead et al., 2013). Without a visual reminder, it can be difficult for educators to remember that this student is in fact injured and in need of extra support. A student’s symptoms can become aggravated when an educator assumes that they are cognitively recovered since there are no outward signs of physical impairment (Karlin, 2011). Educators cannot see the injury, but it is “essential that students receive a consistent, supportive, and positive message from all school staff about expectations and accommodations during recovery” (Gioia, 2014, p. 5). It is critical that students feel supported throughout the recovery process. Although it is important for students to receive support from their school, it is not just the ignorance of educators that can present a problem. The parents of a student and the student themselves can make recovery from a concussion challenging.

Sarmiento, Mitchko, Klein, and Wong (2010) found that one barrier to preventing and addressing concussions is parents and athletes who discount the severity of a concussion. In order to facilitate an effective recovery process, all stakeholders must be aware of the existence and severity of a concussion.

Gender Differences

The literature has conflicting views with regards to whether concussions affect males and females differently. Preiss-Farzanegan, Chapman, Wong, Wu, and Bazarian (2009) found that adult females are at an increased risk for postconcussion symptoms in comparison to males, but were unable to explain this finding and this increased risk for postconcussion symptoms was not found to extend to adolescent females. Frommer et al. (2011) researched concussion symptoms
in male and female athletes and discovered that females reported more neurobehavioural symptoms (e.g. drowsiness) and somatic symptoms (e.g. sensitivity to noise) than males, whereas males reported more cognitive symptoms (e.g. confusion/disorientation). In contrast, Broshek et al. (2005) discovered that “females were cognitively impaired approximately 1.7 times more often than males following a concussion” (p. 862). This appears to be an area of research where a knowledge gap exists. Gender differences in the effects of a concussion is an area of research that requires additional investigation.

**Emotional Impact**

One area of concussion research that is currently under development is knowledge about the emotional impact of concussions. Kontos, Covassin, Elbin, and Parker (2012) investigated the relationship of concussions in high school and college athletes with depression and discovered that depression was elevated following a concussion in all athletes. Kontos et al. (2012) hypothesized that the uncertainty associated with recovery and return to play contributes to an “emotional upheaval for the injured athlete” (p. 1756). This is an area of concussion research that I had difficulty finding literature to support and thus is an area in need of further investigation in future research studies.

**Concussions and Politics**

Due to the increased attention surrounding concussions, there has been an increase in support from government bodies to provide guidelines for those involved with students with concussions, but there is still room for more support for educators and individuals in a school setting. The implementation of appropriate concussion policies and procedures prior to any student sustaining a concussion will help to ensure that a school is better prepared to support a student’s successful return to academics (Sady et al., 2011). The following section describes a
selection of the Ontario government’s attempts to bring political awareness to concussions, as well as the current policies that impact how a concussion should be handled within an educational institution.

**Bill 39**

On March 6, 2012 the Ontario government introduced Bill 39, an act to amend the Education Act with respect to concussions, but little has been done since then to see that this bill receives Royal Assent. Bill 39 described how Ontario would establish policies regarding the management of concussions and how it would be the responsibility of the individual school boards to enact policies and guidelines that were consistent with these to be determined provincial policies (Legislative Assembly of Ontario, 2012). Bill 39 began an important conversation about protecting students across the entire province of Ontario, but since this bill has not yet entered its second reading, there is still much to be accomplished before concussion management is part of Ontario law. Although Bill 39 has not received Royal Assent, the Ontario government has taken another approach to change how concussions are managed in schools in the form of Policy/Program Memorandum 158.

**PPM 158**

Policy/Program Memorandum (PPM) 158 was introduced on March 19, 2014. It states that the Ministry of Education expects all school boards in Ontario to develop and implement a concussion policy no later than January 30, 2015 (Ontario, 2014). According to PPM 158 (Ontario, 2014), each school board policy is expected to include, but is not limited to, the following components:
Development of Awareness: The board’s policy should include strategies for sharing information with students, parents, educators, board employees, administrators, school staff, volunteers, doctors, nurses, and community-based organizations. Additionally, the policy should provide any curriculum connections that teachers can include in their everyday teaching.

Prevention: The board’s policy should include a description of how concussions can be prevented and how the risk of sustaining a concussion can be minimized.

Identification: The board’s policy should include instructions on how to safely remove an injured student and how to conduct an initial assessment. Furthermore, the policy should explain what steps should be taken following a student’s initial assessment.

Management Procedures: The board’s policy should address the development of individualized Return to Learn and Return to Play plans.

Training: The board’s policy should detail how they will provide ongoing training on awareness, identification, and management of students with concussions to all board employees who would be involved in the process.

Since PPM 158 has just been introduced and full implementation had not occurred during the time of my research study, further investigations will need to be done to determine the effectiveness of each school board’s concussion policy. I inquired about the effects of PPM 158, but my data collection was completed before there were any truly perceivable effects of PPM 158.
Cognitive & Physical Rest

Although both physical and cognitive rest are seen to be a cornerstone of concussion management (McCrory et al., 2013), an important distinction must be made between cognitive and physical rest since, although essential, they are understood and executed very differently. Physical rest is typically easily understood by students, parents, coaches, teachers, etc. to mean not unnecessarily engaging in any activities that increases the heart rate or causes one to sweat, since these can exacerbate symptoms and prolong recovery (Master, Gioia, Leddy & Grady, 2012). In contrast, cognitive rest can be difficult to comprehend and execute since it includes many aspects of everyday life, such as no school, no home/school work, no reading, no video games, no texting, no computer, and for some, no television (Arbogast et al., 2013; Master et al., 2012). It should be acknowledged that cognitive rest does not mean that a student must engage in complete bed rest, but the student should be excused from school until a return-to-school plan can be established (Arbogast et al., 2013). Excluding these cognitive activities can be very difficult for adolescents, especially when these activities make up the majority of their day to day life. Although achieving cognitive rest may be difficult, unlike physical rest, a student may still engage in these cognitive activities as long as they do not trigger symptoms.

This is an area that makes concussion management for a teacher complicated. A teacher cannot visibly see the student’s injury and therefore must rely on the student to be honest about any situation that aggravates their symptoms. This reliance on student honesty is one of the aspects of concussion management that I have found educators find the most challenging, since some students will take advantage of the invisible nature of a concussion. Theresa has struggled with trying to convince her professors in university that she is in need of accommodations and has met resistance from professors who are convinced that she is lying or exaggerating her
symptoms. Those around a student with a concussion can become frustrated by the lack of objective symptom data, but ensuring adequate cognitive rest is imperative for a teacher to accommodate. As long as symptoms are not worsened, an individual may engage in a cognitive activity, but it can be challenging to find the accommodations that will support a student’s symptoms, especially if their symptoms are constantly changing.

**Return to Learn**

The implementation of Return to Learn (RTL) protocols are beginning to become popular as more researchers investigate the implications of concussions on children and adolescents. This shift is due to the recognition that a student’s job is to go to school, in contrast to traditionally researched collegiate and professional athletes whose main job is being an athlete and returning to their sport is of utmost importance (Master et al., 2012). Similarly to the well-established Return to Play (RTP) protocols (see Appendix C), it has been found that RTL protocols will result in an improved prognosis if they are gradual in nature. Master et al. (2012) stated that “children and adolescents benefit from a controlled, gradual return-to-learn approach, rather than an attempt to return to a full school load immediately after cognitive rest has resulted in symptom abatement” (p. 3). It is crucial that accommodations are made so that a student can return to school in a controlled manner that allows them to gradually increase their cognitive loading and maintain a reasonable level of symptoms. In contrast to RTP protocols, a student in the RTL process does not need to be completely symptom free, rather the key is that the student’s symptoms are manageable and the school is making appropriate adjustments so that the student can gradually reintroduce academic loading, while managing and allowing their symptoms to improve (McAvoy, 2012). Table 2 highlights the stages of the RTL protocol, as described by Master et al. (2012).
### Table 2:

*Return to Learn Plan*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>No activity</td>
<td>Complete cognitive rest – no school, no homework, no reading, no texting, no video games, no computer work.</td>
<td>Recovery.</td>
</tr>
<tr>
<td>Gradual reintroduction of cognitive activity</td>
<td>Relax previous restriction on activities and add back for short periods of time (5-15 minutes at a time).</td>
<td>Gradual controlled increase in subsymptom threshold cognitive activities.</td>
</tr>
<tr>
<td>Homework at home before school work at school</td>
<td>Homework in longer increments (20-30 minutes at a time).</td>
<td>Increase cognitive stamina by repetition of short periods of self-paced cognitive activity.</td>
</tr>
<tr>
<td>School re-entry</td>
<td>Part day of school after tolerating 1-2 cumulative hours of homework at home.</td>
<td>Re-entry into school with accommodations to permit controlled subsymptom threshold increase in cognitive load.</td>
</tr>
<tr>
<td>Gradual reintegration into school</td>
<td>Increase to full day of school.</td>
<td>Accommodations decrease as cognitive stamina improves.</td>
</tr>
</tbody>
</table>
Resumption of full cognitive workload
Introduce testing, catch up with essential work.
Full return to school; may commence Return to Play protocol.

(Master et al., 2012)

Return to School

Recent research has introduced the idea that there is a need to differentiate between Return to Learn (RTL) and Return to School (RTS) protocols. Karlin (2011) identified that this differentiation is important for the following reason:

Much of the psychodevelopment of child and adolescent athletes occurs in the school setting. Prolonged absences from school may result in changes with relationships with peers, perceptions of reduced social acceptance, feelings of isolation at home, and development of symptoms of anxiety or depression that are difficult to discern from those related to concussion. (p. S373)

It is important that students return to school in order to maintain their social interactions, but returning to school should be considered a separate event to RTL procedures, where the focus is on resuming a student’s academic participation. DeMatteo et al. (2015) stated that “although children with concussive injuries may not have the cognitive ability to participate in learning, returning to a modified school environment represents normality and promotes a routine and supportive social environment” (p. 2). A concussion has the potential to change a student’s life and therefore it is important to find ways to retain normalcy in their routines. Although returning to school is important, this transition can be stressful due to social interactions and cognitive loading, which is why it is advised that students be asymptomatic at rest or only have minimal
symptoms at home before they return to school (Karlin, 2011). DeMatteo et al. (2015) recommended that students should not be out of school for any longer than one month. School is a student’s job and prolonged absences will create anxiety due to worrying about how their absence will impact their future success. Table 3 presents recommendations for each stage of the RTS protocol as described by DeMatteo et al. (2015).

**Table 3:**

*Return to School Plan*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain Rest – No School</td>
<td>One week away from school, but this does not mean sensory deprivation or social isolation. When the child is symptom free, they may proceed to stage 2. Regardless, students should not remain in this stage longer than two weeks to prevent depression.</td>
</tr>
<tr>
<td>Getting Ready to Go Back</td>
<td>Gentle graduated readiness program of trying cognitive and physical activity. If symptoms persist, children can stay in this stage for a maximum of two weeks while making trial and error adjustments to their activity levels.</td>
</tr>
<tr>
<td>Back To School/Modified Academics</td>
<td>Maintain proper sleep schedule during this stage. Academic accommodations are grouped into:</td>
</tr>
</tbody>
</table>
Timetable & Attendance: Attendance is based on severity of symptoms.

Curriculum Adjustments: Deciding which and how many classes to attend. No homework initially, gradually increase in 15 minute increments up to a maximum of 45 minutes.

Environmental Accommodations: Quiet retreat space, preferential seating, dark glasses, etc.

General Activity: Limited screen time.

Nearly Normal Routines Return to full days of school, but attendance may not be 5 days a week. The ability to attend full days as well as complete as much homework as required is the main goal in this stage. Student is encouraged to only write one test a week.

Fully Back to School Returning to normal school routines (consistent attendance, regular completion of homework and tests, participation in extracurricular activities, and riding the bus).

(DeMatteo et al., 2015)
Accommodations

Since symptoms vary from student to student, the interventions applied must be decided on a case by case basis. There is no established set of interventions that can be used on every individual and therefore each student will require an individualized approach (Aldrich & Obrzut, 2012; Halstead et al., 2013). Each student will experience a concussion differently and thus their recovery and any accommodations they are afforded will need to be unique and take into consideration that individual specifically. When creating a return to school plan, a multifaceted approach must be considered to ensure that the student’s needs are being met with regards to medical, physical, cognitive, and social-emotion problems (Bowen, 2005). It needs to be recognized that the plan must be flexible such that it can be consistently re-evaluated for effectiveness to reflect the student’s progress and any changes in their symptoms (Bowen, 2005). The following sections describe possible accommodations that can be utilized to support a student with a concussion.

Excused Absences

Those in charge of a student’s recovery at school must carefully consider how to balance the student’s need for cognitive rest with the need for academic progress. This might mean that a student may be excused from elective classes, in exchange for core courses, or that they will be excused from the time of day in which their symptoms are the worst (Bowen, 2005; McGrath, 2010). For example, for a student that has trouble sleeping based on their symptoms, they may be excused from morning classes, whereas a student whose symptoms worsen throughout the day, may be excused from classes early (McAvoy, 2012; McGrath, 2010).
Rest Periods

For students who feel relief with withdrawal from stimuli when symptoms flare up, a simple break from class may be sufficient (McAvoy, 2012; McGrath, 2010). When symptoms become exacerbated during the lesson, a student should be able to retreat to a quiet area where they can rest until their symptoms subside, thus allowing them to return to class when asymptomatic (McGrath, 2010). McAvoy (2012) advised that all rest periods be strategic and scheduled rather than sporadic; rest periods should be used as a way to proactively prevent symptoms and not used as a reactive way of allowing a student’s symptoms to subside.

Scheduling Considerations

A student recovering from a concussion may find it difficult to accomplish all that is assigned to them and thus a teacher must take this into consideration when assessing a student with a concussion. Possible accommodations include: giving extra time to complete assigned homework or examinations, postponing assessments while a student is symptomatic or excusing them from an assessment if it does not have any direct impact on a student’s academic future (e.g. AP placement or post-secondary education) (Bowen, 2005; McGrath, 2010; Sady et al., 2011). Educators must consider the effect of assessment on a student, since the mental effort required to prepare for and perform on a test can exacerbate their symptoms and hinder any progress they have possibly made (McGrath, 2010). A teacher must consider which assessments are crucial to a student’s progress and time them appropriately such that a student can make a full recovery. When considering a student’s anxiety with regards to repeatedly missing the same classes, an accommodation that can be made is allowing the student to rotate which classes they attend to ensure that, on a weekly basis, they attend each class a few times (Sady et al., 2011). For a student with a concussion, their brain is compromised and inefficient when it comes to new
learning and thus teachers should carefully consider the content that they present to a student with a concussion and make the focus understanding rather than memorization (McAvoy, 2012).

**Classroom Environment**

The environment in which a student learns has a direct impact on their symptoms and must be considered when making accommodations for a student during their recovery. Possible classroom accommodation can include allowing a student to move away from sources of fluorescent lighting or wear sunglasses or a cap/visor to class (McAvoy, 2012; McGrath, 2010). These accommodations will allow students to participate in class while their tolerance to light and noise or both is improved. Another classroom accommodation that can be made is with regards to seating arrangements. Students whose symptoms include attention deficits may find it helpful to be seated at the front of the classroom or near the teacher in an attempt to keep them engaged in instructions or discussions (McGrath, 2010).

**Limit Physical Exertion**

A cornerstone of concussion recovery is limiting physical exertion while symptomatic (McGrath, 2010). For student-athletes this aspect of recovery is particularly difficult and educators must ensure that students can find a way to still be involved athletically without aggravating their symptoms. One accommodation is to excuse student-athletes from participating athletically with a sports team, but still allow them to remain involved in team activities and planning as long as it does not interfere with achieving optimal rest and maintaining academic progress (McGrath, 2010). Limiting physical exertion is also important for non-student-athletes. Since students physically exert themselves when carrying a heavy backpack or walking up stairs students should be encouraged to limit what they carry in their backpacks and be given access to an elevator, if possible.
Reading and Writing Accommodations

Some students may find it difficult to concentrate while reading or to articulate themselves while recovering from a concussion and therefore accommodations must be considered in this area of achievement. The physical task of visual scanning and concentration while reading may make a student’s symptoms worse; teachers must find a way to adjust how a student completes reading tasks when they are required in class or decide whether the reading task should be required at all (McGrath, 2010). It may be beneficial to allow a student to use a reader during tests and assignments, large print books, graphic organizers or to allow a student to use digital recordings of books or test questions so they can progress at their own pace (Bowen, 2005; McGrath, 2010). For students who struggle with combining listening and writing tasks, they might find it helpful to use a note taker, scribe or be provided with a lecture outline (Bowen, 2005; McAvoy, 2012; McGrath, 2010; Sady et al., 2011). It would be beneficial to allow a student to focus on the content of the information being presented and receive the notes from another student after the class, rather than being required to multi-task, which may aggravate their symptoms (McGrath, 2010; Sady et al, 2011).

Student Support Team

The role of supporting a student with a concussion is not limited to one individual. Ideally it is a team effort accomplished by a group of trained professionals. The collaboration of professionals with the common goal of supporting a student with a concussion was of particular interest to me. There has been research conducted on the roles that many professionals can play in the management of a concussion, from medical professionals to school nurses, but not all of these professionals will be available to all students, particularly in the public schools of Ontario.
This following sections will discuss the different individuals that can play a role in the recovery of a student with a concussion, as well as the importance of a team approach.

**School Nurse**

A school nurse is a health care provider that can play a leading role in the care of a student with a concussion and should be in direct contact with the student’s physician and any other specialists (Gioia, 2014; Piebes, Gourley, & Valovich McLeod, 2009; Valovich McLeod, 2014). A school nurse plays a role in the daily medical evaluations of a student and can provide individuals with a concussion with a quiet place to rest and recover during the school day if their symptoms are exacerbated by academic activities (McGrath, 2010). The school nurse should keep daily records of any contact they have with recovering students and their symptoms in an effort to track trends in symptom recurrences, which may indicate that academic demands must be reassessed (McGrath, 2010). The school nurse would also be available to answer any questions a student or teacher may have regarding a student’s progress and symptoms (Piebes et al., 2009). Further, the school nurse provides a link between healthcare providers, parents or guardians, school administrators, and other school personnel, allowing all of these individuals to communicate regarding a student’s condition and needs (Hossler, McAvoy, Rossen, Schoessler, & Thompson, 2014; Karlin, 2011; Valovich McLeod, 2014). Unfortunately, a school nurse is not always available to students in Ontario on a daily basis. When this is the case how are the roles of a school nurse upheld by the available professionals within a school?

**Guidance Counsellor**

A guidance counsellor will typically be in charge of overseeing the academic accommodation process for a student with a concussion and checking in periodically to make any necessary adjustments (McGrath, 2010). Gioia (2014) described the role of the guidance
counsellor as personnel that would “coordinate cognitive/academic accommodations, using a symptom log to track and guide adjustments” (p. 5). The guidance counsellor would likely be responsible for ensuring the collaboration of different teachers involved with the student with a concussion and since guidance counsellors are readily available within Ontario schools, it was assumed that they play a key role in a student with a concussion’s recovery.

**Classroom Teacher**

The focus of my research study was to investigate how teachers provide support to students with concussions based on the assumption that teachers are not being adequately prepared for providing educational support to a student with a concussion. Gioia (2014) stated that teachers should be:

> Observant of the potential cognitive and emotional effects of injuries such as increased problems paying attention or concentrating, greater challenges remembering or learning new information, needing more time to complete tasks or assignments, greater irritability and less tolerance for stressors, and the possibility of increased symptoms (i.e. cognitive exertional effects such as headache and fatigue) when doing schoolwork. (p. 5)

Although classroom teachers play an important role in the management of a student’s concussion, not all teachers feel prepared to provide such support. Mohr and Bullock (2005) conducted an investigation where they sought to discover the perceptions of educators regarding their ability to support students with TBI and found that 86% of the participants “felt that there is an overall lack of knowledge regarding the diverse educational needs of students with TBI” (p. 56). Mohr and Bullock (2005) found that this lack of knowledge stemmed from inadequate
preparation for how to support a student with a brain injury in the form of formal training (e.g. in-service sessions by school districts or education service centre or a college course). Of particular significance is the fact that the educators involved in Bohr and Bullock’s (2005) study were special education teachers, diagnosticians and behaviour specialists. If educators in the area of special education feel unprepared for supporting a student with a brain injury, how do other teachers feel? It is the classroom teacher that would be responsible for executing the prescribed accommodations that have been discussed in previous sections and yet most teachers likely feel unprepared to carry out these interventions. My research study explored the experiences of teachers that have previously worked with students with concussions to guide how other teachers in the future can support a student with a concussion in their classroom.

Sady et al. (2011) discussed how “structured programmatic changes in schools are needed, as many are simply not prepared to assume management of concussed students” (p. 707). Gioia (2014) suggested that standardized forms or materials that help to guide teachers in the monitoring of student symptoms, deciding appropriate learning supports, and communication with parents are useful in the school support system. Without a plan in place to dictate how teachers and other available personnel will work together to support a student with a concussion, how do teachers manage to support the needs of students in their classroom? This was an area of investigation in the data collection of my study.

**Multidisciplinary Approach**

Although each of the above described professionals is important in the recovery of a student with a concussion, a student’s safe return to learning is facilitated by the collaboration of a team of these professionals. Halstead et al. (2013) stated that “it remains essential that all schools recognize the importance of team management for a student after a concussion and
ensure that all students recovering from concussion have assigned staff who will be responsible for smooth re-entry to school” (p. 951). Students require support from the school and this is best achieved through a team approach. Hossler et al. (2014) suggested that “a multidisciplinary team effort by professionals with knowledge of the interplay among physical, cognitive, social, and emotional impacts of brain injury offers the greatest benefit” (p. 1). It is when professionals, each offering a special skill set, work together that all the needs of a student with a concussion are met. Although different school boards will have different resources available, effective care is achieved with teamwork, collaboration, and utilizing the unique skills of each professional (Hossler et al., 2014). Halstead et al. (2013) proposed that a multidisciplinary team be comprised of four teams: family team (e.g. student, parent/guardians, and peers), medical team (e.g. emergency department, primary care provider, concussion specialist, and school physician), school academic team (e.g. teacher, school counsellor, social worker, school nurse, school physician, and school administrator), and school physical activity team (e.g. school nurse, athletic trainer, coach, physical education teacher, and school physician). There should be communication amongst all of these teams to ensure that a student can successfully return to school and return to learning (Gioia, 2014; Valovich McLeod, 2014). Karlin (2011) stated that “the importance of communication between the clinician and school administration in formulating a successful return to school cannot be understated, yet it is often overlooked (p. S373). It is essential to form a bridge of communication between the school and medical teams to ensure that all of the student’s needs are being met.

Collaboration is vital because each team offers something different and working together will allow a variety of student needs to be met and ensures that the student is taken care of in different environments (home, school, community) (Hossler et al., 2014). The main
responsibility of the family team is to “enforce rest and to reduce stimulation to the student during recovery” (Halstead et al., 2013, p. 951). When the student is at home it is crucial that their family enforces physical and cognitive rest. Strong parental involvement can be crucial to a student’s recovery (Karlin, 2011). To aid in parental involvement it is helpful to provide explicit instructions to this part of the team. Gioia (2014) found that “with explicit instruction, parental recall of concussion symptom education, activity restrictions, and sports recommendations was significantly increased” (p. 4). The medical team is responsible for evaluating the concussion and prescribing physical and cognitive rest until symptoms improve (Halstead et al., 2013). In conjunction with the work of the family and medical teams, the main concern of the school physical activity team is to ensure that the student with a concussion is protected against any further head injuries (Halstead et al., 2013). Furthermore, the main concern of the school academic team is to facilitate a gradual return to learning using appropriate accommodations that reduce or eliminate symptoms (Halstead et al., 2013). Forming a partnership between the school and medical teams is essential to proper management of a concussion (Gioia, 2014).

**Education and Awareness**

It is difficult to support a student with a concussion if all of the stakeholders involved do not understand the symptoms and severity of a concussion. Spreading awareness through education is one way of correcting misconceptions and educating stakeholders on what a concussion is, what are the symptoms of concussions, and how do we manage concussions in the classroom, at home, and on the sports field. Education is a key piece of concussion management because some students have an incomplete understanding of concussions and their symptoms. Fedor and Gunstad (2015) researched college athletes’ knowledge of concussions and discovered that although athletes were familiar with some of the symptoms (e.g. headaches, nausea, poor
concentration), they were unfamiliar with the emotional symptoms associated with a concussion and identified incorrect symptoms (e.g. forgetting someone’s name). Fedor and Gunstad’s (2015) study investigated the knowledge of college athletes and it can be predicted that if college athletes have an incomplete understanding of concussions, so do high school athletes. In order to correct these misconceptions, educators must find ways to improve the knowledge of their students and school community. In fact, Karlin (2011) stated that “all parties involved in the academic life of the athlete with a concussion can be educated regarding expectations during recovery from the concussion” (p. S373). Everyone involved in a student’s recovery should be adequately educated on the procedures for recovery, as well as a basic knowledge of what a concussion is.

Sarmiento et al. (2010) investigated the use of the Centers for Disease Control and Prevention’s concussion initiative for high school coaches and found that initiatives, such as ‘Heads Up’, can increase the knowledge of concussions. Sarmiento et al.’s (2010) research study found that the ‘Heads Up’ toolkit was beneficial for improving high school coaches’ knowledge, attitudes, behaviour, and skills related to concussion prevention and management (Sarmiento et al., 2010). The Center for Disease Control and Prevention has created resources that are not only beneficial to coaches, but also to parents, teachers, and physicians (Karlin, 2011). Every stakeholder can benefit from viewing resources that aim to educate readers on concussions. When considering students and educators, schools are “ideal environments for concussion prevention and awareness because of the emphasis on education in the classroom and on the field” (Karlin, 2011, p. S376). Finding suitable educational resources is one way that educators can spread awareness of concussions in their school community.
Limited Qualitative Research

The major challenge of completing this literature review was acquiring sufficient qualitative research to support the different areas of research surrounding concussions. Due to the increased awareness surrounding concussions over the past decade, there has been an increase in research, but this research has been on the topics of diagnosis, pathophysiology, prevention, and treatment/rehabilitation of concussions in an athletic context. Most of the research has centred on the athletic implications of concussions and thus qualitative research regarding the perspectives of those involved with concussions has been done on athletes, coaches, athletic therapists, and other athletic personnel. Only recently has there been an increase in attention towards the academic side of concussion management. Therefore, there are very few qualitative research studies that I could find that addressed the perspectives of teachers or other educational staff. There are research studies that investigated the understanding of coaches, athletes, athletic therapists, and physicians on the topic of concussions, but I have found it difficult to find a study that looked at the extent of a teacher’s knowledge of and preparedness for dealing with a concussion, which suggests that my research study has the capability to fill a gap in the current literature.

Conclusion

The preceding literature review provided a background on current research in the area of concussions in the classroom. This is a topic that is constantly being revised and therefore some research has been included that has been published online, but not yet in print. This recent research is a testament to the fact that researcher knowledge of concussions is currently in a state of revision. At the beginning of my research, Return to Learn (RTL) procedures were new to the field and beginning to see increased practical use. As my research became finalized, I saw the
introduction of the idea that ‘Return to School’ (RTS) procedures must also be created in collaboration with RTL procedures. This literature review is grounded by critical disability and transformative theory, as well as the SETT framework. To provide the reader with an understanding of the challenges associated with concussions, the literature review explored the complicated relationship between learning and concussions in addition to the invisible nature of concussions, gender differences, and the emotional impact of a concussion. Due to the changes in Ontario policy with regards to concussions in March 2014, Policy/Program Memorandum 158 was discussed and how this related to the current knowledge of concussions in Ontario schools. A student’s recovery from a concussion through RTL and RTS procedures was discussed, as well as a selection of possible school accommodations and the support team that can be involved in facilitating these procedures and accommodations. This literature review also highlighted the importance of providing education to all stakeholders in an effort to spread awareness of concussions. Lastly, this literature review concluded with a reflection on the difficulty in finding qualitative research on this topic. As has been previously stated, the topic of concussions is of particular interest to researchers and new aspects are constantly being uncovered. Additionally, the perspectives of different stakeholders is beginning to occur. The following study aimed to add to the current research the perspectives of teachers on how to support a student with a concussion in the classroom through primary research. There is still much to learn, but my research study aimed to add to a current gap in the literature.
Chapter Three: METHODOLOGY

Research Design and Rationale

This qualitative research study utilized a case study approach to analyze the ways in which secondary school teachers support a student with a concussion. A qualitative approach was selected to satisfy the requirements of the Master of Teaching program and to enable an exploration of the issue of concussions in the classroom from the perspective of a teacher. The current state of classrooms, with regard to concussions, cannot be easily quantitatively measured, but valuable data can be collected through the experiences of teachers. To truly understand what is going on and how to evoke changes, where necessary, researchers must talk directly to the teachers who are making a difference and collaborate with these teachers to understand how concussions can be practically managed in the classroom. I interviewed teachers who have found strategies that have resulted in positive results for the students with concussions in their classroom or school, as well as teachers who have played an active role in promoting concussion awareness in their school community. The goal of this research was to provide a resource for furthering the knowledge of teachers so that they can help a student with a concussion to successfully reintegrate into their academic studies. Therefore, my study gained wisdom from teachers who have found success supporting a student with a concussion within their school community. Furthermore, a case study approach was used based on its appropriateness due to time restraints and my desire to better understand concussion management within a certain context. The unique characteristics of a school community may play a role in the management of concussions and therefore my research study investigated within the specific context of Southern Ontario and the experiences of three secondary school educators within that bounded area.
Research Questions

This qualitative case study aimed to answer the following question: *In what ways do secondary school teachers support the learning of a student with a concussion?* Additionally, this research sought to answer questions about how teachers have gained knowledge about concussions and the strategies they have utilized based on identified challenges.

Setting

The setting of my study was secondary schools within Southern Ontario. This setting was selected because of the academic consequences of improper management of a concussion in the secondary school context. Students in Grades 9-12 are in an environment where there is a lot of pressure to be active in extra-curricular activities while maintaining the high expectations of academic-level and university preparatory courses. These pressures have the potential to do harm to a student with a concussion, if expectations are not accommodated in some way during a student’s recovery. The additional specification of schools within Southern Ontario was selected to consider my location during the time of data collection. Geographic access to participants made face-to-face interviews much more realistic.

Participant Recruitment

I recruited participants by contacting educators that were referred to me by colleagues, as well as contacting individuals that were presenters at professional conferences or spoke about concussions in professional magazines. Once I had located a potential candidate for participation in my research study, I inquired about their willingness to participate, if they met the following criteria:

- Experience working with a student with a concussion
• High school educator (Grades 9-12)

• Currently an educator in Southern Ontario

Three participants met the above criteria and were willing to participate in my study. The profiles of these individuals are in the next section.

**Participants**

All of the following participants and their schools have been given pseudonyms to protect their identity and maintain the confidentiality of all participants.

**Philip**

Philip is an Athletic Director and Health and Physical Education teacher at Juniper College, an independent school located in Southern Ontario. Philip has been an educator for 21 years, working in both public and independent schools.

**Claire**

Claire is the Head of Student Support and Wellness at Fraser Academy, an all-girls independent school located in Southern Ontario. Claire has been an educator for 38 years and has also worked in both public and independent schools. Before she took on an administrative role, Claire was a high school English teacher. She now works as part of a team that aims to meet the needs of all students at Fraser Academy, including those students who have a concussion.

**Stephanie**

Stephanie is an Athletic Director, Health and Physical Education Program Lead, and Health and Physical Education teacher at Bear Valley Secondary School, a public school located in Southern Ontario. Stephanie has been an educator for 16 years. She initially started her career
as an English teacher, evolved into a History teacher and has finally settled as a Health and Physical Education teacher.

**Data Collection and Organization**

Data was collected through semi-structured interviews of the participants. The semi-structured approach to interviewing allowed participants to elaborate on their thoughts and experiences while still maintaining the flow of the interview and consistency among the interviews of different participants. I conducted one sixty minute interview with each participant, with the option to conduct follow-up interviews, if necessary. Each participant was provided with a copy of the interview questions (see Appendix B) prior to the interview. I elected to send a copy of the interview questions to the participants to ensure that they were comfortable with all of the questions that I would be asking, as well to verify that the participants felt that they had sufficient experiences to answer all of the questions. On the day of the interview, I used an expanded version of the interview questions (see Appendix B) that included all of the questions provided to the participants via email, but also included follow-up questions that guided me through the interview and ensured that I explored all of the areas of concussion management I was interested in.

All interviews were recorded using a Sony IC Recorder device and were conducted in a location and time convenient to the participant. This location and time was negotiated with each participant individually before their interview was conducted. Participants were asked to determine the location of the interview since the participants were doing me the favour of contributing their knowledge and time. Locations selected by the participants also helped to make them more comfortable during the interview since they were in a familiar environment or location of their choosing.
Following the recording of all interviews, I transcribed the audio files using TranscriberAG (Philip) and Express Scribe Transcription Software (Claire and Stephanie). All of the data collected both audio and transcribed, was stored securely by password protection on my laptop. Additionally, all identifying features of the participants (e.g. name, school, associated individuals or businesses, etc.) were changed to ensure the anonymity of each participant.

In addition to the data collected through interviews, I also collected data in the form of field notes. These notes included observations and reflections made after each interview, notes taken during community meetings, and any relevant experiences or reflections I made during practicum experiences.

After the transcription of each interview, I read through the transcript and made preliminary notes of what stood out and began to identify any key ideas or areas of interest. The transcripts were further analyzed for common themes by re-reading each transcript several times and the data was coded to help reduce the data into meaningful segments that were then compared between participants. I used coloured markers to highlight important quotes and a different colour was assigned to each code. I also made notes in the margins of any thoughts or additional questions that came to mind as I read the transcript. The codes that I identified were then used to generate overarching themes that were used for analysis and interpretation. Analysis of the data established patterns and links between the participants’ ideas and experiences. I then used this analysis to consider how the perspectives and strategies of the participants could be transferred to other educational contexts (i.e. used by other educators in any school or school board).
Validity and Reliability

This section discusses some of the considerations in the areas of the validity and reliability of my research study.

Validity Considerations

As was discussed in the introduction section, my past experiences have greatly influenced my interest in concussions and the transition of this interest from an athletic to classroom context. This interest meant that I was extremely invested in the process of conducting my research and obtaining participants that could provide insight into how teachers can successfully assist a student with a concussion in their recovery. The goal of my research was to influence future teaching practices and this was achieved by collecting data from educators who have found effective ways to support students with concussions. I must disclose my bias as a researcher that although I believe that teachers are not currently given the support they need to manage a student’s concussion in the classroom, I do believe that some teachers have found ways to meet the needs of all students in their classroom, in particular, those with a concussion.

To further provide validity to this research project, I recruited three participants in different educational settings (independent school, all-girls school, public school) to provide a wealth of data that could be translated into a detailed description of the current perspectives and practices of teachers in the area of concussion management in the classroom.

Reliability Considerations

To ensure the reliability of the data collected, I took detailed field notes and ensured the quality of my data recordings by using a quality tape recorder. These considerations helped to make sure that there were minimal errors in the transcription of the data collected.
**Ethical Considerations**

Prior to each interview, I emailed a copy of the interview questions and the letter of consent to each participant. Each participant was required to read and sign a letter of consent, an example of which has been included in Appendix A. Each participant was informed that their participation was voluntary and that they may withdraw at any time without consequence. They were also informed that their identity would be kept anonymous. Each participant and any identifying information was given a pseudonym to protect the confidentiality of each participant.

**Risks and Benefits to the Participant**

There was minimal risk to the participants of my research study, but it was unknown what feelings could be invoked by any of the questions and thus participants were informed that a risk did exist, although it was intended to be minimal. With regards to the benefits of participating, those who agreed to be interviewed helped to fulfill one of the requirements of my Master of Teaching program and provided insight into a growing area of interest within education. The perspectives of the teachers who participated are now able to be shared with other educators, such as my colleagues in the Master of Teaching program and attendees of research conferences. Additionally, any insights gained by the participants through the process of being interviewed could be shared with their colleagues to further concussion awareness within their own school community.

**Limitations of the Research**

There were several limitations of my research study, the most significant being time. The Master of Teaching program is only two years in length and it was necessary to consider this when deciding the number of participants for my research study. Time must be allocated for recruitment, interviews, transcription, and analysis in conjunction with further graduate work.
Furthermore, my research study only investigated the perspectives of *teachers* about concussion management. Additional insights could be gained from discussions with students who are currently recovering or have recovered from a concussion or their parents, but that would be better suited for other researchers to investigate.
Chapter Four: FINDINGS

Introduction

This section begins with my observations from the field and musings on documents that I received from my participants. This section then continues by exploring the findings from my interviews with participants.

Findings in the Field

This section provides a summary of my findings in the field beyond the interviews of my participants. With all of the ongoing conversations about concussions in the community it was helpful to observe the dialogue that was occurring amongst interested stakeholders in the community.

Concussions and the Community

I was fortunate enough to attend a community meeting on the topic of concussions during my research study. This journey into my research topic, beyond my interviews, allowed me to contextualize my learning by understanding the areas of concern from community members within Southern Ontario. I attended a parental advisory committee meeting on the topic of supporting students with concussions. This meeting was guided by the emotional investment of parents on the committee who have children with complicated experiences with a concussion. This meeting provided a forum where concerned or interested community members could learn more about concussions. Some of the highlights of this meeting included:

- A concussion is a form of traumatic brain injury.
- Each case is unique.
• There is still a strong presence of culture that pain is a “badge of honour”.

• There is still the myth that a concussion is not serious and therefore the public needs to be reminded that it is in fact a brain injury.

• Rehabilitation of a concussion occurs in a classroom, but not all teachers know what to do.

• Find a knowledgeable doctor who has experience with concussions.

• Assist in the advocacy for students with concussions.

• Concussions are an ‘invisible disability’ – people do not understand (“I look fine, I talk fine, I walk fine, but I have a brain injury”).

• There can be an emotional fallout from concussions (e.g. increased anxiety).

• Some students may only have difficulty in one subject when they return to school (e.g. Math).

• Principals must buy into the fact that students can look fine, but still need support.

  Students must also buy into the Return to Learn protocols.

One observation that I think is important to note is that these meetings are typically attended by individuals that have already been directly impacted by a concussion, whether it be a child, a close friend or a previous student. There did not appear to be community interest beyond those already invested in this area of discussion. There is still a need to involve more people in the community in discussions about concussions and the importance of a gradual recovery to school, learning, and sports/physical activity.
Return to Learn Policies

As school boards work to create their own concussion Return to Learn (RTL) guidelines, it is valuable to use pre-existing documents as reference. Each of my participants provided me with a copy of their school or school board’s RTL guidelines. I read all of the supporting documents provided and searched for common ideas or inclusions that stood out. These observations can be useful for schools or school boards when revising or creating their own guidelines.

Two out of three of the supporting documents included a definition of a concussion and the commonly associated symptoms. This inclusion of a definition is helpful because this ensures that all stakeholders are sharing a common understanding. This inclusion is the first step towards open communication amongst all concerned and involved parties. All of the documents required signatures from parents, administration, and/or a physician at each stage of the RTL protocol. This is another way that clear communication amongst all stakeholders was ensured.

I thought it was helpful that some of the documents included information on what activities were acceptable at each stage, as well as which professionals should be involved. One document included a section on parent/guardian responsibilities. I believe this section would be beneficial since some of the family team may be unsure about concussions and this section made it clear the expectations for at home. Lastly, one document included a frequently asked questions section. There is still much confusion associated with concussions, especially with the research constantly changing and being revised. This section is an opportunity for common questions to be answered and ensures that everyone involved is comfortable with what needs to happen and confident in how they can support a student with a concussion.
Findings from Interviews

This section explores the themes discovered in the transcripts of the interviews with each participant. All three transcripts were analyzed and grouped based on common themes relative to each other. Five major themes surfaced:

- Teacher knowledge
- Team Approach
- Challenges
- Strategies
- Recommendations

Teacher Knowledge

Supporting a student in the classroom begins with an understanding of what a concussion is, as well as what it looks like. During each interview, the participants were asked questions to gauge their understanding of what a concussion is, the common symptoms, and what experiences, inside and outside the classroom, have influenced their knowledge of concussions.

Defining a Concussion

All of the participants defined a concussion using the terms “head injury” or “brain injury”. Philip and Stephanie went further to state that a concussion changes how the brain functions or makes the student “feel different”. Claire concluded her definition by commenting that a concussion is a “difficult injury”. Although these definitions are not as scientific as McCrory et al. (2013), they all recognized that the student’s brain is impacted by this injury and that a concussion is not to be taken lightly.
Symptoms of a concussion

In conjunction with their definition of a concussion, each participant also identified some of the common symptoms that they associated with a concussion. All of the participants expressed that a headache is the most common and often the most influential symptom of a concussion on a student’s performance in the classroom. Claire remarked that a neckache is also common among the students she has worked with. All of the participants agreed that nausea is a common symptom among students with a concussion. Stephanie and Philip explained how a concussion can make it difficult for a student to concentrate or focus. Stephanie went further to recognize that concussions can also create vision and balance problems, as well as sensitivity to light and noise.

Claire, who works with an all-girls student population, identified that a common symptom of girls with concussions is mood disturbances. This was a symptom that was only mentioned by Claire and requires further investigation. Claire expressed concern about her school population and wondered, “Do girls suffer more from mood changes after a concussion than boys?”

Recognizing the symptoms is important to understanding the student’s experience and needs when they have a concussion. Philip made the observation that the symptoms of a concussion, in particular the headaches, “seem to be their trigger that just prevents them from really wanting to be [at school].” Acknowledging the symptoms of a concussion is the first step towards supporting a student’s academic needs and supporting them when they have a concussion.
Sources of Knowledge

In addition to eliciting responses on how much the participants knew about concussions and their symptoms, I asked about how their experiences have influenced their knowledge on this topic. Understanding the source(s) of knowledge of my study’s participants helps to contribute to recommendations for other educators or community members to become more informed about concussions.

A significant contributing factor to the knowledge of the participants in my study was that all of the participants were in a leadership role at their school. Both Philip and Stephanie are Athletic Director’s at their schools, Stephanie is a Health and Physical Education Program Lead, and Claire is the head of Student Support and Wellness. This leadership role has meant that they have been responsible for spreading awareness amongst their colleagues and has required that they seek out further information on concussions and how to support students with concussions in their schools.

Both Philip and Stephanie attributed some of their knowledge about concussions to coaching and working in a Health and Physical Education classroom. Return to Play (RTP) for concussions has been in place much longer than Return to Learn (RTL) and thus working within the confines of the RTP protocols has contributed to these participants’ knowledge on what a concussion looks like and how it affects a student. Going beyond their own knowledge, Philip and Stephanie commented that since their school’s coaching staff involved teachers from many different subjects, this knowledge of concussions had spread to departments beyond Health and Physical Education.
Stephanie explained that the requirement of first aid training for Health and Physical Education teachers also contributes to teacher knowledge on concussions. Although this training only provides a brief overview of the topic, it does ensure that teachers are aware of the existence of concussions. Stephanie commented, “Our coaching staff is a wide range of teaching staff, so we have a fair number of staff who have emergency first aid training. Not that they go into great detail with concussions, but at least there is an awareness and a strong push around the signs and symptoms and response to it.”

Stephanie discussed an additional interesting source of knowledge – firsthand experience with a concussion. Stephanie admitted that she thinks that she may have had a concussion in her youth and that this has impacted her view of concussions:

I often think back to a time when I was a youth at camp and I probably sustained a concussion. Because I probably had a concussion, I didn’t acknowledge…wasn’t able to say that that was what I thought had happened to me. But in hindsight, I believe that I probably did have one, but didn’t have other people around to recognize what it was, and so I kind of carried that with me.

Stephanie made an interesting point about not having people around her that were able to recognize her possible concussion and how this lack of recognition is something that she has carried with her. Claire also discussed how she wonders what people did to support a student with a concussion, if anything, before now. Claire recognized that concussions are not something new and therefore questioned what happened to students in the past:

I do wonder what we did before. Did we diagnose kids with learning disabilities who actually were suffering from the long term effects of a concussion? Did we just
ignore it? I mean what happened? Did we just let kids fail? I’m talking about recent history. I’m talking about five years ago. What did we do with these kids?

Claire and Stephanie both recognized that students have not received the support they needed in the past and that this has influenced how they approach students with a concussion now. This is an important observation because it appears to be fuel to ensure that students do not have similar experiences in the future. If other educators can recognize that how concussions have been handled in the past was not appropriate, they can learn from these mistakes and move towards a more positive approach to supporting a student with a concussion in the future.

**A Team Approach**

In order to understand the different roles that educators can play in the recovery of a student with a concussion, I asked each participant questions to learn about the different colleagues that are involved with a student with a concussions and whether these described colleagues were unique to their school or if they were widely available. One teacher or educator alone cannot provide all the support that a student with a concussion needs or at least they should not have to work alone. All of the participants in my study described a support system of many different educators and professionals both inside and outside of the school that worked together to support a student with a concussion.

**School Nurse**

Claire spoke very highly of her school’s nurse and the significant role that she plays in supporting a student with a concussion. Claire described how the school nurse is responsible for initiating the first team meeting that discusses a student’s condition and creates a plan to support the student during their recovery. The school nurse also keeps track of all of the clinics and doctors that students at Fraser Academy see during their recovery and Fraser Academy’s school
nurse has used this information to keep track of which medical professionals have been particularly helpful and should be recommended to families in the future. At Fraser Academy, the school nurse is the lead in ensuring that a student receives the support that she needs.

Neither Stephanie nor Philip discussed the presence of a school nurse or if such an individual is part of their school’s concussion support team. This highlights the fact that although a school nurse can play a vital role in supporting a student, they are not always present in all schools and therefore other individuals must fill this role in whatever ways they can.

**Guidance Counsellor**

A guidance counsellor can play a key role in supporting a student with a concussion. In a school with a diverse concussion support team, such as Fraser Academy, the guidance counsellor plays a smaller, but still important, role in supporting a student with a concussion. Claire stated that the guidance counsellor at Fraser Academy was responsible for supporting a student who has experienced a short-term absence due to their concussion, whereas a learning strategies teacher would fill this role if the student has been absent for an extended period of time.

In contrast, Stephanie highlighted the key role that a guidance counsellor can play in supporting a student with a concussion:

I think that having [the Return to Learn process] coming out of guidance is key, because that’s a good place for the students to know that they can go. It is a counsellor, somebody who is trained in talking to students about all kinds of situations and can help put them at ease about the accommodations that they may need or any particular subject specific concerns that they may have. It’s also a good liaise with the parents to be able to keep in constant communication.
Stephanie recognized that a concussion can be a stressful injury for a student and a guidance counsellor is trained to support a student in their time of need. She also acknowledged that a guidance counsellor is someone that is present in all schools and therefore readily accessible to any student.

**Professional Medical Support**

All of the participants’ schools had a strong connection with the medical community. Philip’s school works closely with a physiotherapy clinic, Claire’s school with a sports medicine clinic, and Stephanie’s school board has received significant support from a physician in the community who specializes in concussions. These professionals have contributed significantly to how my study’s participants approach concussions and supports students with this injury.

Juniper College, where Philip teaches, has collaborated with Maple Valley Physiotherapy for as long as Philip has been at the school. Philip characterized this relationship as “amazing” and “very comforting”. Phillip explained:

> It’s a lot of times that you do not know and a lot of times [the students and/or their parents] get different information or if they see different physicians everyone has a different opinion and we have found that using Maple Valley Physiotherapy we have had the same opinion every time. And we know that they have been very successful with all of our kids and have a great understanding of our kids’ concussions.

Maple Valley Physiotherapy is part of Juniper College’s Return to Play/Return to Learn procedures and this relationship has increased the comfort level of educators and parents alike. Philip stated that Maple Valley Physiotherapy has had fantastic reviews and “parents [have] felt very comfortable with the fact that [their child is] getting the proper care.” Working with a
physiotherapy clinic has meant that when a student comes back to school with an all clear from Maple Valley Physiotherapy, Philip is confident that they are “ready to go.” Philip placed significant value on the fact that Maple Valley Physiotherapy provides consistent information and support and this support has contributed significantly to how concussions are supported at Juniper College.

Claire has had a similar experience to Philip, but with a sports medicine clinic, Glen Oaks Clinic. The relationship that Fraser Academy has with Glen Oaks Clinic is fairly new, but this relationship has been significant in the recent care of students with a concussion. Claire stated that she appreciates that Glen Oaks Clinic is willing to provide detailed information on how much a student with a concussion can handle physically, emotionally, and academically. Claire explained that “having doctors tell us [how much] opposed to us guessing…it feels better because I think that we all feel a little bit out of our depth in terms of making those calls.” Claire recognized that some professionals in the medical field have more information and experience with concussions than some educators do. Glen Oaks Clinic is working to learn more about concussions through their partnership with Fraser Academy and other schools and Claire hopes that this research will help to further knowledge on some of her concerns about concussions, such as how girls with a concussion appear to experience significant mood disturbances. According to Claire, the relationship between Fraser Academy and Glen Oaks Clinic has provided support to the girls at Fraser Academy and may potentially support other students in the future through research initiatives.

Similar to Philip and Claire, Stephanie recognized the value of medical support in her experiences with concussions. Stephanie’s school board has a relationship with Dr. Hatt, a primary care doctor that specializes in concussions, and Stephanie reflected:
Having Dr. Hatt come in and talk with us and clarify questions we may have or any misconceptions we may have was very helpful. It was also helpful to have his perspectives and to see his passion for the work in trying to shift everyone’s thinking about concussions.

This relationship has contributed significantly to the creation of Stephanie’s school board’s concussion policies and procedures. Stephanie discussed how Dr. Hatt has done workshops for all of the Health and Physical Education Department Heads and some key Health and Physical Education teachers to develop the school board’s Grade 9 concussion education piece. Stephanie’s remark about the impact of Dr. Hatt’s passion for concussion is another interesting point. It only takes one person to change how concussions are viewed and supported in a school and Dr. Hatt is one example of how widespread one person’s passion can become.

*Bringing Them All Together*

None of the above described professionals acts in isolation from one another. When it comes to effectively supporting a student with a concussion, all of the participants described a team approach where different individuals brought something unique and important to the team.

*Teacher Challenges*

In order to develop effective strategies for supporting a student with a concussion, it is important to start by understanding the challenges that are faced by teachers. I asked the participants to explain some of the challenges they have experienced because, through the process of identifying and understanding these challenges, we can take this information to develop strategies in the areas that need addressing.
The Invisible Injury and Student Honesty

A concussion is not like a broken arm where you have a cast to clearly remind you of a student’s injury. Both Philip and Stephanie were in agreement that it can be difficult to support a student with a concussion because there are typically no visible indicators. Philip commented:

Some of the athletes won’t let you know. Obviously, if they see a cut or a bruise or if their helmet is cracked open, that’s easy, but for some of them, they just want to play and they won’t tell you. You have to probe and try and get them to be honest about their injury. I think that that would be the hardest because you can’t see. We can’t see the things that they have to be honest about and help guide us back.

Philip was concerned because educators can only do so much and this relies on the student being honest about what is going on and how they are feeling. It is very easy for students to hide what is happening in their head. Philip admitted that it’s not as if he believes that all students are trying to be deceptive, but sometimes they cannot help themselves:

I think that it is really important that you are careful with the athletes that you know may not tell the truth. And not tell the truth like they are liars, but the ones that you know that could have a broken arm and they are going to go back and play.

Stephanie discussed a similar observation about how some students take their role as a student or as an athlete very seriously and how this has the potential to cause them to ignore the severity of their injury. It is difficult to support a student if they will not admit that something is wrong.

Unique to Every Student

Compounding upon the difficulties associated with the invisible nature of a concussion is that each concussion is unique to that student. Even within the same student, subsequent
concussions can affect them differently. Claire put it plainly when she said, “I think that one of the frustrations is that each child is an individual and each child’s recovery is different.” All of the participants were in agreement that some students are able to bounce back quickly, while others are left suffering from symptoms for more than a year.

Course Pacing

All of the participants explained how the pacing and expectations of school can be difficult for a student with a concussion. When a student’s symptoms are too severe to be in class, their courses and their classmates are still moving forward. The longer a student is out of the classroom, the further they fall behind. This can be difficult for a student, especially, as Stephanie put it, because the student knows that they are “not a part of everything” and that they are “out of connection” with what is going on in the classroom. Stephanie admitted that it is difficult when a student is absent because you don’t know how they are doing or how much work you should be giving them. Stephanie explained:

You rely so much on the relationship you have with a student. To talk to them, to see how they are feeling and how they are doing. Suddenly, when you don’t see them, you are relying more on second or third hand information and it is difficult to accommodate.

Stephanie reflected on how it can be difficult to keep a student caught up when you do not know how much work they are capable of doing at this moment, especially when they are unable to be at school.

Claire remarked that things become even more difficult for the student and teachers when there is the shift from the student not being at school and unable to do any work to being back at
school and trying to catch up with the rest of the class. Claire expressed that “the course is moving so far ahead of where the student is and needing to back track and they’re sitting in class and feeling overwhelmed, because [the class] is moving too fast.” Claire said that it is frustrating for the kids and difficult to support because “how do we work forwards and backwards at the same time?” Stephanie elaborated on this concern by adding that the timing of the injury can also make things more difficult to accommodate:

If a student has a concussion in September, there is still lots of time to make up any missed work, any missed learning, and any missed participation, whatever it is. A student getting a concussion in January, all of a sudden we have EQAO mandated testing for Grade 9s. Students are in performance tasks and exams. So to me the timing, no matter how accommodating we want to be, at the end of the day the student is going to feel a great onus of stress around the timing of what’s happened to them compiled with what has happened to them.

The nature of how school and certain courses move forward makes it very difficult for a student to get back to where they need to be.

*Difficult Subjects*

Beyond the fact that all courses move forward when a student is absent, there is the issue that some subjects are more difficult to learn when you have a concussion or catch up in when you have missed a significant portion. Both Stephanie and Claire pointed out that Math and Science are difficult subjects for a student with a concussion. Both participants agreed that the issue with these courses is that they rely upon “building block” ideas that rely on one another to be successful. Claire explained that “if you miss a building block, you are really behind” and
Stephanie stated that Math and Science “build upon skills over the course of an entire semester, or within a unit, a little bit more [than other subjects].” It can be challenging for a student to catch up when they have missed a key component that is necessary knowledge for further learning in that subject.

Claire took the topic deeper by recognizing the incompatibility between Math and a concussion based on the necessary memory load in this subject:

Math draws so much on long term, short term, and working memory. So if you just think of the memory load of that. All of the things that are in working memory that a student has to keep track of as they are doing Math. First off, I have to be able to read the problem and understand the problem. Figure out, ‘What is the first step that I am going to do?’ In the doing of the first step, I have to remember all of my number facts. To do that and all of the number rules of what goes first and what goes next…so just that working memory…prefrontal cortex stuff. I think it is really difficult and the research is showing that math often is the last subject to come back.

Claire made an interesting point about how the impairments of the brain caused by a concussion make it extremely difficult for a student to succeed in Math. Teachers must find a way to support a student in this area while recognizing that the student’s impairments require accommodations to support their learning.

**Mood Changes & Girls**

Claire has a unique perspective about concussions since she works in an all-girls school and identified that she believes that her school population has specific needs. She explained:
My experience with girls with concussion is that often there has been a significant change in their demeanour and almost in their personality. Certainly in the mood of the student. We see them quite different than they used to be.

Claire was very concerned about the mood and/or personality changes that she has witnessed in girls with a concussion:

My question would be, “Do girls suffer more from mood changes after a concussion than boys?” Physically, they can start to work, but emotionally they can’t get down to work. I find that to be far more challenging than how do we provide the right kind of support. To help girls believe that they can do it. Help girls to get out of the funk.

Claire hoped that Fraser Academy’s new partnership with Glen Oaks Clinic will help to provide answers to help further support the girls at Fraser Academy in the future.

Parents & Society

Claire expressed that “sometimes the hardest people to sell this on is the parents.” The schools and teachers can only do so much when their efforts are unsupported by the parents of a student with a concussion or society at large. Both Claire and Stephanie acknowledged that injuries that occur during community events are not always brought to the attention of the schools. This theme links closely to the invisible nature and requirement of student (and parent) honesty when addressing the needs of a student with a concussion. Claire expressed her frustration of how even when the school has made an effort to support a student, this action can be counteracted in the community:

We have had a girl who had a concussion because of outside hockey and we wouldn’t allow her to play on our hockey team, but she was playing on her outside
hockey team. So that’s a challenge for us when we are trying to be careful and supportive of the plan and the family is choosing not to.

Only half of the process of supporting a student with a concussion occurs at school, the other half is at home. If the student is not undergoing appropriate rehabilitation at home, as well as at school, the injury will take longer to recover from.

In conjunction with interview data, I also made observations in the community as a form of data collection. I attended a community consultation meeting regarding the development of a school board’s concussion policy and made the observation that the parents and community members that attend these events are usually ones that have witnessed the direct impact of a concussion on a student, such as the parents of a child with or who has had a concussion. Part of the challenge of getting parents and society on board with making accommodations for a student with a concussion is that typically it takes “living it” to understand the severity of a concussion. This observation was also recognized by the participants of my study. It is a challenge to get people to understand if they have never seen the consequences of a concussion.

**Teacher Strategies**

After exploring the challenges that teachers have experienced, I probed to learn the ways they have overcome some of these challenges. Despite the many challenges associated with supporting a student with a concussion, the participants of my study provided some valuable insights into possible strategies that teachers can use to support their students.

**Accommodations**

All of the participants discussed the importance of collaborating with the student to identify their specific needs and making adjustments to expectations that support these needs.
Claire remarked that students are permitted to wear sunglasses or a hat in class if they are having issues with light sensitivity. Stephanie and Claire were in agreement on how it may take students longer to complete a task and how students have been provided with additional time for tests and assignments. In addition, all of the participants agreed that students need a break and Stephanie described how some students “just need some rest time part way through a class, need to close their eyes for ten minutes and give their brain a break.” Stephanie and Claire agreed that a simple break can make a huge difference for a student or even just allowing them “to leave the room and go for a walk or just find some place quiet for a few minutes.”

Both Claire and Stephanie discussed the importance of focusing on the learning and the “must haves”. Stephanie suggested that “if it is not a significant piece, then just not including that as part of their grade. So rather than heaping on more, just saying, ‘Let’s look at the learning.’” Claire discussed how at Fraser Academy they prioritize a student’s learning in order to identify the “must do and be assessed; can be done, but doesn’t have to be done right now, but will be on the test; or can be completely forgiven.” Rather than attempting to catch up the student on all of the material that they missed, Stephanie and Claire identified that the focus should be on what is the most important information that the student needs to move forward.

All of the participants were in agreement on how a modified schedule is important for a student with a concussion. Stephanie explained that:

It may be that they come back on just a morning schedule or just an afternoon schedule. Usually based upon which one they feel more anxious about getting back to or if they find that their headaches or symptoms are worse in the morning then...
they will come in the afternoon. Just kind of easing them back in and then working back to the full days.

As Philip simply put it, there is a need to be “flexible”. All of the participants recognized that each student is unique and will need different accommodations to meet their needs and sometimes these needs will change over the course of the student’s recovery.

**Communication**

One of the key components of supporting a student with a concussion is clear communication between all stakeholders. At Fraser Academy, Claire described how all of the concerned parties (guidance counsellor, learning strategies teacher(s), school nurse, Head of Student Services, parents, and the student) meet to discuss the needs of the student. Furthermore, the teachers and Student Services staff meet in a ‘case conference’ to discuss what is working and what is not for a student in each of their classes. This is an opportunity for teachers to share strategies and collaborate to make a plan to support the student. At Juniper College, Philip described how each student will carry a document that states their current status, “We call it a Return to Learn protocol and [the student] would carry it. They should have it with them to show their teachers what stage they are at and it guides their return.” All of the participants stated that their school utilizes an open process where everyone is clear on what is going on with the student.

**Promoting Awareness**

Each participant described the different ways in which their school promotes concussion awareness. For Stephanie, concussion awareness has come from her school board. Concussion awareness has been a top-down process where the school board has provided resources for each
school to educate their staff and students. Stephanie stated that “good resources make it easier to implement.”

Both Philip and Stephanie pointed out that awareness has spread amongst their teaching staff as a result of a diverse coaching staff. Since a variety of staff makes up the coaching staff, teachers from departments outside of Health and Physical Education are becoming trained through in-service workshops about concussions. Stephanie also leads workshops for all of the student-athletes to inform them on “what a concussion is and the affect it can have on not only their game, but also their life.” For Philip, spreading awareness to students has involved a guest speaker to help students grasp the importance of concussions:

We had a speaker a couple of years ago, he spoke to all of the students in Grades 7-12 about concussions. He had Second Impact Syndrome. Basically hurt himself waterskiing and then went for a run the next day and gave himself second impact and missed most of the next year of sports. He was a high level athlete, brilliant student and he spent almost a year going through different recoveries and setbacks. He spoke to the students and he was very, very powerful about the importance of concussions. We really wanted to strike home the importance about being honest about your injury and taking care of your head. A lot of them don’t. A lot of them are just not concerned or [feel] invincible.

Juniper College recognized the need for students to hear about the importance of concussions from one of their peers and according to Philip this event helped to strike home the significance of concussions to the students present at this talk.
Curriculum Connections

Philip and Stephanie were in agreement on how the topic of concussions has a natural fit with the Health and Physical Education curriculum. Philip described how head injuries and injury prevention are a part of the Grade 9 curriculum at Juniper College. He admitted that it is not an in-depth look, but that head injuries and concussion are also a topic of discussion in the Grade 12 Exercise Science course.

In contrast, Stephanie explained how concussions have become an important part of the Grade 9 Health and Physical Education curriculum in her school board. Stephanie described how the concussion piece for Grade 9 students is now fully implemented in all secondary schools in her school board. Stephanie elaborated on how she uses an online module that teaches students about concussions:

I set it up as a game with teams where they go through the multiple choice. They get points, but we take time to talk about each of the follow up discussion points. At the end, I’ll have them summarize their learning, whether it is a reflection or they want to make up a skit or in some way show: here are the three things that I didn’t know about concussions that I learned today or I learned over the past two days. That is always interesting to see the differences in students and what they’ve come in with, in terms of prior knowledge because some come in with very little and some come in thinking they know a lot, but then they realize that they know old information.

Stephanie has found that using the online learning module has been very successful in teaching students about concussions and has resulted in positive student engagement:
Because it is visual… You put in a little bit of competition. That often helps. Also, having them work in small groups, they feel less threatened in terms of what their opinion may be. So there is some comfort in talking with other people about their experiences or what they think the answers might be. So I do find the modules very user friendly and engaging and a good platform to initiate some discussion.

Since the majority of students in Ontario take Grade 9 Health and Physical Education, Stephanie’s school board has ensured that every student leaves Grade 9 with some knowledge of a concussion and how it can impact their life.

**Advocating for the Student**

Claire and Philip made some interesting comments that illustrated the importance of educators being advocates for their students. Even if a student or their family is unwilling to recognize the severity of a concussion, a teacher can act in a way that supports a student’s well-being. Claire spoke very strongly and said:

We make the decision. The girl says, ‘I have a terrible headache. I need to go home.’

We’re saying to her: no homework, no screen time. Reinforcing that for her. We would say, ‘No homework tonight. You’re not well enough to do that.’

Claire made it clear that she understands the importance of telling a student what *not* to do, because otherwise the student may still feel obligated to complete homework or other tasks. It may seem strange to tell students *not* to do their homework, but Claire points out that students need this reminder and reinforcement.

Philip has had similar experiences with students at Juniper College. He claims that the students are “very humble, some of them, about [their symptoms]. ‘I have a bit of a headache’,
and you say, ‘Well then you’re not doing this, you’re not doing this.’” Philip described how some students would rather be modest and not admit that they are struggling with their symptoms and therefore educators need to be firm when they receive any indication that a student is experiencing any increase in their symptoms. This is just another opportunity to teach students healthy behaviours.

**Recommendations**

Every participant was asked to provide advice on what teachers need to know about concussions to help them to be prepared to support a student with a concussion in the future. The following sections highlight some of the key advice that the participants wanted to pass on.

**It Can Happen to Anyone**

All of the study’s participants were in agreement that concussions are not only a concern for Health and Physical Education teachers. Philip was very quick to point out that concussions are something that can affect anyone: “Everyone is on the same page and everyone knows about the athlete’s injury, or non-athlete even. It can happen to anyone.” Philip recognized that students can become concussed in activities outside of sports. It is naive to believe that only athletes are at risk for a concussion. Stephanie acknowledged that her school is not quite to the point of every teacher being aware of concussions, but with PPM 158, all teachers should become more aware over the next year, if not in the next few months.

**Concussions are Real! Appreciating the Severity**

Claire explained how she believes that Fraser Academy’s concussion protocol provides hope for students and their families because it is a plan to help students get back to ‘normal’. Claire said, “I think that if you have a plan that you can blow up the conversation and talk about how these are real injuries and some kids never really recover from a concussion…These are
very serious injuries.” The first step to supporting students with concussions is recognizing that a concussion is a real and potentially life-changing injury. Stephanie described how she felt that some students and families have yet to understand the severity of a concussion and appreciate that this injury can have real consequences:

I think that the tough part is helping students, in some cases, to appreciate what they are actually going through. Some students, whether it is from their parents or just society or just their own initiative, want really good marks or take themselves, take their role as a student really seriously, or their role as an athlete very seriously. They want to get back and they want to be fine and getting them to follow the doctor’s orders and take the time and to use the accommodations and to slow things down and to allow their brain to heal. I’ve had several incidences where between parents and the students they just really want to get back – get everything normal. So trying to get them to slow down and take time. You know, because everyone thinks, ‘What if they get behind?’ And so I think that’s a big challenge with any accommodation is that no matter how willing you are, you sometimes have parents and students who just want to make it go away. Even though you can’t rush it. Rushing it will make it worse.

Stephanie made the valid point that we need to change how concussions are viewed so that people appreciate that if concussions are mismanaged now, this mismanagement can have serious consequences for a student’s future.
Foster Hope

Claire worried that students get lost when they have a concussion. Students become emotionally isolated from their peers and struggle to get back to ‘normal’. Claire felt that it is important for educators to ensure that students and their families feel that there is hope for a meaningful recovery:

People do not need our plan, but they need a plan that makes sense for their school and there needs to be acknowledgement that there is a period of time where coming to school for a period a day may be the only thing that this child can do and that is better because it is the beginning of a rehab plan and I think that rehab plan gives kids so much hope…I think that they just get so desperate. So desperate that for us to be hopeful with them gives them a boost. Teachers need to be forgiving and we’re kind of training our teachers to be forgiving, but you have to do the work. You have to train them.

Claire pointed out that sometimes schools need to remind teachers to be empathetic and support students and their families in whatever ways they can.

Communication is Key

All of my study’s participants reiterated the fact that communication is a crucial component of the recovery of a student with a concussion. Stephanie explained:

It really comes down to relationships and communication. If the relationships are there between the parents, the staff, the students, all the stakeholders and the communication is open and honest, I think that’s the ultimate way to support a student through [a concussion].
There is still a lot of misconceptions surrounding concussions and the participants were all in agreement that this is why it is important to ensure that everyone is communicating clearly and that everyone is on the same page and understands what is going on and why. Teachers need to listen and learn from the student with a concussion, since the student is the only one who can tell what is going on with them and how their injury is evolving.

A Shift in Perspective

All of the participants commented on the fact that they have observed a shift in society’s perspective of concussions over their career. Philip expressed that he has seen a change in how students view the importance of their safety, “I have some students saying that they don’t want to play rugby because they don’t want to get a concussion. We never heard that five years ago or six years or seven.” Students are beginning to recognize the risks and take this into consideration when they decide upon which activities they will engage in. Stephanie noted that even parents are beginning to take concussions more seriously. When asked if many students have been taking extended leaves from school, she replied: “I would say only more recently. Only as concussions have become more of a conversation piece. With more awareness within society I think parents are taking it more seriously to go to a doctor.” There is beginning to be more awareness about concussions in society as a whole, and Stephanie pointed out that with PPM 158, more teachers and school staff will understand all the components of her school board’s concussion policy as it becomes included in entire staff workshops.

Stephanie believes that the fact that schools are taking concussions seriously will help to spread awareness and knowledge to the community as a whole:
I think that it is a good way to shift society’s thinking as a whole. I think that if the schools are taking it seriously and are engaging doctors and, as much as we hate paperwork, but the idea of formalizing it, it does show parents and society, whether it is community coaches or community at large, that this is something that we take seriously and that needs to be addressed as a serious concern. If it gets a parent to think twice about, ‘okay, well the school won’t allow them to continue to play hockey, so then maybe I shouldn’t have them playing their rep hockey or house league hockey’ or whatever it is as well. If there’s a benefit to this, I think there is a wider range of people who will be engaged in the conversation to take concussions more seriously and not just brush it off as, ‘get up, you’re okay,’ because they don’t see blood or they don’t see a physical injury. Recognizing that it is a physical injury and it needs to be taken very, very seriously. So hopefully if we can cast a wider net of influence and have more students advocating for themselves and for each other out there, to stand up to their coaches or their parents, as well, and say, ‘Hey, we learned about this in school, this person needs to sit out.’ That would be a really good thing.

Summary

In summary, participants were asked to reflect upon their knowledge of concussions and explore the challenges they have experienced and strategies they have employed when supporting a student with a concussion. Each participant provided valuable insight into this area of research and offered concrete recommendations to other educators. Stephanie concluded her interview with an impactful statement about teaching students to advocate for themselves and their peers. There is still room for growth in managing concussions in schools, but the participants provided guidance in approaches that are realistic for most educators.
Chapter Five: DISCUSSION

Introduction

The purpose of my study was to explore the ways in which educators support students with concussions in the classroom. Specifically, my research sought to understand, “In what ways do secondary school teachers support the learning of a student with a concussion?” The main findings suggest that educators in leadership roles have an understanding of what a concussion is, what symptoms are commonly associated with this injury, and that a team approach is essential to supporting a student with a concussion. Furthermore, my study found that challenges faced by teachers include: the invisible nature of a concussion, the unique presentation of a concussion in each student, course pacing, difficult subjects, mood changes in girls, and the influence of parents and society. In recognition of the challenges faced by teachers, some of the strategies that can be utilized include: accommodations, communication, promoting awareness, curriculum connections, and advocating for the student. Finally, the findings included recommendations from the participants, such as: recognizing that a concussion can happen to anyone, appreciating the severity of a concussion, fostering hope, communication is key, and recognizing that there has been a shift in perspective on concussions.

Connections to Literature

This section analyzes the connections between my study’s findings and the literature review. All of the analysis was guided by the theoretical framework described in Chapter Two. The social pathology of critical disability theory teaches us that there is nothing wrong with the individual, but rather that there is something wrong with society itself (Priestley, 1998; Roux & Valentine, 2005). Furthermore, the environmental approach to critical disability theory suggests
that the impacts of disability are a result of failings in one’s environment to accommodate for individual differences (Roux & Valentine, 2005). All of the participants aligned with the environmental approach to critical disability theory in demonstrating a commitment to creating an environment that is supportive to all students’ needs. In the following sections I examine some of the subthemes identified in the findings and how they connect to the literature.

**The Invisible Injury**

The invisible nature of a concussion presents a unique challenge to those that are in a position to support a student with a concussion. How can you support something that you cannot see? Both the literature (Halstead et al., 2013; Karlin, 2011) and my findings agree that the lack of a visual reminder makes supporting a student with a concussion difficult. Philip commented that “some athletes won’t let you know…You have to probe and try and get them to be honest about their injury.” The literature acknowledged that the invisible nature of a concussion is a challenge, but my research study found that one way to overcome this challenge is to talk with the student. Philip reflected that some athletes will hide their injury, but he was clear that he believes that it is important for educators to dig deeper and probe for more information that can illuminate the student’s current state of well-being. Just because teachers cannot see that a student is still injured does not mean that they can ignore a student with a concussion. Rather, the teacher should take this as an opportunity to reach out to the student and inquire about their condition and what can be done to accommodate their changing needs. More awareness for all stakeholders may be a strategy for identifying the subtle signs of an injury that can otherwise go unnoticed.
Emotional Impact

The emotional impact of a concussion is an interesting area of research that is in need of further exploration. I struggled to find literature to support Claire’s observations of mood changes in her female students. Kontos et al. (2012) discovered that depression was elevated postconcussion in all athletes and attributed this to the uncertainty during recovery that an athlete can experience. Furthermore, studies that investigated the gender differences in concussions provided little evidence to answer Claire’s question: “Do girls suffer more from mood changes after a concussion than boys?” Frommer et al. (2011) found that males exhibited more cognitive symptoms, but, in contrast, Brosjek et al. (2005) found that females were more likely to exhibit cognitive symptoms. There is no current consensus in the research that appropriately answers Claire’s question. The literature has identified that this is a current knowledge gap, but researchers are still exploring gender differences and the emotional impact of concussions in an attempt to gather evidence that can provide support to educators like Claire.

Communication

There was complete alignment between the literature and the findings of my study with regards to how communication between all stakeholders is crucial in supporting a student with a concussion. Gioia (2014) and Valovich McLeod (2014) agreed that communication amongst all of the stakeholders involved in a student’s recovery is imperative. All of the participants acknowledged the ways in which they utilized clear communication to support their students. Philip and Stephanie discussed the paperwork that follows students and Claire discussed how key staff members come together in ‘case conferences’ to strategize on the appropriate ways to support a student with a concussion. Stephanie reflected:
It really comes down to relationships and communication. If the relationships are there between parents, the staff, the students, all the stakeholders, and the communication is open and honest, I think that’s the ultimate way to support a student through [a concussion].

A concussion can be difficult for all stakeholders (e.g. student, teacher, parents, etc.), but if there is open communication, it can be easier for everyone to move forward and meet the needs of the most important stakeholder – the student.

**Teacher Knowledge**

The literature suggested that educators are not comfortable with the extent of their knowledge regarding concussions (Mohr & Bullock, 2005). In contrast, my research study found that the participants were comfortable with what a concussion is and the symptoms commonly associated with this type of injury. These contradictory findings could be a result of the fact that the educators who volunteered to participate in my study were comfortable enough with their knowledge to share it. Comfort with a topic is developed through experience and the inclusion criteria for my research study required that participants had some experience with students with concussions. Furthermore, all of the participants in my research study were in a leadership role. It is possible, that the participants in my research study were more knowledgeable about concussions because of their experiences in a leadership capacity.

**Team Approach**

The findings of my study aligned with that of the literature with regards to the importance of a collaborative team approach in supporting a student with a concussion. Specifically, my study’s findings regarding a team approach align with Zabala’s (2005) SETT framework. A team approach to support a student with a concussion is ideal because it utilizes shared knowledge.
from multiple perspectives to identify the pertinent information for making a decision regarding which tools or strategies are most appropriate for a student. This team approach is successful when there is collaboration, communication, flexibility, patience, and the realization that supporting a student with a concussion is an ongoing process. All of the participants described the individuals that were helpful in supporting a student with a concussion in their school. Each participant recognized the importance of communication and collaboration amongst this team, especially since a student’s needs can change throughout their recovery. It was interesting that all participants referred to a strong connection with some type of medical professional (physiotherapy clinic, sports medicine clinic, and concussion specialist). Karlin (2011) stated that “the importance of communication between the clinician and school administration in formulating a successful return to school cannot be understated” (p. S373) and the participants all shared reflections that agreed with this sentiment.

Another area of interest between my study’s findings and that of the literature review is the important role that parents/guardians play in supporting a student with a concussion. Karlin (2011) described how strong parental involvement can be crucial to a student’s recovery. The importance of parental involvement can be seen in the responses of my study’s participants when they described how challenging supporting a student with a concussion can be when there is resistance from home. Claire reflected on how frustrating it can be when the school is doing everything to support a student with a concussion and the family is disregarding the injury and allowing the student to play recreational sports while still recovering. The literature highlights the importance of parental support, but my study’s findings provide evidence to why this support can be crucial to a student’s recovery.
Beyond the agreement with current literature, it was interesting to find that none of the participants reflected upon the lack of any professionals in the management of concussions at their school. It could be possible that the participants have each adapted to what is available, but it is interesting that none of the participants reflected upon any period of adaptation. It would have been beneficial to have explicitly asked a question regarding any times where the participants found that services were lacking as a result of not having certain personnel available at their school.

Accommodations

The participants were all confident in describing different accommodations that they had utilized to support a student with a concussion and each of these accommodations was reflected in the literature review. Although there was alignment between the findings of my study and the literature review, it is valuable to highlight the reoccurring idea that there should always be a focus on the key learning for students with concussions. McAvoy (2012) described how the focus should be on understanding the material rather than memorization and this idea was echoed by the participants of my study. Rather than attempting to catch the student up on everything they have missed, Stephanie and Claire stated that the focus should be on identifying what the most important learning is that the student needs to move forward.

Spreading Awareness

Karlin (2011) stated that schools are “ideal environments for concussion prevention and awareness because of the emphasis on education in the classroom and on the field” (p. S376). Schools are places of learning and this learning should include increasing knowledge of concussions. Philip and Stephanie both described how they incorporated concussion awareness into their classroom. Stephanie elaborated on how she uses an online module to engage students
in a discussion about concussions and has found that this method has resulted in a valuable learning experience for her students. Sarmiento et al. (2010) investigated the positive impact of the Centers for Disease Control and Prevention’s ‘Heads Up’ toolkit, but Stephanie provided evidence that it is not the specific resource that is important, but rather finding an appropriate resource for your students and integrating it in a meaningful way that can spread awareness of concussions.

**Advocating for the Student**

The participants’ recommendations for advocating for the student with a concussion closely aligns with critical disability theory. All of the participants highlighted the importance of creating an environment that is conducive to the recovery of a student with a concussion. The participants recognized that sometimes the student is not capable of advocating for themselves and therefore this responsibility falls to the teacher. Claire firmly stated that “we make the decision” whenever a student indicates the existence of any symptoms. Gioia (2014) stated that it is “essential that students receive a consistent, supportive, and positive message from all school staff about expectations and accommodations during recovery” (p. 5). Each of the participants made it clear that they have their students’ best interests in mind and this is fundamental when it comes to supporting any student in the classroom.

**Subject Difficulty & Course Pacing**

Subject difficulty and course pacing were subthemes that are not supported by the literature. Both Claire and Stephanie explained how they have found that subjects, such as Math and Science, are difficult for students with a concussion. This sentiment was also echoed in the community meeting I attended. Despite this concern regarding specific subjects in the field, I was unable to find any research studies that have investigated whether certain subjects are
particularly challenging for a student with a concussion or why certain subjects may be challenging when a student has a concussion. Furthermore, Stephanie reflected on how the timing of a student’s concussion can impact their recovery. I was unable to find any literature that explored how the time of injury (e.g. beginning of school year or close to exams) can impact a student’s recovery. These two subthemes would benefit from further research.

**Connecting Back to the Research Questions**

When reflecting upon the findings of my research study, it is important to look back at the original research questions and consider to what extent these questions were answered.

**Main Research Question**

*In what ways do secondary school teachers support the learning of a student with a concussion?*

My research study found that although secondary school teachers can identify several challenges associated with supporting a student with a concussion, they are proficient at finding solutions that meet the changing needs of a student with a concussion. When it comes to supporting the learning of a student with a concussion, the participants in my study described how it is vital to focus on the most important learning for a student to be successful in the future and to use professional judgment to decide which components of a course can be forgiven and which components are key learning concepts.

**Subquestions**

1. *What do teachers know about concussions and the symptoms that impact academic performance?*

The participants in my research study were confident in their knowledge of concussions and the symptoms associated with this injury that can impact academic performance. The
caveat of this finding was that the participants in my study were all in a leadership role, which could have influenced the depth of their knowledge. Other educators may still not feel confident in their knowledge about concussions and how to support students with a concussion in the classroom. Further research should be done to speak with more educators with diverse backgrounds (e.g. years of experience and teachable subjects).

2. *How is the role of the teacher influenced by the support staff available within the school?*

Each participant described the different individuals that are typically involved in the recovery of a student with a concussion (school nurse, guidance counsellor, medical professional), but the participants did not elaborate on how different support staff can change how a student’s recovery is supported. Further research needs to be conducted to fully answer this question.

3. *What have been some of the challenges that teachers have experienced when supporting a student with a concussion and how did they overcome these challenges?*

The participants in my research study highlighted several challenges to supporting a student with a concussion: the invisible nature of a concussion and student honesty; a concussion is unique to each student; course pacing; difficult subjects; mood changes and girls; and the influence of parents and society. In response to the above challenges, the participants described the following strategies: implementing learning accommodations; clear communication; promoting awareness; making curriculum connections; and advocating for the student.

4. *How are teachers educating their students on concussions and making their school community more aware of the academic implications of a concussion?*
Each participant described different ways that they and their school are working to spread awareness on the academic implications of concussions. Both Philip and Stephanie described how they incorporated concussion education into their Health and Physical Education classrooms. Philip described how his school utilized a student guest speaker to help students relate to the lived experience of one of their peers who had a concussion. In addition, all of the participants eluded that having students with a concussion in a school community changes how the injury is viewed. When students see a friend or classmate go through the challenges of a concussion they become more aware of the severity of this injury. Stephanie believed that awareness in her school would also increase with further implementation of PPM 158. As school boards’ concussion policies are implemented and staff are trained on what these policies entail, awareness will spread amongst school staff. There has been a shift in perspective when it comes to concussions and schools and society are beginning to recognize the severity of this injury. PPM 158 will increase awareness and it will be interesting to see how the topic of concussions evolves over the next few years.

**Implications & Recommendations**

The implications of my research study provide an optimistic outlook regarding how concussions can be supported in the classroom. Although there is still room to grow when it comes to knowledge about concussions, educators are on a path that is providing support to a unique population of students. Educators need to be aware of how an injury that is invisible can significantly impact a student in their classroom and seek ways to identify when a student is in need of further support. Educators must reflect upon what the true learning is in their classroom and determine what are the ‘must haves’ that a student needs to be successful. As content
teachers, everything about our subject can be seen as important, but sometimes it is essential that a teacher reflect and ask themselves: ‘What is the building block learning that a student will need to be successful in this topic in the future?’ By identifying these key concepts, a teacher can assist a student in their recovery by focusing on what must be done rather than overwhelming a student with the entire workload that they have missed.

There is still plenty to learn about concussions and I encourage educators to ask their administration about their school or school board’s concussion policy. The effects of PPM 158 will take time to spread to every school and every classroom, but if teachers are willing to ask questions, knowledge about these policies will spread and suitable guidelines will be created that meet the needs of specific schools and classrooms.

As a future teacher, my research study teaches me to continue to be a voice for my students, in particular those with a concussion. The research on concussions is constantly changing and it will be valuable to be a voice that is committed to staying on top of this topic. I need to continue to research concussions, speak with other educators, and share my findings with my colleagues. Stephanie described how Mr. Hatt’s passion for trying to shift everyone’s thinking about concussion was helpful and I believe that I have a similar passion and can use my research findings as a starting place for further discussion and investigation.

Limitations

There were several limitations of my research study, the most significant being time. The Master of Teaching program is only two years in length and it was necessary to consider this when deciding the number of participants for my research study. Time must be allocated for recruitment, interviews, transcription, and analysis in conjunction with further graduate work.
Furthermore, my research study only investigated the perspectives of teachers about concussion management. Additional insights could be gained from discussions with students who are currently recovering or have recovered from a concussion or their parents, but that would be better suited for other researchers to investigate.

**Further Study**

During the course of my study, the Ontario Ministry of Education introduced Policy/Program Memorandum (PPM) 158, which mandated that all Ontario school boards must create and implement a concussion policy by January 30, 2015. This legislation provides an interesting shift in how concussion are viewed in schools, but perceivable changes in the school environment were not evident during my research study. Further study would be valuable over the next few years as school boards fully implement their policies and develop guidelines that teachers can follow in their classrooms.

My research study also identified some gaps in the literature. Further research should be done to learn more about the emotional impact of concussions, in particular the emotional impact on young female students with a concussion. Further investigations would be helpful in determining if there should be a differentiated approach for female and male students with a concussion. Additionally, this field of study would benefit from further research on how learning in different subject areas, in particular Math and Science, is affected by a concussion. Similarly, it would be beneficial to explore whether special considerations should occur based on when a concussion occurs in the school year. There is still much to learn on concussions and the available research seems to grow every month. It is exciting to see how this field of study has grown since it became an interest of mine and it will continue to evolve over the next year and beyond.
Conclusions

As someone with a background in sports injuries and a personal connection to how concussions can impact a student’s future, facilitating a growth in the understanding surrounding how to support a student with a concussion was very important to me. The findings in my study have highlighted how educators can be adept at identifying challenges and finding solutions to support a student with a concussion in the classroom. There is still a lot to learn in this constantly evolving field of study, but I hope that educators can learn from the findings of my study and moving forward feel more prepared to support a student with a concussion in their classroom.

As a society, we need to make the shift towards being cautious with a student with a concussion. Students only have one brain and we must treat this vital organ with respect. It takes time to heal a sensitive structure like the brain, and society as a whole must respect the severity of an injury like a concussion. It is a real and serious brain injury. I think that it is appropriate to end with Stephanie’s words about teaching students to advocate for themselves and their peers:

Hopefully if we can cast a wider net of influence and have more students advocating for themselves and for each other out there, to stand up to their coaches or their parents, as well, and say, ‘Hey, we learned about this in school, this person needs to sit out.’ That would be a really good thing.
WORKS CITED


APPENDIX A: Consent Form

LETTER OF CONSENT FOR INTERVIEW

Date: ______________________

Dear ____________________________,

I am a graduate student at OISE, University of Toronto, and am currently enrolled as a Master of Teaching candidate. I am studying the ways in which teachers support students recovering from concussions for the purposes of a graduate research project. I think that your knowledge and experiences will provide insights into this topic.

I am writing a report on this study as a requirement of the Master of Teaching Program. My course instructor who is providing support for the research process this year is Dr. Patrick Finnessy. My research supervisor is Carolyn Temertzoglou. My research data collection consists of one-sixty minute interview, with the option of further follow-up interviews. These interviews will all be tape-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you. I can conduct the interview at your office or workplace, in a public place, or anywhere else that you might prefer.

The contents of this interview will be used for my research project, which will include a final research paper, as well as informal presentations to my classmates and potentially at research conferences and in publications. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. You and your school will be given pseudonyms to help protect your identity and all information collected will remain confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor.

You are free to change your mind at any time, and to withdraw, even after you have consented to participate. You may also decline to answer any specific questions. At your request, you will also be given the opportunity to read the transcript of your interview to ensure that your views and experiences were captured accurately. I will destroy the tape recording after the paper has been presented and/or published, which may take up to five years after the data has been collected.

There will be minimal risk associated with this research study. The expected benefits associated with your participation are the opportunity to contribute your knowledge in the area of concussions and contributing to the fulfillment of one of the requirements of my Master of Teaching program.
Please sign the attached form, if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Yours sincerely,

Researcher name: Sarah Bach
Phone number, email: 647-224-6995, s.bach@mail.utoronto.ca

Instructor Name: Dr. Patrick Finnessy, pk.finnessy@utoronto.ca
Research Supervisor Name: Carolyn Temertzoglou, carolyn.temertzoglou@utoronto.ca

Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw at any time without penalty.

I have read the letter provided to me by Sarah Bach and agree to participate in interviews for the purposes described.

Signature: ____________________________________________

Name (printed): ____________________________________________

Date: ____________________________________________
APPENDIX B: Interview Questions

Interview Questions (Participant)

1. How long have you been working as an educator?

2. How would you define a concussion, in your own words?

3. What symptoms of a concussion do you believe are the most likely to impact a student’s success?

4. How have any of your past experiences inside or outside of teaching impacted your knowledge of concussions?

5. Approximately how many students with a concussion have you worked with over your career?

6. What kinds of accommodations and/or modifications did you make for these students?

7. What challenges did you face when implementing accommodations and modifications?

8. Which symptoms were the most challenging to make accommodations and/or modifications for?

9. Which of your colleagues were involved with a student’s recovery process? For example, guidance counsellor, coach, other teachers, physician. What role did these individuals play in the Return to Learn process?

10. Have you ever received any support or training from your school administration and/or school board/governing body?

11. In what ways has your school promoted concussion awareness to the staff and students?

12. In your opinion, what do you think would help teachers to be prepared to support a student with a concussion in the future?
INTERVIEW QUESTIONS (Interviewer)

INTRODUCTION

I am conducting research in the area of concussions within the classroom. My interest is in learning from teachers how Return to Learn protocols can be effectively executed. For example, what are some of the challenges that teachers have faced and overcome when creating a plan to support a student with a concussion? Additionally, I am interested in learning how schools are being proactive in the education of their staff and students about the academic implications of a concussion.

The goal of my research, through the sharing of teacher’s experiences, is to further the knowledge in the area of concussions. Sharing these perspectives will help to change how concussions are viewed and supported academically. My research can then be used as a resource for other teachers to support their students in the future.

INTERVIEW QUESTIONS

1. How long have you been working as an educator?
   ➢ Please define your role. What services does this include? Please elaborate on the creation of this department.
   ➢ How long have you been at this school?
   ➢ Have you worked in any other schools?
   ➢ Have you taught any other subjects?

2. How would you define a concussion, in your own words?

3. What symptoms of a concussion do you believe are the most likely to impact a student’s success?
   ➢ Why?
   ➢ Can you describe any specific occasions where you witnessed a student struggling with this symptom? What made this symptom so difficult to overcome in this situation?

4. How have any of your past experiences inside or outside of teaching impacted your knowledge of concussions?
   ➢ Coaching? Professional development? Personal experiences?
5. Approximately how many students with a concussion have you worked with over your career?

6. What kinds of accommodations and/or modifications did you make for these students?
   ➢ Please name some of the accommodations that have been used by students.
   ➢ Have you ever had to modify the expectations for a student?
   ➢ Which courses or topics are the most likely to require accommodations or modifications? Why do you think this is the case?

7. What challenges did you face when implementing accommodations and modifications?
   ➢ Teachers? Content? Outside activities?
   ➢ How did you overcome these challenges?

8. Which symptoms were the most challenging to make accommodations and/or modifications for?
   ➢ Why?

9. Which of your colleagues were involved with the student’s recovery process? For example, guidance counsellor, coach, other teachers, physician. What role did these individuals play in the Return to Learn process?
   ➢ How well do people collaborate to support a student?
   ➢ Which people are always involved? When are some people only sometimes involved, under what circumstances?
   ➢ Are any of these people unique to your school?

10. Have you ever received any support or training from your school administration and/or school board/governing body?
   ➢ Where has the school received support to help their students’ recovery from a concussion? What organizations or individuals have been particularly helpful?

11. In what ways has your school promoted concussion awareness to the staff and students?
   ➢ Any special awareness campaigns? Professional development for teachers? Guest speakers?

12. What do you believe are the strengths of your “Return to Learn Guidelines”
➢ How is this document assessable to parents and students?

➢ What helped in the creation of this document?

➢ Has it been altered at all to reflect the experiences of students that have been supported by it?

➢ Can you elaborate on the statement “partial school day with the exception of subjects such as Physical Education and Music and Design and Technology”? Why these subjects?

➢ Describe the Work completion plan?

13. In your opinion, what do you think would help teachers to be prepared to support a student with a concussion in the future?
APPENDIX C: Return to Play (RTP) Protocol

At the 4\textsuperscript{th} International Conference on Concussion in Sport, held in Zurich in November 2012, McCrory et al. (2013) outlined the following stepwise process for an athlete with a concussion to return to playing their sport:

<table>
<thead>
<tr>
<th>Rehabilitation stage</th>
<th>Functional exercise at each stage of rehabilitation</th>
<th>Objective of each stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No activity</td>
<td>Symptom limited physical and cognitive rest.</td>
<td>Recovery.</td>
</tr>
<tr>
<td>2. Light aerobic exercise</td>
<td>Walking, swimming or stationary cycling keeping intensity &lt;70% maximum permitted heart rate. No resistance training.</td>
<td>Increase heart rate.</td>
</tr>
<tr>
<td>4. Non-contact training drills</td>
<td>Progression to more complex training drills, e.g. passing drills in football and ice hockey. May start progressive resistance training.</td>
<td>Exercise, coordination and cognitive load.</td>
</tr>
<tr>
<td></td>
<td>5. Full-contact practice</td>
<td>Following medical clearance</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td>6. Return to play</td>
<td>Normal game play.</td>
</tr>
</tbody>
</table>