CHANGE YOUR WORDS, CHANGE YOUR MINDSET: GROWTH MINDSET INTERVENTION IN ONTARIO SCHOOLS

ALEXANDRA MILAK

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(Co) Supervisor:

Dr. Darlene Brackenreed

Examiner(s)

Supervisory Committee:

Dr. Thomas Ryan

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Alexandra Milak

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Abstract

Mental health concerns are becoming more prevalent in Ontario's public education system with children and youth experiencing varying mental health needs. *Supporting Minds* released by the Ontario Ministry of Education (2013) outlines some basic supports available for teachers to help these students; however, there is more that needs to be done. With cuts to funding, teachers are left to be the main source of support for these students. This research study looked at the role of growth mindset intervention in addressing mental health needs and an online questionnaire was completed by 142 respondents. The results indicated that while many teachers are aware of growth mindset, they do not feel confident or capable of delivering the tools and strategies in their classrooms. Teachers indicated that more professional development and information on mental health and growth mindset intervention is required. Teachers with growth mindset intervention experience observed improvements in students' self-esteem and approach to learning.

Acknowledgements

I would like to begin by thanking all the teachers who participated in this research study by completing the online questionnaire. Thank you for taking time out of your busy lives to do so. This research study would not have been possible without the support of the many educators from across Ontario. Your responses provided insight into the use and effectiveness of growth mindset interventions in Ontario classrooms. The results from the research study have shed light on the importance of bringing about change to mental health awareness and support in Ontario schools.

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Chapter One: Introduction

Background to the Study

The Ontario Ministry of Education released the *Supporting Minds* document in 2013 in response to the number of children and adolescents experiencing varying mental health concerns. The document highlights that approximately 20% of children and youth have a mental health problem (Waddell, Offord, Shepherd, Hua, & McEwan, 2002). Mental health problems can impair a child's ability to be successful in school and hinder his/her ability to build personal and social relationships. With so many children and adolescents experiencing challenges with their mental health, it is evident that when faced with these obstacles, many children and youth lack the strategies and capability to build self-confidence and develop resiliency. Resiliency is the ability to overcome obstacles and challenges that one may face in life. If children and youth are resilient, then they may be able to overcome any mental health challenges they may face (Ledesma, 2014).

Educators in today's school system in Ontario have seen an increase in the number of students with mental health problems as made evident in *Supporting Minds* (Ontario Ministry of Education, 2013). Because one in five children and youth have a mental health problem, it is likely that every teacher will have some students with mental health problems facing these challenges in their classroom. This means that in a classroom of 30 students, approximately five to six students will have some sort of mental health concern and out of the five, between three to four of them may have a mental health problem that seriously interferes with their daily life (Ontario Ministry of Education, 2013). Because children and youth spend a considerable amount of the time in their classrooms with their teachers, it is important that these individuals in the

educational sector are knowledgeable about mental health and know where to access help and support for their students.

In Ontario, the individuals who are qualified to diagnose mental health problems are physicians, including psychiatrists and psychologists. Regardless of this fact, educators have an important supporting role in the diagnostic process (Ontario Ministry of Education, 2013). Educators can observe student behaviour in an educational setting that parents and mental health professionals may not see. These observations can help to provide a bigger picture as to how the child is functioning. The types of behaviour that educators may observe in the classroom could be associated with a variety of mental health problems as they are often complex and co-occur (Ontario Ministry of Education, 2013). For example, a student who is observed by the teacher as chronically having difficulty focusing, who is irritable and tired, and who expresses having sleep problems may have depressive disorder or general anxiety disorder (Ontario Ministry of Education, 2013).

Coombes, Appleton, Allen, and Yerrell (2011) found that there is a cause for concern when it comes to young people and their emotional health and well-being (EHWB). While there is a curriculum in place in United Kingdom schools, Coombes et al. (2011) determined through eight focus groups that important mental health topics, including self-harm, were neglected. They also determined that the quality of instruction was dependent upon the enthusiasm and creativity of the educator (Coombes et al., 2011). Their overall findings suggest that young people need to be more exposed to EHWB curriculum. When we look at what supports are in place in Ontario to teach students about EHWB, there are very little. Aside from the recently updated Health and Physical Education (2014) curriculum, there is no mandated teaching on mental health and EHWB. Beyond health topics around personal safety and substance use, there

are no curriculum expectations that target mental health or support the development of positive EHWB.

Due to the sheer number of children and youth with varying mental health needs, it is becoming increasingly difficult for teachers to find ways to engage students who experience compromised mental health in various aspects of school including academics, extracurricular activities, and peer relationships (Ontario Ministry of Education, 2013). While *Supporting Minds* has taken a positive step in the right direction to get the conversation started in schools surrounding mental health, and equips educators with more knowledge on different symptoms and types of mental health, it does not address a greater concern. The concern being that children and youth lack the self-esteem and confidence they need in order to break down the barriers of mental illness (Ontario Ministry of Education, 2013). Growth mindset interventions are intended to provide students with an opportunity to learn more about their own mind and the fact that their brain is not "fixed" (Dweck, 2006).

Carol Dweck of Stanford University developed the concept of a growth mindset in 2006. A mindset is a self-perception that people hold about themselves. While people can be aware or unaware of their mindsets, Dweck (2006) believes that they have a profound effect on academic and professional success, skill acquisition, and personal growth and relationships. Currently, there are few studies that explore the role of growth mindset intervention and, more specifically, as a whole-school approach. Further, it is not widely known how many educators are aware of growth mindset intervention or implement it in their classrooms. It is important for educators to become aware of just how growth mindset intervention is impacting or may impact student growth and achievement in schools and how it helps students develop stronger emotional health and well-being.

In past research, growth mindset often is looked at in limited situations. It does not address the knowledge of growth mindset among educators, nor their varying ways of implementing growth mindset intervention in classrooms or as a whole-school approach. There are various forms of growth mindset intervention that could be explored by educators including the use of an online tool, Brainology, Genius Hour, and Mindset Works resources among others. The need exists to determine and understand educators' opinions on growth mindset intervention

Previous studies on growth mindset intervention have focused primarily on its role with gifted students (Chan, 2012) and those with special education needs, including learning disabilities (Baldridge, 2010). There is far less knowledge on the role of growth mindset intervention with students in a regular, elementary classroom setting. There has been no research published on what educators in Ontario know about growth mindset or what they do with their knowledge of it.

Researcher's Motivation

As an elementary school teacher, I find it concerning to see more and more students facing mental health problems. In my experience, through growth mindset intervention, students have been able to identify key characteristics between a growth versus a fixed mindset and can successfully use strategies presented to change their own mindset and develop resiliency. In order to tackle issues in our schools surrounding mental health and resiliency, we must get a better sense of how growth mindset intervention has influenced children and youth to date. We would benefit from gaining a better understanding of how many teachers know of the mindset research and work of Carol Dweck (2006), Yeager and Walton (2011), and Paunesku et al. (2014), among others and how many of them are using growth mindset intervention in their classrooms.

Significance of the Study

The current study was conceived to determine teachers' perceived knowledge and use of growth mindset intervention through various strategies and tools. The study examined which growth mindset interventions were perceived by teachers to be successful in addressing mental health concerns. The study highlighted the many types of mental health concerns that teachers deal with on a daily basis, displaying the need for educational reform around emotional health and well-being. This research study is intended for teachers, administrators, and policy makers. It could help shape future growth mindset interventions and develop appropriate curriculum to address some issues for today's children and youth.

The research study does not fill a gap or void in the existing literature; it explores growth mindset intervention through a different lens. While most research looks at the effects of growth mindset on a specific group (i.e., gifted students, students with LD), this research study looked at growth mindset intervention as a classroom practice. When analyzing current research, it is evident that much of the research on growth mindset is centred around the impact of intervention on students. This study will gain a sense of (a) what teachers perceive to know about growth mindset, (b) what they do with that knowledge (i.e., interventions they use in their classrooms), and (c) how teachers perceive it to impact their students' overall mental health.

Mental health is important to address for several reasons. Mental health impacts everyone. It presents a risk to the individual with the mental health concern, and those around the individual including, family, friends, and the community. When mental health concerns are not properly dealt with and are left unresolved, tragedy can occur. This was recently seen through the school shootings in La Loche, Saskatchewan and previously in communities across the

United States where many individuals present mental health concerns. Mental health needs to be addressed so that tragedies like these may be prevented.

There is often fear associated with mental health. When people do not understand an individual's mental health condition, and do not know what to do, it can lead to fear; fear of what will happen to the individual or fear of what the individual may do. When tragic incidents occur as a result of mental illness, fear can also be instilled within individuals and their community. Additionally, if individuals feel that they have a mental health concern, they may fear the reaction that they will receive from admitting it. There is still stigma around mental health, and that can be a driving force that causes fear. The fear of mental health is real and can be experienced by those who have mental health concerns and by those who know individuals with mental health concerns. The fear of mental health needs to be replaced with optimism. By admitting one's feelings, he/she should feel empowered to be able to move forward and make positive changes in his/her life.

Changes to Initial Teacher Training

In September 2015, Ontario implemented a new 2-Year Bachelor of Education program replacing the 1-Year program that had been available in the past (Rushowy, 2012). While the new programs at various universities offer more practical teaching experience, the in class courses reflect the changing landscape of education in Ontario. While the divisional teacher training framework looks the same and includes qualifications in the Primary Division (FDK-Grade 1), Junior Division(Grades 4-6), Intermediate Division (Grades 7-10), and Senior Division (Grades 11-12), some aspects of the program have changed. Many of the new Bachelor of Education programs include courses around individual learning needs of students and equitable and inclusive education (Rushowy, 2012). Evidently, policy makers recognize the changing

landscape of Ontario's publicly-funded education system. Through such documents as *Supporting Minds* (Ontario Ministry of Education, 2013), the state of mental health problems in the education system is made known. There has been a national movement to bring about awareness of mental health in recent years (Ontario Ministry of Education, 2013). There is a willingness to make mental health a more open, acceptable topic of discussion. There are many government and nongovernmental organizations involved in the mental health movement. An example of this movement is Bell Let's Talk, a day each year that spreads awareness and raises money for mental illness. With increased awareness and research to the mental health concerns facing children and youth, I am hopeful that teacher candidates will learn more about how to deal with mental health in schools and discover ways to help foster and build resilience among their students.

Purpose of the Study

The purpose of this study is to examine what current knowledge educators in Ontario have about growth mindset intervention. The study will also look at what, if any, tools they have implemented in their classrooms and schools to address children and youth with varying mental health concerns and lack of resiliency and whether the tools were effective.

Research Questions

There are five research questions in this study.

1. What do educators perceive to be true about their knowledge of growth mindset intervention?
2. What, if any, tools have teachers implemented in their classrooms and perceive to address children and youth with varying mental health concerns?

3. Do teachers perceive that the use of growth mindset intervention in Ontario schools helps to address problems with mental health and emotional well-being?
4. Is there a relationship between teachers' perceptions of growth mindset intervention and years of teaching experience?
5. Is there a relationship between teachers' perceptions of growth mindset intervention and divisional teaching experience?

Theoretical Framework

The theoretical framework provides a rationale for predictions about the relationships among variables of a research study. *Supporting Minds* (Ontario Ministry of Education, 2013) is the foundation of this study. The Guiding Principles of respect and understanding, healthy development, hope and recovery, person-directed services, diversity, equity, and social justice, excellence and innovation, and accountability were used to develop the *Supporting Minds* document, as well as *Open Minds, Healthy Minds* (Ontario Ministry of Education, 2011). The guiding principle I focused on for the purpose of this study was healthy development, hope, and recovery. It states "Individuals are resilient and have an inherent sense of hope for the future. Service providers (teachers) will reinforce the personal strengths of children and youth to help them develop a sense of safety, self-worth and mastery over their future" (Ontario Ministry of Education, 2011, p. 7). This falls directly in line with growth mindset intervention.

The philosophical underpinnings of the current research study include self-efficacy and resilience theory. Self-efficacy refers to an individual's belief in his or her capacity to execute behaviours necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). Self-efficacy is a key construct of social cognitive theory and reflects one's confidence in his/her

ability, motivation, and behaviour. Self-efficacy is a significant variable as it can affect student learning and performance much like the belief of having a growth mindset.

In an effort to enhance self-efficacy, educational programs based on enactive mastery experiences, vicarious experiences and social persuasions have the ability to enhance student self-efficacy (van Dinther, Dochy, Segers, & Braeken, 2014, p. 331). Feedback is another way to enhance student self-efficacy. Formative assessments have been shown to predict student self-efficacy (van Dinther et al., 2014, p. 341). In many ways, self-efficacy is similar to the idea of growth mindset where an individual's belief about his/her abilities will directly influence the outcome. Therefore, if students develop a growth mindset through various interventions, their self-efficacy may be more developed. The construct of self-efficacy is interconnected in the theory of mind-sets as one's self-efficacy can affect his/her learning and performance.

The concept of resilience can be defined in multiple ways and continues to evolve. Resilience is defined as the ability to bounce back from frustration, misfortune, and adversity (Ledesma, 2014, p. 1). Resilience theory addresses individuals, families, communities, workplaces, and policies. Resilience research has identified several protective factors for children and youth including secure attachment and a healthy relationship with an adult during development (Ledesma, 2014). This may be in the form of a healthy relationship between a teacher and her students. Resilience is an important trait to possess because it acts as a barrier for one's self-esteem. When troubled situations arise, resilience acts as a coat of armour, helping one remain focused and strong in the face of tough times (Ledesma, 2014). There are many protective factors that contribute to the ability for one to be resilient. Those factors will be discussed in the literature review.

Lack of resilience is one of the reasons why growth mindset intervention is needed. Lack of resilience manifests itself at individual, team, and organization levels in ways that are very similar. It can happen as a result of many variables including mental health concerns, domestic concerns, as well as personal and social relationships. Lack of resilience can manifest itself over time or can have a sudden impact on an individual. It can contribute to (a) poor academic performance, (b) distraction in school, (c) low self-esteem, and (d) resistance to peer relationships. There are many circumstances that lack of resilience can influence within an educational setting. Because resilience or lack of resilience can have an influence in educational settings, it is important to note that with resilience come misconceptions.

The nature of resilience often is completely misunderstood. One common misconception is that resilience is a quality that some people possess and others do not. Researchers such as Werner and Smith (1982, 1992, 2001), Benard (2004), Brown (2001), Brown, D'Emidio-Caston, and Benard (2001) have tried to shift the perception of resilience over the last couple of decades. For example, Benard (2004) has shifted the idea of resilience as a personality trait that one may or may not possess to an innate capacity brought out by environmental protective factors (p. 9). Because resilience is something that all individuals can possess, it is important that educators work to provide protective factors, the supports and opportunities that enable resilience to develop. Children and youth have the ability to be resilient if risk factors decrease while protective factors increase (Benard, 2004).

Based on resilience research over the past 2 decades, it is evident that children and youth have the capacity for positive development (Benard, 2004, Ledesma, 2014). Even in the face of growing societal pressures, poverty, violence, and mental health, many children and youth are able to develop and go on to live healthy lives. Young people are resilient, but they are not

invincible and the reality of many of their situations cannot be ignored. Growth mindset intervention is a protective factor that can help students gain confidence in their learning ability to develop their resilience further. Growth mindset intervention can reach more children to help them overcome their obstacles to learning.

A number of variables characterize resilience including positive self-esteem, hardiness, strong coping skills, a sense of coherence, self-efficacy, optimism, strong social resources, adaptability, risk taking, low fear of failure, determination, perseverance, and a high tolerance for uncertainty (Ledesma, 2014). These variables are all common goals of growth mindset intervention. Therefore, students who successfully partake in growth mindset intervention may presumably become more resilient. In developing resilient individuals, a safe environment must be created that allows individuals to thrive (Ledesma, 2014). Classrooms can be the safe environment where students can thrive. Growth mindset intervention provides the supports needed for resilient individuals to be developed.

Using *Supporting Minds* (Ontario Ministry of Education, 2013) as the foundation of the research and resilience theory and self-efficacy as the philosophical underpinnings, growth mindset intervention was explored as a way in which resilience and self-efficacy can become developed and strengthened in students' lives.

Outline of the Remainder of the Paper

Chapter Two begins by defining growth mindset and discusses several research studies that have involved the use of growth mindset intervention in elementary and secondary school settings. Second, resilience theory and self-efficacy are defined and explored. Finally, a framework of the study is provided.

Chapter Three looks at the research questions, research design (survey research), questionnaire, sample, and population. It also describes the data collection and data analysis procedures being used for the study in addition to all assumptions and ethical considerations raised.

Chapter Four will begin with a profile of the sample from the research study. It will also outline the results of the online questionnaire. The results look at perceived teacher knowledge and use of growth mindset interventions. Second, the results look at perceived mental health in classrooms and how growth mindset intervention may influence it. Finally, the results look at the relationship between years of teaching experience, divisional experience (Primary, Junior, Intermediate, Senior) and the responses to the questionnaire items. The chapter concludes by answering the three research questions.

Chapter Five discusses the results outlined in Chapter Four in greater detail. In addition, a summary of the study is provided as well as implications for current research. The limitations of the research study are noted and recommendations for future research are provided.

See Appendix A for Glossary of Terms.

Chapter Two: Literature Review

This literature review begins by defining neuroplasticity, the scientific foundation of brain changes. Second, the literature review defines growth mindset, as laid out by Dr. Carol Dweck (2006) and discusses its current use of practice in elementary and secondary school classrooms. It examines the difference between a growth mindset and a fixed mindset. Third, the literature review looks at theories relating to the use and knowledge of growth mindset including resilience theory and self-efficacy. Finally, the chapter concludes with a summary of teacher use and knowledge of growth mindset interventions.

Neuroplasticity

Squire (1987) described the idea of neuroplasticity, also known as brain plasticity, from invertebrate studies. He examined the distinction between intrinsic and extrinsic systems. Intrinsic systems consist of neural pathways that store information (Squire, 1987, p. 176). Extrinsic systems consist of neural pathways that do not alone contain acquired information but have the capacity to. They have the capacity to influence development, maintenance and expression of memory in intrinsic systems (Squire, 1987, pp. 176-177). Squire (1987) explained that this concept of an extrinsic system is applicable to more complicated nervous systems, including those of monkeys and humans. He believes neurological injuries or diseases to be a disruption of an extrinsic system.

The concept of brain plasticity and learning and memory has changed over time with scientific advancement. According to Konorski (1961) brain plasticity refers to the adaptive capacities of the central nervous system (CNS), or its ability to modify its own structural organization. Plasticity is seen as an adaptive response to functional demand. Neuroplasticity refers to the potential for the brain to reorganize by creating new neural pathways to adapt.

Neuroplasticity is the concept that the brain changes over time with experience (Doidge, 2007; Ramachandran, 2011). Because the brain is plastic, is modifiable and adaptable- its functions and structure can change over time (Doidge, 2007; Ramachandran, 2011).

Neuroplasticity is the scientific evidence that backs up the concept of a growth mindset. Because we know that the brain has the ability to create new neural pathways, we understand that our minds and thoughts can alter with that change. This brings about the ability for our brains to change the way we think. Building new neural pathways is done through practice and focus (Will, 2013). Through repetition, new neural connections are created in the brain synapses that do not usually fire together, do (Will, 2013). Neuroplasticity gives social scientists concrete proof that mind-sets have the ability to modify and change themselves, which, in turn, can change the way an individual views his/her own intelligence and abilities.

Defining Growth Mindset

The concept of a growth mindset was developed by Dr. Carol Dweck, a psychologist at Stanford University. In her book *Mindset: The New Psychology of Success,* Dweck (2006) explains that a mindset is a self-perception that people hold about themselves (p. 16). An example of a simple mindset is one believing that he/she is either intelligent or unintelligent. Though people can be either aware or unaware of the mindsets they possess, Dweck (2006) believes that they have a profound impact on one's learning achievement, skill acquisition, and professional success.

According to Dweck (2006):

> in a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work- brains and talent are just the starting point. This view

> creates a love of learning and a resilience that is essential for great accomplishment. (p. 15)

The implications of a growth mindset reach far into our elementary and secondary school classrooms. If students embrace the idea of a growth mindset, then they have the capacity to learn more if they are willing and able to work hard and persevere.

Growth Mindset vs. Fixed Mindset

There are two schools of thought in Carol Dweck's (2006) work when it comes to mindsets: a growth mindset and a fixed mindset. As previously mentioned, a growth mindset is one in which individuals believe that their abilities are nonstatic and have the ability to develop. They view challenges and failures as opportunities for their minds to improve. Alternatively:

> in a fixed mindset, people believe their basic qualities, like their intelligence or talent, are simply fixed traits. They spend their time documenting their intelligence or talent instead of developing them. They also believe that talent alone creates success- without effort. (Dweck, 2006, p. 16)

When a person has a fixed mindset, he/she believes to either be intelligent or unintelligent and that there is no way to change it. If individuals believe that they are unintelligent and that they cannot develop, they are less likely to challenge themselves. If individuals were to complete a challenging task and fail, their fixed mindset would reaffirm that they are unintelligent. Dweck's (2006) research also suggests that when individuals with fixed mind-sets fail at something, they tend to tell themselves that they cannot or will not be able to do it. Some may even make excuses to rationalize their failure.

Growth Mindset in Schools

There have been several research studies that focus on the impact of various growth mindset interventions in schools. Most of the research focuses its attention on specific learning groups including those with learning disabilities (LD) or giftedness. Some of the research also looks more in-depth at specific tools and strategies used in growth mindset intervention, including the Brainology Student Program, and Khan Academy.

Fegley (2010) conducted research on growth mindset among high achieving students where the purpose of the study was to develop a plan for changing the mindset of students at Haddonfield Memorial High School from having a fixed mindset to a growth mindset. According to Fegley, this is a high-performing school by most conventional measures with typically 100% of the students graduating and 96% of the students attending college or university. Despite these numbers, many students may not be performing to the best of their ability due to the belief that greater or different effort will not result in improved learning success. Fegley revealed that this might be due to student belief and acceptance that academic achievement is due to their innate ability and not their effort.

Based on the Student Life Surveys and student interviews conducted in Fegley's (2010) study, it was believed that students would be able to receive positive support from their teachers to ensure that they are doing their best and meeting their full potential. High-performing students reported that they were given additional support when needed from their teachers. Students who struggled reported that they did not receive the support they needed and were pushed to the sidelines. The researchers hope that with the plan for mind-sets, this will change. The intent is that the plan will provide additional, positive support to all students at Haddonfield Memorial High School (Fegley, 2010).

Fegley (2010) presents a plan that reinforces the importance of implementing growth mindset into schools. It is often assumed that only students who struggle have a fixed mindset, but Fegley's research revealed that even high-achieving students might not be working to the best of their ability. The study reinforces the important of growth mindset intervention for all students as even those who are labeled as high achievers may not be achieving to full potential.

Alternatively, Baldridge (2010) investigated the effects of growth mindset intervention on students who had a diagnosed learning disability, specifically with reading difficulties. The purpose of the study was to determine the effects of growth mindset intervention on the beliefs of the students with the learning disability. The study looked at the effects of growth mindset intervention on (a) beliefs about intelligence, (b) effort beliefs, (c) achievement goals, and (d) academic self-efficacy. This mixed methods study included a pre-test and a post-test survey, student interview, class discussions, journal responses, and unit quizzes. The surveys were used to measure theory of intelligence, effort belief, and achievement goal orientation.

The results of the study did not reveal any strong pattern of positive motivational change after the intervention (Baldridge, 2010). There was a slight increase noted in positive attitudes. The qualitative analysis revealed that students did understand that the brain changes with learning, but indicated that they found the survey questions confusing (Baldridge, 2010). Growth mindset intervention did not play a strong role in changing the attitudes and beliefs of students with reading difficulties. There was only a slight increase in positive beliefs. Baldridge presents results that show there is no major benefit to growth mindset intervention with students who have an LD such as a reading difficulty. Could that be because the growth mindset intervention strategies were not intended for students who had a learning disability, such as a reading difficulty?

Teachers' Growth Mindset

Though the focus of the current research is on growth mindset intervention for students, it is important to understand the perceptions of teachers' growth mindset. Gutshall (2013) explains that research suggests everyone has beliefs regarding their ability and whether it is fixed or flexible. According to Gutshall, individual views on growth mindset may impact teachers' instructional approaches (p. 1074). For example, if educators believe in the power of a growth mindset and the positive impact it can have on students, they may be more likely to put time and effort into planning lessons and activities around growth mindset intervention. In a study by Swann and Snyder (1980), teachers who were led to believe their students' intelligence were fixed offered less support and encouragement. Whereas, teachers who were led to believe that their students' intelligence were modifiable were more supportive and offered students ways to learn how to problem solve.

In her research, Gutshall (2013) measured 238 teachers' views about ability and how that view impacted their support for students. She also explored the relationship between teachers' views on mindset and their instructional approaches. The results from the study indicate that teachers share similar characteristics with the general population about mindset where over time, teachers developed a more neutral mindset and decreased fixed mindset scores. The results of the study suggest that while some teachers have a growth mindset and others have a fixed mindset, it is possible to shift teachers away from having a fixed mindset to a more neutral mindset.

Another important component of this research study is the types of growth mindset interventions used in elementary and secondary schools (Gutshall, 2013). Some of these tools include Brainology, and Khan Academy. The following research studies look at the impact of these tools on children and youth in an educational setting.

Donohoe, Topping, and Hannah (2012) examined the impact of the Brainology Student Program, an online interactive programme, designed to encourage a growth mindset. The research looked at the impact of Brainology on student mindset, and resiliency specifically among secondary school students. Measures that were used in the study include Dweck's (2006) theories of intelligence scale and Prince-Embury's resiliency scales.

The use of Brainology led to a significant increase in the pre to post mindset scores of the participants (Donohoe et al., 2012). There was a decline at follow-up and the initial impact of the intervention was not sustained. The significant short-term impact of Brainology was not sustained over a period of time. This was the first study to explore the impact of Brainology on the mindset and resiliency of secondary school students as all previous literature focused on instructor-led intervention.

The findings of Donohoe et al. (2012) will inform my research, as there may be educators who respond to my questionnaire with interventions that include the use of Brainology. It will be interesting to see whether they experienced similar results and observations among their students. I will also be curious to see whether they used Brainology as their sole piece of growth mindset intervention or whether it was coupled with other tools and strategies.

Mindset Works, the creators of the Brainology Approach, developed a curriculum that provides online and in person instruction and activities over 5 to 12 weeks. The Brainology Program is targeted to children in grades 5 through 9. Some of the lessons taught through Brainology include brain development and learning, and fixed and growth mindsets. In 2013, Brainology was integrated into Scholastic Inc's Math curriculum. The purpose of this integration was to allow students the chance to begin their math instruction with 2 weeks of lessons that

included learning about mindsets and neuroplasticity. The lessons also provide students with strategies they can use when faced with difficult situations.

David Dockterman, Scholastic's chief architect for learning sciences and a lecturer at the Harvard Graduate School of Education made a comparison between children's perceptions of failure and their learning environment. "The thing is, kids don't mind failing…when kids play video games, they fail 80 percent of the time. They look at failure there as an opportunity to learn" (as cited in Sparks, 2013, p. 1). Therefore, why is it that within an educational setting, children find failure and mistakes to be humiliating? Dockterman explains that it is all in the way you set it up. "There's a lot of implicit meaning for kids" (as cited in Sparks, 2013, p. 1). He explains that it is often in the way that a teacher approaches and phrases the learning. For example, when beginning a new math unit, instead of the teacher saying, "let's start out with an easy one," which might discourage students who will struggle with that problem, the teacher might say, "this might take a few tries" (as cited in Sparks, 2013, p. 1). By changing the wording of instructional approaches, some students may not be as afraid of failing.

The SciAcademy Charter School in New Orleans is one of three charter schools that views cultivating a growth mindset as a priority among staff and students (Sparks, 2013). The philosophy behind the charter school demonstrates the importance of teachers and students developing a growth mindset. For example, the hiring process for teachers at the school involves multiple classroom observations, not just an interview. Founder, Ben Marcovitz explains that 60% of interviewees do not stick around for classroom observations where they teach a lesson, receive feedback including strengths and next steps, and then teach again a few weeks later. "But the 40 percent who do (stick around) have already made a commitment to growth…[The hiring process] allows us to weed out people evincing growth mindset who haven't internalized it"

according to Mr. Marcovitz. Other ways in which a growth mindset is cultivated at SciAcademy include learning problems being discussed privately, where improvements (of any measure) are announced to the entire class.

A further study conducted by Dweck (2007) examining student feedback (from teachers) was designed to see if students improved with more positive feedback from their teachers, as done so at the SciAcademy. Dweck tracked more than 250,000 students in the United States who were learning about fractions via Khan Academy, an interactive, online math learning program. The results indicated minor changes to student feedback, such as providing praise about improvement rather than a comment of general encouragement improved student persistence and math achievement (Sparks, 2013). This indicates that feedback is an important tool for cultivating growth mindset among students.

Growth mindset intervention has been shown to have a positive impact in schools. Blazer (2011) notes that students will go into a classroom with one of two conceptions about their intellectual ability: either fixed or has the ability to grow. The researcher suggests that students with growth mindsets outperform their classmates who have fixed mindsets (Blazer, 2011). In addition, growth mindset intervention has the capability of closing achievement gaps. Students with a growth mindset are more willing to try their best because they know they can improve their learning; thus, the likelihood of increased academic scores.

There are many strategies that teachers can use to foster a growth mindset. They include emphasizing effort and progress over final outcomes. It is important to try to avoid labelling students and to evaluate students based on their growth over time.

Blazer (2011) reinforces the belief that growth mindset intervention does have an important role to play in classrooms. It will allow students to become more successful in school

and enjoy school more. The study also offers some reflection for educators at looking how they structure their classroom. What are some ways they can bring growth mindset intervention into their daily practice? How does a growth mindset affect student evaluation?

Mental Health

Mental health problems present a risk for individuals and those surrounded by them. School shootings in the United States, including Newtown, Connecticut, and Virginia Tech, and most recently in LaLoche, Saskatchewan, are tragic examples of the deadly impact that mental illness can have on a community. Mental health is on a continuum. Individuals are not devoid of it, and will fall on a continuum. We can move along this continuum blind in response to stimuli. This is when we see individuals do unpredictable acts. With such tragedies as these, communities are often overcome with grief, but also with fear. Martin (2013) discusses the fear experienced in the Newton, Connecticut shootings as both a cause and effect: "It is an effect in that is an emotion brought about by a perceived threat; it is a cause in that reactions can be ascribed to it" (p. 5).

School boards across the United States and Canada reacted to this school shooting by investing in security strategies. In Ontario, the provincial government invested millions of dollars into a "locked door policy" that is meant to increase security measures. While the provincial government invested money into enhanced security measures, those of which might instil fear in students and parents alike, the government cut the education budget by $400 million between the years of 1995 and 2002 (Martin, 2013). These cuts to education funding had a profound impact on the system and "led to the elimination of many support services, thereby further exacerbating the plight of marginalized youth" (Falconer, 2008, p. 22). The Annual Report on Schools that was conducted in 2012 indicated that access to mental health services in 24% of elementary

schools and 19% of secondary schools was “poor” (Martin, 2013). While funding for mental health services has decreased, Martin discusses the shift in funding from support services and programs to bureaucratic initiatives that would restore order and efficiency in education. These include the Safe Schools Act, Zero Tolerance Policy, and Education Quality and Accountability Office Testing. These initiatives do not address student need, well-being, and mental health. With governments continuing to pull back funding for mental health as the incidence rates go up, there is a greater risk to individuals and communities at large that tragic situations may occur again in the future.

Resilience Theory

Resilience originates from the Latin word, *resiliens*. It refers to the elastic quality of a substance (Greene et. al, 2002). There are several definitions of resilience. Resilience is defined as the ability to bounce back from adversity, frustration, and misfortune (Ledesma, 2014, p. 1). Perry (2002) defines resilience as the capacity to face stress without negative disruptions or impact on daily life. Masten (2005) defines resilience as a phenomena characterized by good outcomes in spite of serious threats. Despite the complexity of the definition of resilience, they all have the same undertone. The complexity of resilience stems from its research across many disciplines.

There are three models of resilience. The compensatory model views resilience as a factor that neutralizes exposure to risk (Ledesma, 2014, p. 2). Risk factors and compensatory factors, including optimism, empathy, insight, and intellectual competence, contribute to the outcome (Ledesma, 2014, p. 2). The challenge model of resilience suggests that risk factors can enhance a person’s adaptability. The experience that comes through the risk factors will prepare the individual for future challenges (Ledesma, 2014, p. 2). Finally, in the protective factor model

of resilience, there is an interaction between risk and protective factors. This interaction reduces the probability of a negative outcome and calms the effect of exposure to risk (O'Leary, 1998). For the purpose of this paper, we will focus on the protective factor model of resilience.

Developing a growth mindset can help to build resilience in students. Resilience will help to address the varying mental health concerns faced by today's youth. Santos (2015) looks at the construct of resilience and how it can be studied to provide context in educational settings. Some of his questions include: (1) How is resilience defined, (2) How is resilience studied within the school setting, with a particular focus on urban schools, and (3) What are the trends in resilience research and where is it heading (Santos, 2015, p. 2). Santos determined that while progress has been made on resilience research, there is still no concrete set of factors that constitute risk and protective factors. He explained that "rigorous research investigating resilience specifically within educational settings is still needed" (p. 26).

Santos (2015) provided examples of resilience research within the school setting. Reyes and Jason (1993) compared educationally resilient students to noneducationally resilient students, using attendance rates and academic reports as distinguishing factors. Reyes and Jason found that educationally resilient students were more satisfied with the school. Additionally Padron, Waxman, Brown, and Powers (2000) found that research conducted from an educational resilience context allows researchers to focus on predictors for academic success, rather than failure. Santos concludes his paper by suggesting that further resilience research within the school setting would benefit from mixed methods research that "contextualizes students' experiences through the combination of both numbers and voices" (p. 30).

Self-Efficacy

The concept of self-efficacy is derived from social learning theory (Bandura, 1977). According to Bandura, perceived self-efficacy affects people's choice of activities and behavioural changes, and how long they will persist in the face of obstacles and adverse experiences (pp. 287-288). The stronger one's self-efficacy, the more active their coping efforts will be. Additionally, emotions play an important role in self-efficacy. Emotional arousal is a constant source of information that can affect one's self-efficacy (Bandura, 1977, p. 289). Emotional arousal lends itself to developing a growth mindset in that positive reinforcement and encouragement are key characteristics of growth mindset intervention. If children and youth receive a constant source of positive reinforcement and encouragement, then they are more likely to develop a stronger self-efficacy.

Relating self-efficacy to the current research study, Bandura (1977) suggested that students with strong self-efficacy were more motivated to persist through academic challenges. Self-efficacy has a direct influence on one's mindset. If children have a strong sense of self-efficacy, they are more likely to develop a growth mindset where they will face challenges more positively. Self-efficacy provides a psychological backing for mindset research.

Summary of Research

There is consensus in the literature that there is a distinct difference between a growth mindset and a fixed mindset. The research also indicates that it has taken several decades of work by Dr. Carol Dweck (2006, 2007, 2009) and others to take the belief of one's intelligence and motivation to the concept of mindsets. The research studies presented in this review of literature centre on the work of Dr. Carol Dweck (2006, 2007, 2009) and her colleagues.

Baldridge (2010) and Fegley (2010) discuss the ways in which students with varying exceptionalities, including giftedness or learning disabilities, view and demonstrate a growth

mindset. Their research discusses the implications of mindset on student motivation and achievement. Donohoe et al. (2012) and Sparks (2013) explain the ways in which different tools, including the Brainology Approach and Khan Academy, can impact growth mindset, student beliefs, and student achievement. Sparks also highlights a school where growth mindset is cultivated among teachers and students. Finally, the resilience theory is explored through Santos (2015) and Ledesma (2014). Self-efficacy is described through the work of Bandura (1977).

Summary of Literature Review

There is a considerable amount of literature on growth mindset and the use of growth mindset interventions in various educational settings including elementary and secondary school classrooms. These studies have pointed to the effectiveness and ineffectiveness of growth mindset interventions among subcategories of children in education including those diagnosed as gifted, or with a learning disability (LD). The philosophical underpinnings of growth mindset intervention, including resilience theory and self-efficacy, have been described as to their relevance in this study.

Chapter Three will provide an outline of the research questions, survey research, questionnaire, sample, and population. The chapter also looks at data collection, data analysis, assumptions, and ethical considerations. A summary of the methodology concludes the chapter.

Chapter Three: Methodology and Research Design

In this chapter, I provide an outline of the methodology used to explore the research questions in this study. The chapter includes an outline of the research questions, survey research, questionnaire, sample, and population. In addition, this chapter outlines data collection and data analysis procedures, assumptions, ethical considerations, and informed consent.

Research Questions

There are five research questions in this study.

1. What do educators perceive to be true about their knowledge of growth mindset intervention?
2. What, if any, tools have teachers implemented in their classrooms and perceive to address children and youth with varying mental health concerns?
3. Do teachers perceive that the use of growth mindset intervention in Ontario schools helps to address problems with mental health and emotional well-being?
4. Is there a relationship between teachers' perceptions of growth mindset intervention and years of teaching experience?
5. Is there a relationship between teachers' perceptions of growth mindset intervention and divisional teaching experience?

Survey Research

Survey research was chosen as the research design for this study. Surveys have been used in education for many years. During the early 20th century, the modern survey began to emerge and with it came improvements in sampling techniques and the development of different scales of measurement (Creswell, 2014, p. 379). In recent years, survey research has expanded to include electronic surveys, such as computer and telephone questionnaires. Surveys are

commonly used to complete market research, and public opinion research (Neuman, 2000, as cited in Creswell, 2014; Dillman, Smyth, & Christian, 2014). Survey research has contributed to many societal trends and has helped to improve the ways in which we operate in society.

According to Dillman et al. (2014) there are four cornerstones to quality surveys including coverage error, sampling error, nonresponse error, and measurement error. In this research study, appropriate measures were taken, as much as possible, to ensure these errors did not have an undue impact on the results of the study. Coverage errors occur when the sample does not accurately represent the population (Dillman et al., 2014, p. 3). For the purposes of this research study, the coverage included three closed Facebook groups comprised of Ontario educators. This meant that the sample members represented the population of Ontario educators.

Sampling error occurs when a research study surveys only some members of a sample, instead of the whole population (Dillman, 2014, p. 3). Sampling error results from collecting data from only a subset, rather than the entire sampling frame (Dillman, 2014, p. 59). The questionnaire was available only to educators who were members of three closed Facebook groups. Sampling error was a concern in this research study as I was able only to access some teachers through the closed Facebook groups.

Nonresponse error happens when there is a difference between the estimates produced when only some of the sample responds compared to when the entire sample responds (Dillman et al., 2014, p. 3). Nonresponse error occurs when the perceptions of those who did not respond differ from those who did respond (Dillman et al., 2014, p. 3). The concern for nonresponse error in the current research study is that it may be that only teachers who have had positive experiences using growth mindset interventions responded to the questionnaire because they were motivated to share their experiences. This may result in a difference between the responses

collected from respondents and the possible responses from the entire sample. When analyzing the results of the research study, it was important to note the possibility of nonresponse error.

Finally, measurement error occurs when respondents do not provide accurate answers either because they are unable or unwilling (Dillman et al., 2014, p. 3). The survey created for this research study is voluntary, short, and easy to follow. The population for this research study is teachers who are educated and capable of following instructions. It is assumed that respondents who completed the survey were willing and able to follow the questions and format of the survey. However, measurement error could impact the results of the survey if unwilling respondents felt obligated to complete the questionnaire. The responses from these individuals might be dishonest or they might answer "unsure" to all questions. Every effort was made to ensure that potential participants knew the questionnaire was voluntary. Additionally, several individuals, including my research supervisor and the Nipissing University Ethics Board, to ensure it was easy to follow, reviewed the online questionnaire.

Based on the information I gained about survey research through Dillman et al. (2014) and Creswell (2014), I chose survey research because it helped me to identify which teachers (based upon years of experience and divisional experience) implement growth mindset intervention, and where and how growth mindset intervention is being implemented. This research design enabled me to determine perceived teacher knowledge and implementation of growth mindset. It also revealed teachers' perceptions about whether the strategies and tools were useful in addressing mental health and emotional well-being among students. Survey research allowed me to explore "important beliefs and attitudes of individuals" (Creswell, 2014, p. 379) about growth mindset intervention and to describe relationships among variables. The

results from this survey could influence the type of programming and professional development offered around growth mindset as it pertains to Board and School level improvement plans.

The survey design used in this study was a cross-sectional survey design. A cross-sectional survey design is when a researcher collects data at one point in time (Creswell, 2014, p. 615). This design is ideal for measuring current attitudes, beliefs, opinions, and practices (Creswell, 2014, p. 380). The benefit of the cross-sectional survey design is that a considerable amount of information can be collected in a short amount of time. Survey research can come in many forms including telephone questionnaires, web-based questionnaires, mail questionnaires, and mixed-mode questionnaires.

Dillman et al. (2014) discuss four types of questionnaires: telephone, web-based, mail, and mixed-mode. According to Dillman et al. it costs more to complete an interview by telephone than in the past (p. 259). In comparison, web-based questionnaires are becoming more attractive because of speed, low cost, and economies of scale. When looking at mail questionnaires, while response rates may be higher than in the past, it takes multiple contacts to ensure that response rates and the quality of the responses are high (Dillman et al., 2014, p. 396). Finally, mixed-mode questionnaires are now a necessity for most surveys to achieve high-quality data (Dillman et al., 2014, p. 448). Given the complexity of this type of questionnaire, one that has moved away from the individualistic mode orientation and my limited experience with survey research, I decided not to pursue this method. When determining which mode of survey research to complete, response rate and cost were two important factors that I considered.

As a result, a single web-based questionnaire was used as the instrument for the study. Though it is much easier to locate a pre-existing instrument, I did not find one that was

applicable to this study. The questionnaire I developed included closed-ended questions and demographic questions.

Questionnaire

The survey was conducted using a web-based questionnaire through FluidSurveys (www.fluidsurveys.com), a survey instrument for collecting data on the Internet. There are many research studies that have used web-based questionnaires to access participants and collect data. Kern, Rivera, Chandler, and Humpal (2013) used SurveyMonkey, an online survey program to evaluate the status of music therapy practices for clients with Autism Spectrum Disorder (ASD). Rosenberg, Law, Anderson, Samango-Sprouse, and Law (2012) used an Internet-based research data base, the Interactive Autism Network (IAN) to access data for more than 10,000 individuals diagnosed with ASD and 20,000 of their immediate family members. The IAN Project was maintained by the Internet Mediated Research System, MDLogix, Baltimore, MD.

Creswell (2014) raises advantages and disadvantages to using web-based questionnaires. While they are able to gather extensive data quickly, there are methodological concerns that must be recognized. Sometimes web-based questionnaires result in low response rates and may be biased toward certain demographic groups that tend to use computers (Creswell, 2014, p. 387). Teachers are a group of professionals who use technology, including computers, as part of their teaching practice. This may include, but not be limited to, completing report cards, attendance, developing lesson plans, researching topics, and online collaboration. As a result, this may modulate concerns about bias toward certain demographic groups as Creswell explains that all teachers use computers in some way.

Participants in this study were able to access the web-based questionnaire via a Facebook post on one of three closed Facebook groups including Nipissing University Teachers, Ontario

Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing. When the questionnaire was opened, participants read over the Participant Information Letter and Informed Consent Statement. When they agreed to the conditions, they clicked the "I Agree" button and proceeded onto the following page, which contained the survey questions. If the individuals did not agree to the Informed Consent Statement, and did not wish to participate in the research study, they would have to exit out of the window/tab on the Internet. The survey was accessible at http://fluidsurveys.com/surveys/amilak/growth-mindset-intervention/

The questionnaire was comprised of closed-ended questions and demographic questions. Many of the closed-ended questions used the Likert-type scale. For the questions using the Likert-type scale, the following codes were used: 1=strongly disagree, 2= disagree, 3= unsure, 4=agree, 5= strongly agree with the exception of questionnaire item 11. It used the following codes: 1= n/a, 2= ineffective, 3= unsure, 4= somewhat effective, 5= effective. Other closed-ended questions used checklists or yes/no responses. To complete the demographic questions, participants clicked on all of the multiple choice options that applied to them.

The first section of the questionnaire dealt with teacher experiences with mental health. Using a checklist, teachers selected from a list of mental health diagnoses they may have had experience with when teaching children and youth. The second section used the Likert-type scale to address questions regarding growth mindset. Specifically, the questions addressed teachers' experience, confidence, and capability with growth mindset intervention. The questions delved into understanding whether growth mindset intervention is effective and addresses mental health concerns among children and youth.

The third section of the questionnaire used a Likert-type scale and checklists to learn about the kinds of strategies teachers use as part of their growth mindset intervention. The

Likert-type scale was used to assess whether teachers perceive tools and strategies they have used to be effective or ineffective. Finally, the fourth section of the questionnaire dealt with demographic questions including years of teaching experience, divisional (Primary, Junior, Intermediate, Senior) experience, and teaching assignments. At the end of the questionnaire, the participants were thanked for their time and additional information and sources were provided should they wish to learn more about growth mindset. Finally, the participants were provided appropriate supports if they were feeling distressed after completing the questionnaire. Contact information for the Ontario Mental Health Helpline and Good2talk Organization was provided.

A table of specificity that describes the relationship between the survey questions and the three research questions is presented in Table 1.

Sample and Population

Nonprobability purposive sampling was used to identify participants in the study. According to Creswell (2014) and Ritter and Sue (2007) in nonprobability sampling, "the researcher selects individuals because they are available and convenient and represent some characteristic the investigator seeks to study" (Creswell, 2014, p. 144).

The target population was Ontario educators, including elementary and secondary school teachers who are members of the following closed Facebook groups: Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing. There are 3,392 members of the Nipissing University Teachers Facebook group, 24,007 members of the Ontario Teachers Resource Sharing & Idea Sharing Facebook group, and 5,639 members of the Ontario Teachers (Primary) -resource and idea sharing Facebook group. It is not known how many of the respondents belonged to more than one of these groups. The resultant sample size for the study was 142 respondents. While this is

very low, the sample size of 142 is acceptable. In survey research, a small sample even of 100 is considered a sufficient response (Dillman et al., 2014).

Survey sampling can be a powerful tool. According to Dillman et al. (2014) if conducted properly, a completed simple random sample of 100 individuals could produce results with 95% confidence (p. 80). Based on this information, the sample size of the current survey (142) produced results with confidence, reflective of the perceptions and attitudes of the population.

Data Collection

Data were collected through a web-based questionnaire by nonprobability purposive sampling. The Research Ethics Board at Nipissing University (see Appendix B) approved permission to gather data via closed Facebook groups. After obtaining permission from the Administrators of the Facebook groups (Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing) I posted my information followed by a link to a self-administered web-based questionnaire using FluidSurveys. The survey was posted on October 31, 2015 and removed December 3, 2015. The data was saved on a password protected computer and collected over that time span. It was transferred from FluidSurveys into the Statistical Package for the Social Sciences (SPSS). SPSS is a computer software program used to complete statistical analysis including descriptive statistics, and inferential statistics. I chose to use SPSS because the questionnaire results from FluidSurveys can be transferred over to SPSS seamlessly.

Data Analysis

The questionnaire was divided into three sections for the purposes of data analysis based on the three research questions. Descriptive statistics were calculated to indicate overall trends gathered from the questionnaire using measures of central tendency. Creswell (2014) explains

that descriptive statistics "indicate general tendencies in the data, the spread of scores, or a comparison of how one score relates to all others" (p. 180).

The Likert-type scale questions, numbers 3 to 9 on the survey, were converted into points/scores from 1 (strongly disagree) to 5 (strongly agree). The response of 3 was defined as "unsure" and was included in the data analysis. Question 11 using the Likert-type scale was converted into points/scores from 2 (ineffective) to 5 (effective). The response of 1 was defined as "N/A" and 3 was defined as "unsure." For the purposes of data analysis, a response of 1 was not calculated in the mean and standard deviation. Only responses of 2 through 5 were used. The remainder of the questions, including those that were checklists were not scored or given a point. Frequency count tables were used to organize, describe, and summarize these data to indicate patterns and trends.

Using the responses from the demographic questions, including years of teaching experience, divisional (Primary, Junior, Intermediate, Senior) experience and teaching assignments, the questionnaire responses were divided into groups. Inferential statistics, including ANOVA (Analysis of Variance) was used to determine whether significant relationships exist among variables and to compare the group means of their responses to the questions. This analysis was used to determine whether significant differences occurred in perceptions of teachers according to their teaching division (Primary, Junior, Intermediate, Senior) and years of teaching experience (0-5, 5-10, 10-15, 16+ years of experience). A Bonferroni post hoc test, with an alpha level of 0.01 was conducted to determine significant differences in the scores among groups.

Assumptions

Assumptions made in this study are duly noted. Firstly, it is assumed that all members of the Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing were current or past teachers in Ontario.

Secondly, it is assumed that the respondents were honest when they completed the self-administered questionnaire. Because this survey was completed independently by the respondents and unsupervised, it cannot be determined if any influences impacted the respondents responses.

Finally, it can be assumed that the population from which the sample is taken is normally distributed. The sample size for this research study was 142.

Ethical Considerations

The study involved human participants and was reviewed by the Research Ethics Board (REB) of Nipissing University before the research began. The application was approved by the Research Ethics Board at Nipissing on October 13, 2015. The researcher contacted the Administrators of the three selected Facebook groups: Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing. Once permission was gained by the Administrators, the researcher posted on the wall of each of the three groups. The wall post included a brief outline of the research, a link to the web-based questionnaire on FluidSurveys, and an attached Participant Information Letter. The participant information letter and Facebook post can be found in Appendices C and D.

Due to the nature of the web-based questionnaire, all respondents remained anonymous. There were no questions on the survey that included specific participant identifiers. When participants clicked on the link to the survey from their Facebook group, a Participant Information Letter was provided and an Informed Consent Statement was provided. When the

participants clicked the “I Agree” button below the Informed Consent Statement, they were aware of the fact that completion of the questionnaire implied consent. Participants also were made aware of the fact that the survey could not be deleted at a later point. Once the questionnaire was completed, the data were not retrievable. At the conclusion of the questionnaire, participants were provided contact numbers for counselling services (Ontario Mental Health Helpline, Good2talk Organization) should they feel any distress after participating in the research study. As per APA guidelines, the data will be securely stored for 5 years and then destroyed. The survey was posted from October 31, 2015 to December 3, 2015.

Summary of Methodology

In short, the participants for the study were gathered using three closed Facebook groups including Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing. Nonprobability purposive sampling was used and all participants who were willing and able to participate were included. The web-based questionnaire asked Ontario teachers about their perceived understanding of growth mindset, what tools/strategies they have used and their perceived observations of what is effective/ineffective. When all the survey data were collected, the responses were scored and descriptive and inferential statistics were used.

Chapter Four begins with a synopsis of the sample of teachers who completed the online questionnaire. Second, the chapter reports on the findings of the descriptive statistics discussing overall trends among the data. Third, the chapter includes inferential statistics that were used to analyze differences among the data based on years of experience and divisional teaching experience. Finally, the chapter concludes with answering the research questions.

Table 1

Table of Specificity: Teacher Perceptions Survey of Growth Mindset Intervention

Research question	Questionnaire items	Analysis
What do educators perceive to be their knowledge of growth mindset intervention?	3-5	Descriptive statistics, Inferential statistics
What, if any, tools have teachers implemented in their classrooms and perceive to address children and youth with varying mental health concerns?	10-11	Descriptive statistics, Inferential statistics
Do teachers perceive that the use of growth mindset intervention in Ontario schools helps to address mental health problems and emotional well-being?	1-2, 6-9, 12	Descriptive statistics, Inferential statistics

Chapter Four: Results

The purpose of this study was to determine teachers' perceived understanding of growth mindset, use of strategies/tools for growth mindset, and how they impacted student mental health and emotional well-being. This chapter includes a profile of the sample and reports on the results from the web-based questionnaire. The findings are based on the responses of 142 respondents who accessed the survey through one of the following Facebook groups: Nipissing University Teachers, Ontario Teachers Resource Sharing & Idea Sharing, and Ontario Teachers (Primary) – resource and idea sharing. The percentages of teachers with experience of varying mental health problems are displayed. The mean scores of the responses to perceived teacher knowledge and perceived effectiveness of growth mindset tools and strategies are reported. The percentage of participants who have used various growth mindset intervention tools and strategies are shown. The percentage of participants who observed changes in their students through growth mindset intervention is noted. The percentage of participants with knowledge of *Supporting Minds* (Ontario Ministry of Education, 2013) and who have received professional development around it are mentioned. The relationship between number of years of teaching experiences and the mean responses to perceived teacher knowledge and perceived effectiveness of growth mindset tools and strategies are reported. The relationship between divisional experience (Primary, Junior, Intermediate, Senior) and perceived teacher knowledge and perceived effectiveness of growth mindset tools and strategies are outlined. The chapter concludes by answering the research questions.

Profile of the Sample

The sample of the study consisted of 142 respondents who voluntarily chose to complete the self-administered questionnaire. The population includes current or past Ontario educators.

When the questionnaire was posted on October 31, 2015, there were 3,392 members of the Nipissing University Teachers group, 24,007 members of the Ontario teachers- resource and idea sharing group, and 5,639 members of Ontario Teachers (Primary)- resource and idea sharing group. As mentioned, it is unknown how many of the teachers belonged to more than one group.

Based on the responses of the 142 teachers, 54 (38.3%) reported 0-5 years experience, 49 (34.8%) reported 6-10 years experience, 19 (13.5%) reported 11-15 years experience, 14 (9.9%) reported 16-20 years experience, and 7 (5.0%) reported 21 years or more experience teaching. With regards to divisional experience and in which division teachers have spent the majority of their teaching career, 66 (46.8%) reported the Primary division, 46 (32.6%) reported the Junior division, 42 (29.8%) reported the Intermediate division, 13 (9.2%) reported the Senior division. See Table 2 for further explanation.

Results of the Questionnaire

Descriptive statistics used in this analysis will be discussed for each questionnaire item in terms of the mean scores. First, to evaluate teacher knowledge of growth mindset intervention, the results of questionnaire items numbered 3 to 5 were examined to learn about teachers' perceptions regarding growth mindset. The results indicate a general agreement among respondents according to the standard deviation, which indicates a low spread of responses (SD <1.0).

The results of the growth mindset questionnaire found that for questionnaire item #3, respondents agreed with the statement, I am familiar with the term growth mindset, with a mean score of 4.1 and a standard deviation of 0.9. For questionnaire item #4, respondents were unsure with the statement, I feel confident in my knowledge of growth mindset intervention, with a mean score of 3.5 and a standard deviation of 0.8.

For questionnaire item #5, respondents were unsure with the statement, I feel capable of delivering and teaching growth mindset intervention, with a mean score of 3.4 and a standard deviation of 0.9. Table 3 shows the means and standard deviation for these questionnaire items.

Second, to evaluate teacher experience with growth mindset intervention and experience with mental health, the results from questionnaire items 1, and 6 to 9 were examined. For questionnaire item #1, 98% of respondents said Yes to the question: Do you have experience working with students who have mental health concerns? For questionnaire item #6, respondents were unsure with the statement, I have seen improvements with students with mental health concerns after growth mindset intervention, with a mean score of 3.5 and a standard deviation of 0.8. Table 3 displays the means and standard deviations for the responses of questionnaire items 3 to 5.

For questionnaire item #7, respondents strongly agreed with the statement, I think that more professional development and training is needed for educators on mental health, with a mean score of 4.8 and a standard deviation of 0.6. Respondents agreed with the statement, I think that additional training on growth mindset intervention would benefit students' varying mental health concerns on questionnaire item #8, with a mean score of 4.1 and a standard deviation of 0.8. Respondents were unsure with the statement from questionnaire item #9, growth mindset intervention helped to address mental health concerns in my classroom with a mean score of 3.6 and a standard deviation of 0.7. Table 4 displays the means and standard deviations of questionnaires items 6 to 9.

Of the 98% of respondents who indicated that they have experience working with students who have mental health concerns, the four most common mental health concerns were anxiety, with 86.1% of respondents reporting experience, oppositional defiant disorder with

73.1% of respondents reporting experience, anger with 66.4% of respondents reporting experience, and depression with 60.6% of respondents reporting experience. For a complete list of mental health concerns and the percentage of respondents who reported experience, see Table 5.

Third, to evaluate teacher use and perceived effectiveness of growth mindset intervention tools and strategies, the results from questionnaire items 10 and 11 were examined. Of the 142 respondents, 81.6% reported using explicit teaching of growth mindset vs. fixed mindset as part of their growth mindset intervention. While 3.2% of respondents indicated that they used Brainology Student Program, 44.0% watched Youtube videos, 8.8% used Mindset Works Resources, 75.2% reported classroom discussions about growth mindset, 65.6% gave frequent formative feedback, 72.8% rewarded attainment not effort, 29.6% had motivational speakers, 23.2% used Genius Hour, 65.6% reported providing all students with challenging opportunities, 68.0% created anchor charts, 12.8% selected Khan Academy, and 5.6% responded with Other. See Table 6 for further clarification.

As part of the questionnaire, respondents indicated the effectiveness of the tools and strategies they used as part of their growth mindset intervention. Respondents who had not used a particular tool or strategy responded with a score of 1 (Not Applicable). Responses with a score of 1 were not calculated toward the mean. The score of 2 indicated ineffective, the score of 3 indicated the respondent was unsure, and the scores of 4 and 5 indicated that the tool/strategy was somewhat effective or effective.

For explicit teaching of growth mindset vs. fixed mindset, respondents felt it was effective at addressing mental health concerns with a mean score of 4.1 and a standard deviation of 0.6. The Brainology Student Program was considered effective, with a mean score of 4.6 and a

standard deviation of 0.9. Youtube Videos were viewed as effective at addressing mental health concerns with a mean score of 4.2 and a standard deviation of 0.7. Mindset Works Resources was judged effective, with a mean score of 4.0 and a standard deviation of 0.9. Classroom discussions about growth mindset were deemed effective at addressing mental health concerns, with a mean score of 4.0 and a standard deviation of 0.6. Frequent formative feedback was regarded as effective, with a mean score of 4.2 and a standard deviation of 0.6. For rewarding attainment, respondents believed it to be effective at addressing mental health concerns with a mean score of 4.3 and a standard deviation of 0.7. For motivational speakers, the majority found it to be effective at addressing mental health concerns with a mean score of 4.5 and a standard deviation of 0.8. For Genius Hour, respondents indicated it was effective, with a mean score of 4.1 and a standard deviation of 0.8. For providing all students with challenging opportunities, respondents thought the strategy was somewhat effective at addressing mental health concerns with a mean score of 4.1 and a standard deviation of 0.7. For anchor charts, the majority of respondents felt it was ineffective at addressing mental health concerns, with a mean score of 3.8 and a standard deviation of 0.6. Finally, for Khan Academy, they were unsure if it was ineffective, with a mean score of 3.6 and a standard deviation of 0.9. Table 7 displays the results of the effectiveness of the tools and strategies. It shows the number of respondents who indicated having no experience and selected Not Applicable. The table indicates the means and standard deviations of the effectiveness of the tools and strategies.

Fourth, to evaluate teachers' perceived observations after growth mindset intervention, question 12 was examined. The results indicated that many observations were made after growth mindset intervention. The most frequent observations include the following: 80.4% of respondents selecting students with increased self-esteem, 75.0% of respondents observing

students who appeared to be more engaged in their learning, and 69.6% of respondents choosing students who appeared to be happier. Additionally, the following observations were selected among some of the respondents: 65.2% of respondents indicating students who appeared to be more engaged in their academics, and 60.7% of respondents noticing students with perceived resilience. Other observations that were noted, but occurred less frequently among respondents include the following: 32.1% of respondents selecting decrease in the number of perceived mental health concerns, 25.0%, students who appeared to be more engaged in their social relationships, and 20.5% students who appeared to be more engaged in their co-curricular activities. Table 8 shows the percentage of observations from the sample.

Finally, to evaluate teacher knowledge and experience with the Ontario Ministry of Education document *Supporting Minds*, questions 13 and 14 were examined. Of the 142 respondents, 71 (50%) reported being familiar with the document and 71 (50%) reported not being familiar with the document. Of the 71 respondents who reported being familiar with the document, only 8.6% had received professional development or training regarding it. See Table 9.

To better understand how years of teaching experience and divisional experience influence teacher use, knowledge, and perceived impact of growth mindset intervention, the results were divided by respondent profiles.

Years of Teaching Experience

Table 10 displays the one-way analyses of variance, and Table 11 displays the Bonferroni post hoc analyses between questionnaire items and years of teaching experience. The results indicate there were no significant differences among responses of teachers with varying years of

teaching experience. This suggests that years of teaching experience did not impact an educator's perceptions or use of growth mindset knowledge, tools, and strategies.

Divisional Teaching Experience

Table 12 displays the one-way analyses of variance, and Table 13 displays the Bonferroni post hoc analyses between questionnaire items and divisional teaching experience. The results indicate there was one significant difference among responses of teachers with varying divisional teaching experience for one questionnaire item.

For questionnaire item 14, have you received any professional development or training on the document *Supporting Minds*, there was a significant difference between the responses of teaching who taught in the Primary division (1.97) and those who taught in the Senior division (1.63). The significant difference was 0.34. Respondents who taught in the Senior division received more professional development on *Supporting Minds* than those who taught in the Primary division.

Summary of Results

The results of teacher knowledge of growth mindset indicate that of the respondents, most know what it is, but feel unsure about delivering growth mindset intervention. Though teachers were unsure about whether growth mindset intervention addressed mental health concerns, they did feel that additional training on growth mindset intervention would help teachers and, consequently, would benefit students' varying mental health needs. The most commonly used growth mindset intervention tools and strategies used were explicit teaching and classroom discussions about growth mindset. Based on the responses of teachers with experience using the various tools and strategies, the Brainology Student Program and Motivational Speakers were the most effective at addressing mental health concerns. Over half of the

participants perceived that growth mindset intervention increases resilience, made students happier, and more engaged in their academics and learning. Finally, the results indicate that half of the respondents knew about the Ontario Ministry of Education (2013) document *Supporting Minds.* Of those who did know about it, few had received any formal learning opportunities. In general, the standard deviation of the mean scores of the questionnaire items indicated that there was a general agreement among respondents, which meant that there were no significant differences of opinion, with the exception of questionnaire item 14 where there was a difference in access to professional development of the Ontario Ministry of Education (2013) document *Supporting Minds*. Overall, there was a significant difference in responses for those who taught in the Primary division and those who taught in the Senior division with one of the questionnaire items, indicating that teachers with experience in the Senior division were more likely to have received additional training on *Supporting Minds*.

Chapter Five summarizes the study, and discusses the results of the study in greater detail. The chapter also looks at implications of current research and recommendations for further research are suggested. Finally, the limitations of the study are explained.

Table 2

Profile of the Sample: Years of Experience, Divisional Experience

Category	Subcategory	Respondents	
		n	%
Years of teaching experience			
	0-5	54	38.3%
	6-10	49	34.3%
	11-15	19	13.5%
	16-20	14	9.9%
	21+	7	5.0%
Divisional experience			
	Primary (FDK-Grade 3)	66	46.8%
	Junior (Grades 4-6)	46	32.6%
	Intermediate (Grades 7-10)	42	29.8%
	Senior (Grades 11-12)	13	9.2%

Table 3

Means and Standard Deviations of Responses from Questionnaire (#3-5)

Question	Mean	SD
3. I am familiar with the term 'growth mindset'.	4.1	0.9
4. I feel confident in my knowledge of Growth Mindset Intervention.	3.5	0.8
5. I feel capable of delivering and teaching Growth Mindset Intervention.	3.4	0.9

Note: Scale 1= Strongly disagree, 5= strongly agree

Table 4

Means and Standard Deviations of Responses from Questionnaire (#6-9)

Question	Mean	SD
6. I have seen improvements with students with Mental Health concerns after Growth Mindset Intervention.	3.5	0.8
7. I think that more professional development and training is needed for educators on Mental Health.	4.8	0.6
8. I think that additional training on Growth Mindset Intervention would benefit students' varying mental health concerns.	4.1	0.8
9. Growth Mindset Intervention helped address Mental Health concerns in my classroom.	3.6	0.7

Note: Scale 1= Strongly disagree, 5= strongly agree

Table 5

Percentage of Mental Health Incidences

Diagnosis	% of sample with experience
Anxiety	86.1%
Depression	60.6%
Eating Disorder	29.2%
Bipolar Disorder	8.8%
Obsessive Compulsive Disorder	29.2%
Addictions/Substance Abuse	8.0%
Self-Harm	46.7%
Suicide	18.2%
Panic Attacks	28.5%
Oppositional Defiant Disorder	73.7%
Conduct Disorder	16.1%
Behaviour Disorder	38.7%
Grief and Loss	33.6%
Anger	66.4%
Personality Disorder	7.3%
Mood Disorder	10.2%
Trauma and PTSD	10.9%
Other	2.9%

Table 6

Percentage of Checked Responses for Strategies and Tools

Strategy/Tool	% selected	% not selected
Explicit teaching of growth mindset vs. fixed mindset	81.6%	18.4%
Brainology Student Program	3.2%	96.8%
Youtube videos	44.0%	56.0%
Mindset Works Resources	8.8%	91.2%
Classroom discussions about growth mindset	75.2%	24.8%
Frequent formative feedback	65.6%	34.4%
Rewarding effort not attainment	72.8%	27.2%
Motivational speakers	29.6%	70.4%
Genius Hour	23.2%	76.8%
Providing all students with challenging opportunities	65.6%	34.4%
Anchor charts	68.0%	32.0%
Khan Academy	12.8%	87.2%
Other	5.6%	94.4%

Table 7

Means and Standard Deviations for Responses of Effectiveness of Strategies and Tools

Strategy/Tool	# of respondents who selected N/A	Mean	SD
Explicit teaching of growth mindset vs. fixed mindset	27	4.1	0.6
Brainology Student Program	113	4.6	0.9
Youtube videos	68	4.2	0.7
Mindset Works Resources	106	4.0	0.9
Classroom discussions about growth mindset	33	4.0	0.6
Frequent formative feedback	41	4.2	0.6
Rewarding effort not attainment	33	4.3	0.7
Motivational speakers	80	4.5	0.8
Genius Hour	94	4.1	0.8
Providing all students with challenging opportunities	43	4.1	0.7
Anchor charts	41	3.8	0.6
Khan Academy	102	3.6	0.9

Note: Scale 1= N/A, 2= Ineffective, 3= Unsure, 4= Somewhat effective, 5= Effective

Table 8

Percentages of Responses to Teacher Observations on Growth Mindset Intervention

Teacher Observations	% selected	% not selected
Students with increased self-esteem.	80.4%	19.6%
Students with perceived resilience.	60.7%	39.3%
Students who appeared to be more engaged in their academics.	65.2%	34.8%
Students who appeared to be more engaged in their co-curricular activities.	20.5%	79.5%
Students who appeared to be more engaged in their social relationships.	25.0%	75.0%
Students who appeared to be happier.	69.6%	30.4%
Students who appeared to be more engaged in their learning.	75.0%	25.0%
Decrease in the number of perceived mental health concerns.	32.1%	67.9%

Table 9

Percentage of Responses on Supporting Minds

Questions	% Responded 'Yes'	% Responded 'No'
Are you familiar with the Ontario Ministry of Education document *Supporting Minds*?	50.0%	50.0%
Have you received any professional development or training on the document *Supporting Minds*?	8.6%	91.4%

Table 10

One-Way Analysis of Variance between Questionnaire Items and the Numbers of Years of Teaching Experience

		Sum of squares	*df*	Mean square	*F*	*p*
Question 3	Between groups Within groups Total	1.608 122.540 124.148	4 137 141	.402 .894	.450	.773
Question 4	Between groups Within groups Total	4.134 101.302 105.437	4 137 141	1.034 .739	1.398	.238
Question 5	Between groups Within groups Total	2.202 109.017 111.218	4 137 141	.550 .796	.692	.599
Question 6	Between groups Within groups Total	4.398 88.849 93.246	4 137 141	1.099 .649	1.695	.155
Question 7	Between groups Within groups Total	1.770 46.604 48.373	4 137 141	.442 .340	1.300	.273
Question 8	Between groups Within groups Total	4.131 91.587 95.718	4 137 141	1.033 .669	1.545	.193
Question 9	Between groups Within groups Total	2.109 70.539 72.648	4 137 141	.527 .515	1.024	.397
Question 13	Between groups Within groups Total	1.867 33.626 35.493	4 137 141	.467 .245	1.902	.114
Question 14	Between groups Within groups Total	.266 10.720 10.986	4 137 141	.067 .078	.850	.496

*$p < .01$=significant

Table 11

Bonferroni Post Hoc Analyses: Comparisons of Questionnaire Items and the Number of Years of Teaching Experience

Questionnaire Item	Divisional Experience	Mean		Mean difference	Std. error	*p*
Question 3	0-5	3.98	6-10	-.164	.186	1.000
			11-15	-.070	.251	1.000
			16-20	-.202	.301	1.000
	6-10		21+	-.446	.379	1.000
	11-15	4.15	0-5	.164	.186	1.000
			11-15	.093	.256	1.000
			16-20	.063	.305	1.000
	16-20		21+	-.283	.383	1.000
	21+	4.05	0-5	.070	.251	1.000
			6-10	-.093	.256	1.000
			16-20	-.031	.349	1.000
			21+	-.376	.418	1.000
		4.98	0-5	.101	.301	1.000
			6-10	-.063	.305	1.000
			11-15	.031	.349	1.000
			21+	-.345	.450	1.000
		4.43	0-5	.446	.379	1.000
			6-10	.283	.383	1.000
			11-15	.376	.418	1.000
			16-20	.345	.450	1.000
Question 4	0-5	3.37	6-10	-.333	.169	.508
			11-15	-.099	.228	1.000
			16-20	.042	.274	1.000
	6-10		21+	-.482	.345	1.000
	11-15	3.71	0-5	.333	.169	.508

			11-15	.235	.233	1.000
			16-20	.375	.278	1.000
	16-20		21+	.149	.348	1.000
	21+	3.47	0-5	.099	.228	1.000
			6-10	-.235	.233	1.000
			16-20	.140	.317	1.000
			21+	-.383	.380	1.000
		3.33	0-5	-.042	.274	1.000
			6-10	-.375	.278	1.000
			11-15	-.140	.317	1.000
			21+	-.524	.409	1.000
			0-5	.482	.345	1.000
		3.86	6-10	.149	.348	1.000
			11-15	.383	.380	1.000
			16-20	.524	.409	1.000
Question 5	0-5	3.27	6-10	-.190	.175	1.000
			11-15	-.258	.237	1.000
			16-20	.101	.284	1.000
	6-10		21+	-.304	.358	1.000
	11-15	3.46	0-5	.190	.175	1.000
			11-15	-.068	.242	1.000
			16-20	.292	.288	1.000
	16-20		21+	-.113	.361	1.000
	21+	3.53	0-5	.258	.237	1.000
			6-10	.068	.242	1.000
			16-20	.360	.329	1.000
			21+	-.045	.394	1.000
		3.17	0-5	-.101	.284	1.000
			6-10	-.292	.288	1.000
			11-15	-.360	.329	1.000
			21+	-.405	.424	1.000
		3.57	0-5	.304	.358	1.000
			6-10	.113	.361	1.000

			11-15	.045	.394	1.000
			16-20	.405	.424	1.000
Question 6	0-5	3.39	6-10	-.378	.158	.184
			11-15	-.186	.214	1.000
			16-20	.060	.256	1.000
	6-10		21+	-.036	.323	1.000
	11-15	3.77	0-5	.378	.158	.184
			11-15	.192	.218	1.000
			16-20	.438	.260	.946
	16-20		21+	.342	.326	1.000
	21+	3.58	0-5	.186	.214	1.000
			6-10	-.192	.218	1.000
			16-20	.246	.297	1.000
			21+	.150	.356	1.000
		3.33	0-5	-.060	.256	1.000
			6-10	-.438	.260	.946
			11-15	-.246	.297	1.000
			21+	-.095	.383	1.000
			0-5	.036	.323	1.000
		3.43	6-10	-.342	.326	1.000
			11-15	-.150	.356	1.000
			16-20	.095	.383	1.000
Question 7	0-5	4.77	6-10	.018	.115	1.000
			11-15	-.074	.155	1.000
			16-20	-.065	.186	1.000
	6-10		21+	.482	.234	.411
	11-15	4.75	0-5	-.018	.115	1.000
			11-15	-.092	.158	1.000
			16-20	-.083	.188	1.000
	16-20		21+	.464	.236	.511
	21+					
		4.84	0-5	.074	.155	1.000
			6-10	.092	.158	1.000
			16-20	.009	.215	1.000

			21+	.556	.258	.327
		4.29	0-5	.065	.186	1.000
			6-10	.083	.188	1.000
			11-15	-.009	.215	1.000
			21+	.548	.277	.504
		4.29				
			0-5	-.482	.234	.411
			6-10	-.464	.236	.511
			11-15	-.556	.258	.327
			16-20	-.548	.277	.504
Question 8	0-5	3.96	6-10	-.223	.161	1.000
			11-15	-.457	.217	.372
			16-20	-.036	.260	1.000
	6-10		21+	-.464	.328	1.000
	11-15	4.19	0-5	.223	.161	1.000
			11-15	-.234	.222	1.000
			16-20	.188	.264	1.000
	16-20		21+	-.464	.331	1.000
	21+	4.42	0-5	.457	.217	.372
			6-10	.234	.222	1.000
			16-20	.421	.301	1.000
			21+	-.008	.362	1.000
		4.00	0-5	.036	.260	1.000
			6-10	-.188	.264	1.000
			11-15	-.421	.301	1.000
			21+	-.429	.389	1.000
			0-5	.464	.328	1.000
		4.43	6-10	.241	.331	1.000
			11-15	.008	.362	1.000
			16-20	.429	.389	1.000
Question 9	0-5	3.50	6-10	-.279	.141	1.000
			11-15	-.079	.191	1.000
			16-20	.000	.228	1.000
	6-10		21+	.214	.288	1.000

	11-15	3.73	0-5	.229	.141	1.000
			11-15	.150	.194	1.000
			16-20	.229	.232	1.000
	16-20		21+	.443	.290	1.000
	21+	3.58	0-5	.079	.191	1.000
			6-10	-.150	.194	1.000
			16-20	.079	.265	1.000
			21+	.293	.317	1.000
		3.50	0-5	.000	.228	1.000
			6-10	-.229	.232	1.000
			11-15	-.079	.265	1.000
			21+	.214	.341	1.000
			0-5	-.214	.288	1.000
		3.58	6-10	-.443	.290	1.000
			11-15	-.293	.317	1.000
			16-20	-.214	.341	1.000
Question 13	0-5	1.59	6-10	.173	.097	.787
			11-15	.168	.132	1.000
			16-20	.173	.158	1.000
	6-10		21+	-.268	.199	1.000
	11-15	1.42	0-5	-.173	.097	.787
			11-15	-.004	.134	1.000
			16-20	.000	.160	1.000
	16-20		21+	-.440	.200	.297
	21+					
		1.42	0-5	-.168	.132	1.000
			6-10	.004	.134	1.000
			16-20	.004	.183	1.000
			21+	-.436	.219	.485
		1.42	0-5	-.173	.158	1.000
			6-10	.000	.160	1.000
			11-15	-.004	.183	1.000
			21+	-.440	.236	.637
		1.86				
			0-5	.268	.199	1.000
			6-10	.440	.200	.297

			11-15	.436	.219	.485
			16-20	.440	.236	.637
Question 14	0-5	1.93	6-10	-.009	.055	1.000
			11-15	.086	.074	1.000
			16-20	.095	.089	1.000
	6-10		21+	-.071	.112	1.000
	11-15	1.94	0-5	.009	.055	1.000
			11-15	.095	.076	1.000
			16-20	.104	.090	1.000
	16-20		21+	-.063	.113	1.000
	21+	1.84	0-5	-.086	.074	1.000
			6-10	-.095	.076	1.000
			16-20	.009	.103	1.000
			21+	-.158	.124	1.000
		1.83	0-5	-.095	.089	1.000
			6-10	-.104	.090	1.000
			11-15	-.009	.103	1.000
			21+	-.167	.133	1.000
			0-5	.071	.112	1.000
		2.00	6-10	.063	.113	1.000
			11-15	.158	.124	1.000
			16-20	.167	.133	1.000

*$p < .01$

Table 12

One-Way Analysis of Variance between Questionnaire Items and Divisional Experience

		Sum of squares	*df*	Mean square	*F*	*p*
Question 3	Between groups Within groups Total	2.596 121.551 124.148	3 138 141	.865 .881	.983	.403
Question 4	Between groups Within groups Total	2.508 102.929 105.437	3 138 141	.836	1.121	.343
Question 5	Between groups Within groups Total	2.783 108.435 111.218	3 138 141	.928 .786	1.181	.320
Question 6	Between groups Within groups Total	.544 92.703 93.246	3 138 141	.181 .672	.270	.847
Question 7	Between groups Within groups Total	2.714 45.659 48.373	3 138 141	.905 .331	2.735	.046
Question 8	Between groups Within groups Total	5.030 90.688 95.718	3 138 141	1.677 .657	2.552	.058
Question 9	Between groups Within groups Total	4.274 68.374 72.648	3 138 141	1.425 .495	2.875	.038
Question 13	Between groups Within groups Total	.405 35.088 35.493	3 138 141	.135 .254	.531	.662
Question 14	Between groups Within groups Total	.878 10.108 10.986	3 138 141	.293 .073	3.995	.009*

*p< .01=significant

Table 13

Bonferroni Post Hoc Analyses: Comparisons of Questionnaire Items and Divisional Experience

Questionnaire Item	Divisional Experience	Mean		Mean difference	Std. error	*p*
Question 3	Primary	4.19	Junior	.186	.189	1.000
			Intermediate	.096	.204	1.000
	Junior		Senior	.561	.354	.688
	Intermediate	4.00	Primary	-.186	.189	1.000
			Intermediate	-.091	.218	1.000
	Senior		Senior	.375	.362	1.000
		4.09	Primary	-.096	.204	1.000
			Junior	.091	.218	1.000
			Senior	.466	.370	1.000
		3.63	Primary	-.561	.354	.668
			Junior	-.275	.362	1.000
			Intermediate	-.266	.370	1.000
Question 4	Primary	3.64	Junior	.215	.174	1.000
			Intermediate	.129	.188	1.000
	Junior		Senior	.519	.325	.678
	Intermediate	3.43	Primary	-.215	.174	1.000
			Intermediate	-.087	.201	1.000
	Senior		Senior	.304	.333	1.000
		3.52	Primary	-.129	.188	1.000
			Junior	.087	.201	1.000
			Senior	.390	.340	1.000
		3.13	Primary	-.519	.325	.678
			Junior	-.304	.333	1.000
			Intermediate	-.390	.340	1.000
Question 5	Primary	3.53	Junior	.192	.179	1.000
			Intermediate	.313	.193	.637
	Junior		Senior	.400	.334	1.000
	Intermediate	3.33	Primary	-.192	.179	1.000
			Intermediate	.121	.206	1.000
	Senior		Senior	.208	.342	1.000

		3.21	Primary	-.313	.193	.637
			Junior	-.121	.206	1.000
			Senior	.087	.349	1.000
		3.13	Primary	-.400	.334	1.000
			Junior	-.208	.342	1.000
			Intermediate	-.087	.349	1.000
Question 6	Primary	3.59	Junior	.141	.165	1.000
			Intermediate	.017	.178	1.000
	Junior		Senior	.093	.309	1.000
	Intermediate	3.45	Primary	-.141	.165	1.000
			Intermediate	-.123	.191	1.000
	Senior		Senior	-.048	.316	1.000
		3.58	Primary	-.017	.178	1.000
			Junior	.123	.191	1.000
			Senior	.076	.323	1.000
		3.50	Primary	-.093	.309	1.000
			Junior	.048	.316	1.000
			Intermediate	-.076	.323	1.000
Question 7	Primary	4.73	Junior	.134	.116	1.000
			Intermediate	-.211	.125	.566
	Junior		Senior	-.271	.217	1.000
	Intermediate	4.60	Primary	-.134	.116	1.000
			Intermediate	-.344	.134	.067
	Senior		Senior	-.405	.222	.422
		4.94	Primary	-.211	.125	.566
			Junior	.344	.134	.067
			Senior	-.061	.227	1.000
		5.00	Primary	.271	.217	1.000
			Junior	.405	.222	.422
			Intermediate	.061	.227	1.000
Question 8	Primary	4.05	Junior	0.98	.164	1.000
			Intermediate	-.373	.176	.215
	Junior		Senior	-.324	.305	1.000
	Intermediate	3.95	Primary	-.098	.164	1.000
			Intermediate	-.472	.189	.081
	Senior		Senior	-.423	.313	1.000

			Primary	.373	.176	.215
		4.42	Junior	.472	.189	.081
			Senior	.049	.319	1.000
			Primary	.324	.305	1.000
		4.38	Junior	.423	.313	1.000
			Intermediate	-.049	.319	1.000
Question 9	Primary	3.64	Junior	.311	.142	.183
			Intermediate	-.144	.153	1.000
	Junior		Senior	.144	.265	1.000
	Intermediate	3.33	Primary	-.311	.142	.183
			Intermediate	-.455	.164	.038
	Senior		Senior	-.167	.272	1.000
		3.79	Primary	.144	.153	1.000
			Junior	.455	.164	.038
			Senior	.288	.277	1.000
		3.50	Primary	-.144	.265	1.000
			Junior	.167	.272	1.000
			Intermediate	-.288	.277	1.000
Question 13	Primary	1.51	Junior	-.063	.102	1.000
			Intermediate	.054	.110	1.000
	Junior		Senior	.133	.190	1.000
	Intermediate	1.57	Primary	.063	.102	1.000
			Intermediate	.117	.117	1.000
	Senior		Senior	.196	.195	1.000
		1.45	Primary	-.054	.110	1.000
			Junior	-.117	.117	1.000
			Senior	.080	.199	1.000
		1.38	Primary	-.133	.190	1.000
			Junior	-.196	.195	1.000
			Intermediate	-.080	.199	1.000
Question 14	Primary	1.97	Junior	.038	.055	1.000
			Intermediate	.087	.059	.840
	Junior		Senior	.341*	.102	.006
	Intermediate		Primary	-.038	.055	1.000
		1.93	Intermediate	.050	.063	1.000
	Senior		Senior	.304	.104	.025
			Primary	-.087	.059	.840

		1.88	Junior	-.050	.063	1.000
			Senior	.254	.107	.112
			Primary	-.341*	.102	.006
		1.63	Junior	-.304	.104	.025
			Intermediate	-.254	.107	.112

*$p < .01$

Chapter Five: Discussion

As previously mentioned, the purpose of this research study was to understand teachers' perceptions of their knowledge and use of growth mindset interventions. Additionally, the research study sought to explore the perceived effectiveness of tools and strategies with growth mindset intervention as they relate to mental health concerns, self-esteem, and resilience. To accomplish this, a sample of 142 Ontario teachers completed an online questionnaire posted on the Nipissing University Teachers, Ontario Teachers (Primary)- teacher resource and idea sharing, and Ontario teachers' resource and idea sharing Facebook groups.

The results indicate a general agreement among teacher responses. The results show that most teachers are aware of growth mindset intervention and feel that additional professional development for teachers on growth mindset would benefit students with varying mental health concerns. Additionally, there was a strong consensus among the sample that more professional learning needs to be provided on mental health as 98% of respondents indicated they had worked with students with mental health concerns.

Of the tools and strategies used by Ontario teachers, explicit teaching and classroom discussions were the most commonly held practices. The tools and strategies that teachers found to be most effective at reducing perceived mental health concerns included the Brainology Student Program and Motivational Speakers. After growth mindset interventions, teachers observed differences among their students including students with increased self-esteem, and students that appeared to be more engaged in their learning with over 75% of the respondents noting these observations. These results indicate the positive impact that various growth mindset interventions can have on children and youth in schools, and the role that teachers can play in

supporting the development of student self-esteem, and resilience, both of which can aid in good mental health.

Discussion of the Findings

In this section, the results of the research study are examined to understand teacher knowledge, use, and observations of growth mindset intervention. First, the importance of the research study is outlined. Second, the results of the growth mindset items on the questionnaire are explored and connections to previous literature are discussed. Third, the results of the mental health incidence items on the questionnaire are explored. Finally, a summary of the discussion is provided.

This study is important because there are an increasing number of students with varying mental health concerns as noted in *Supporting Minds* (Ontario Ministry of Education, 2013). Given the fact that few teachers in Ontario have any formal education or training for dealing with mental health incidences, it is essential that we look at how, in our capacity as educators, we can support children and youth struggling with these issues. Students who lack self-esteem and resilience are less likely to develop strategies to cope with mental illness. In this research study, growth mindset interventions have been shown to increase student confidence and outlook on learning situations. This study has provided insight into the linkages between mental illness, self-esteem, resilience, and growth mindset.

Upon analyzing the results from the questionnaire, it was evident among growth mindset questions that the respondents had similar opinions. While the majority of respondents agreed with being familiar about the term growth mindset, they were unsure about whether they were confident or capable of delivering growth mindset intervention. Additionally, respondents had similar opinions about the effectiveness of growth mindset intervention and its place in

addressing mental health concerns. The results indicated that respondents were unsure about seeing improvements with students with mental health concerns after growth mindset intervention, but agreed that additional training on growth mindset intervention would benefit students' varying mental health needs. This suggests that while teachers may be aware of the mental health concerns and different forms of growth mindset intervention, they may not know how to properly intervene with students who have mental health concerns. They do not appear to be confident in their ability to deliver growth mindset intervention. The teachers in this study indicated that additional training on growth mindset intervention would be beneficial for dealing with students' varying mental health concerns.

The most commonly used tool/strategy as part of the respondents' growth mindset intervention was explicit teaching of growth mindset versus fixed mindset. The least common tool/strategy used were both the Brainology Student Program and Mindset Works Resources. This is important to note because even though the Brainology Student Program was the least used tool, it was the most effective at addressing mental health concerns for those who had used it. Additionally, Donohoe et al. (2012) described the effectiveness of these programs as increasing the growth mindset of students as demonstrated in their pre and post mindset scores. Other tools and strategies that the teachers in this study indicated they used included classroom discussions about growth mindset, rewarding attainment not effort, anchor charts, providing all students with challenging opportunities, and frequent formative feedback.

Based on their observations of students, the respondents noted some perceived differences among students after growth mindset intervention. There was an increase in student self-esteem, followed by students who appeared to be more engaged in their learning. Additionally, respondents saw students with perceived resilience, students who appeared to be

more engaged in their academics, and students who appeared to be happier. Fewer than half of the respondents felt that they saw a decrease in the number of perceived mental health concerns. While teachers may not be properly trained to determine mental health concerns, the research study focused on their perceived observations. While growth mindset intervention may not have had an impact on mental health concerns, it clearly did make a difference in many ways for students, as noted.

This research study shed light on the number of mental health incidences that teachers face on a regular basis. Ninety-eight percent of the respondents indicated that they had dealt with students who had mental health concerns. The results indicate that over half of the respondents had experience dealing with four types of mental health concerns including anxiety, depression, oppositional defiant disorder, and anger. Additionally, more than a third of the respondents had experience dealing with students who had self-harm, behaviour disorder, grief and loss.

The *Supporting Minds* document was released in 2013 by the Ontario Ministry of Education to help educate teachers on the growing number of mental health incidences, yet only half of the respondents had ever heard of the document. Of the half that had heard of *Supporting Minds* only 8% had received any formal training or professional development on the document. With 98% of respondents working with students who have mental health concerns, it would seem as though more teachers should be exposed to and have further knowledge provided about this document.

Limitations

This study, as in most studies, has a number of potential limitations. These limitations were discussed previously in Chapter Three. According to Dillman et al. (2014), there are four types of error that should be minimized at all costs to ensure a quality survey. These errors

include: sampling error, coverage error, nonresponse error, and measurement error. Though appropriate measures were taken to avoid such errors and ensure a quality survey, there were limitations.

First, coverage error may have occurred in this study. The survey did not account for those teachers who do not have Facebook accounts or do not use Facebook. There were no attempts made to survey every Facebook group because the research study was aiming for a representative sample. Even though this did limit the study, three of the larger teacher Facebook groups were chosen.

Second, sampling error occurred in this study. The sample collected from the three Facebook groups may not have provided an equal representation of teachers with varied years of experience and from each geographic location or school board. Because of this, some cohorts (e.g., newer teachers) and geographic regions or school boards may be over underrepresented or overrepresented. This could have influenced the results, as some teachers may know more about growth mindset intervention than others. Additionally, some school boards and geographic regions may have more of a focus on growth mindset intervention. For example, teachers in the Simcoe County District School Board are more likely to be familiar with growth mindset as it is one of the pillars for the Board Learning Plan. If a substantive number of teachers from this board responded to the study, this may have impacted the results.

Next, nonresponse error occurred in this study. Nonresponse error occurred because of the voluntary nature of the sample. Nonresponse error is possible because teachers who are more likely to respond may be those who held positive beliefs about growth mindset intervention. In an effort to eliminate nonresponse error, the invitation to complete the online questionnaire was

sent out once on the Facebook groups. Also, the online questionnaire was clearly laid out and easy to follow which made it more likely for respondents to complete once they started it.

Measurement error was limited in the study, as respondents remained anonymous. Because their identities were unknown, respondents might be more willing to respond accurately to the questionnaire items.

Finally, the sample size was a limitation to the research study. There were 142 respondents who completed the online questionnaire. This resulted in a low response rate. This may mean that the results of the research study are not as accurate or reflective of current teachers' beliefs and perceptions of growth mindset. A larger sample size would have provided more accurate results.

Delimitations

The study had delimitations that were imposed by the researcher that may influence and limit the generalization of the findings. The study obtained information only from Ontario teachers who were a part of the three Facebook groups: Nipissing University Teachers, Ontario teachers- resource and idea sharing, and Ontario Teachers (Primary)- resource and idea sharing. Because the study obtained responses only from those teachers who were a part of the three Facebook groups, the findings may not be as generalizable as possible. However, given the time frame, this was the most feasible way to access a larger sample size.

Additionally, a self-administered questionnaire was completed by the participants. The questionnaire used the Likert-type scale (1-5). There were two different response scales used on the survey. Some participants may have interpreted the scales differently than others. Additionally, they may have thought that one scale was consistently being used throughout the survey. This may result in some inconsistencies among the results. In an effort to get as many

respondents as possible, the questionnaire was designed to be brief. Because there were a limited number of questions, the questions may not have provided a thorough scope of participant perceptions about knowledge and use of growth mindset intervention.

Implications

The results of the research study suggest that while Ontario teachers are familiar with growth mindset, they are unsure about their confidence and capabilities to deliver growth mindset intervention. Additionally, they were unsure that some of the tools and strategies they have used address varying mental health concerns. Teachers observed improvements in self-esteem, approaches to learning, and perceived resilience through growth mindset intervention.

The results have implications for professional development in elementary and secondary education, and initial teacher training programs. Based on the information gained through this research study, it is evident that the majority of teachers do not feel prepared to work with students who have varying mental health concerns. As such, it is important that teachers are prepared to support and foster a positive learning environment for these students. Initial teacher training programs should include discussions and learning about mental health in elementary and secondary schools. School boards across Ontario should consider ways that they can use current tools, such as *Supporting Minds* (Ontario Ministry of Education, 2013) to provide their teachers with the tools and strategies necessary for students to succeed.

Additionally, the results have indicated the need for more supports within our school boards to be made available to students including child and youth workers, social workers, and psychologists. Other resources need to be made available to educators by teaching them how to support their students with varying mental health needs. There were many tools and strategies from the survey that teachers were not familiar with through their growth mindset intervention.

These tools and strategies could be explained and taught to teachers through different professional development avenues. Because the results of the research study indicated that teachers were unsure if the tools and strategies they were using were effective, opportunities could be made available to discuss what perceived changes among students would indicate the tools and strategies had positive impact.

The observations of students made by the respondents indicate the positive impact that growth mindset intervention can have on student self-esteem. Respondents also perceived growth mindset intervention to influence students' approaches to learning and increase their happiness and their approaches to learning. While growth mindset intervention may not be the answer to solving the mental health incidences in our schools, it can certainly provide aid to the situation. By building students' self-esteem and resiliency, they may be able to one day tackle their mental health issues.

Recommendations for Future Research

The purpose of this study was to explore teachers' perceived knowledge, use, and effectiveness of growth mindset interventions. In addition, the study sought to determine how the growth mindset interventions impacted varying mental health concerns among children and youth. The study explored how years of teaching experience and divisional teaching experience influence growth mindset understanding, use, and effectiveness. The results of the study indicated that while teachers are aware of growth mindset, their level of confidence and experience with several strategies is limited. Teachers tended to use only a few types of tools and strategies as part of their growth mindset intervention. The respondents observed improvements in students' self-esteem, happiness, resilience, and positive approaches to learning situations. These results brought forth a number of additional questions that need to be answered.

Further research is needed to determine whether, in the long term, consistent and sustained use of growth mindset intervention has an impact on one's mental health, since it has shown to positively impact self-esteem and resilience, markers of good mental health. Additionally, further research is needed to determine whether there are any specific tools or strategies that play a more positive role in growth mindset intervention, and whether different tools or strategies should be targeted to specific audiences (i.e., Primary, Junior, Intermediate, or Senior level students). This research would involve a longitudinal study including qualitative and quantitative data.

Recommendations for Teacher Practice

The results of the study found that most teachers were unsure about their level of confidence and capability for delivering growth mindset intervention. This suggests that professional development should be made available to help teachers develop a level of confidence and capability. The findings also suggest that while half of the surveyed teachers knew about *Supporting Minds* (Ontario Ministry of Education, 2013), very few had received any formal direction or understanding about the document. This indicates a need for more learning opportunities and promotion of this document. In addition, the results showed that teachers had limited experience with a broad range of growth mindset intervention tools and strategies. There should be more opportunities provided for professional development.

Most shocking are the results of teachers' experiences with mental health incidences. Of the 142 respondents, 98% (139 respondents) indicated having experience with students who had various mental health concerns. There is a need for educators to have tools and strategies at their fingertips to help support their students. The results suggest a need for more mental health

support to be offered in our schools. Perhaps with the new 2-year Initial Teacher Training Program, new teacher candidates will be educated on mental health in Ontario schools.

Conclusion

The number of children and youth facing mental health concerns continues to grow. As such, teachers are now faced with the task of dealing with some of the symptoms of these concerns. These symptoms can have an impact on student achievement and the student's learning environment. In order to meet the needs of today's children and youth, teachers need to be equipped with the tools and strategies necessary to deal with mental health incidences. This research study looked at the role that growth mindset intervention plays in tackling this issue. While most teachers did not feel that growth mindset intervention brought with it a decrease in the number of mental health cases, they did observe it to improve students' self-esteem, resilience, happiness, and approaches to their learning, all of which can contribute to a more positive learning environment. Growth mindset intervention is an approach that teachers can use to help foster positive and healthy learning environments while helping students developing positive, more open mindsets.

This research study has shed some light on the number of mental health concerns in our elementary and secondary school system. With 98% of respondents indicating that they have worked with students who have varying mental health needs, it is important that we recognize the need now to deal with this situation. How do we as teachers help with this mental health crisis in our society? How can teachers with their level of professional training address the needs of their students who are struggling to cope with less than optimal mental health? As a teacher, it is frustrating to watch students' conditions continue to deteriorate while they wait for a referral to be seen by someone. There are not enough social workers and child and youth workers in our

schools to deal with the number of students who are suffering. As teachers, the majority of us have minimal training dealing with mental health and in our own professional judgment should not attempt to treat our students. With more children and youth experiencing mental health concerns, we should see more support staff available to sit down and talk with our students, to help them develop strategies to cope with their issues.

Mental health impacts everyone; whether it is the individual who is experiencing the difficulty, or his/her family, friends, and community. As recently seen in La Loche, Saskatchewan, unresolved mental health issues can lead to tragedy. On January 22, 2016, a young 17-year-old boy went on a shooting rampage killing four and injuring several others. The victims were classmates and teachers from his local school. La Loche is a remote, First Nations community that has a high rate of mental health incidences and lack of resources to deal with them. This unfortunate tragedy is evidence of what can transpire when mental health is not addressed. In addition to the recent school shooting, this community deals with substance abuse and high suicide rates. These were some of the mental health concerns that were reported by respondents in the research study. Eighteen percent of respondents indicated they had experience working with students who had committed suicide. That is an alarmingly high number.

In the wake of school shootings, it is not surprising that money has been invested in enhanced safety measures for schools; however, this comes at the cost of diverting money away from addressing student need and safety. Children's Mental Health Ontario determined that over 500,000 children in the province struggle with mental health concerns (Martin, 2013). This statistic was reflected in the current research study. To add to that, funding is not equally distributed among communities for mental health services. It is widely known that First Nations communities have higher than average rates of mental illness, yet they receive less funding. The

Canadian Human Rights Tribunal ruled that the federal government discriminates against First Nation children on reserves by failing to provide the same level of child welfare services that exist in other places throughout the country.

Because mental health services are not being properly addressed throughout the country and an increasing number of children and youth are experiencing mental health concerns, the need exists for available resources, including teachers, to be able to assist their students with these problems. If funding is not going to be properly allocated to supporting mental health in schools, the problem has to be solved elsewhere. Teachers will need to find ways within their role to help their students. This research study has helped to gain insight on the importance of supports needed for mental health and the kinds of mental health concerns that teachers are facing. The current study has demonstrated the need for more training to be provided to teachers on how to deal with students who experience varying mental health issues. This research study indicated the possibility of more growth mindset intervention training for teachers creating the possibility of teachers being able to bring about some positive change.

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Appendix A

Glossary of Terms

Fixed mindset- the belief that one's abilities are fixed; static and cannot change.

Growth mindset-the belief that one's abilities can change over time.

Intermediate division- teachers who are qualified to teach grades seven to ten and possess one teachable subject.

Junior division-teachers who are qualified to teach grades four to six.

Neuropsychology-the relationship between behaviour, emotion, and the brain

Primary division-teachers who are qualified to teach Full-Day Kindergarten to grade three.

Senior division-teachers who are qualified to teach grades eleven and twelve and possess one teachable subject.

Appendix B

Nipissing University Research Ethics Board Approval

October 13, 2015

Ms. Alexandra Milak
Schulich School of Education
Nipissing University

File No: 100720
Expiry Date: October 13, 2016

Dear Alexandra,

It is our pleasure to advise you that the Research Ethics Board (REB) has review your protocol titled 'Change Your Words, Change Your Mindset: Growth Mindset Intervention in Ontario Schools' and has granted ethical approval. Your protocol has been approved for a period of one year.

Modifications: Any changes to the approved protocol or corresponding materials must be reviewed and approved through the amendment process prior to its implementation.

Adverse/Unanticipated Event: Any adverse or unanticipated events must be reported immediately via the Research Portal.

Renewal/Final Report: Please ensure you submit an Annual Renewal or Final Report 30 days prior to the expiry date of your ethics approval. You will receive an email prompt 30 days prior to the expiry date.

Wishing you great success on the completion of your research.

Sincerely,

Dana R. Murphy, PhD
Chair, Research Ethics Board

Please note: If you encounter any issues when working in the Research Portal, please contact our system administrator via romeoadmin@nipissingu.ca

Appendix C

Participant Information Letter/Informed Consent

NIPISSING UNIVERSITY

Growth Mindset Intervention in Ontario Schools

PARTICIPANT INFORMATION LETTER

Dear Potential Participant,

As an Ontario educatoryou are invited to participate in a study on growth mindset intervention in Ontario, conducted by Alexandra Milak, a graduate student at Nipissing University. The purpose of this study is to gain a better understanding of teachers' perceived knowledge of growth mindset intervention and to determine what tools and strategies teachers perceive to be most effective at addressing varying mental health concerns. The study will provide feedback and suggest ways in which growth mindset intervention may be effectively used in classrooms.

In the questionnaire that follows you will be asked to respond to 15 questions. It will take about 5-10 minutes to complete. If you choose to participate, you may skip questions that you do not want to answer and you can exit at any time. The questionnaire can only be opened once, meaning that you cannot save the questionnaire and reopen it at a later time. Partial questionnaires will be accepted.

Due to the nature of the questionnaire, there are no known risks to participating in the study. There will be no personal information collected through the questionnaire. No specific IP addresses or any potentially identifying information will be associated with the information provided. If identifying information is inadvertently collected, these comments will be de-identified by the researcher. You are free to withdraw from the study by closing the questionnaire, however, due to the anonymous nature of the questionnaire, you cannot withdraw from the study after submitting the questionnaire as the data is not identified as belonging to you.

The information and data collected through the study will be accessed only by Alexandra Milak and her supervisor, Dr. Darlene Brackenreed. The collected data will be disposed of within 5 years of the completion of the study. It will be securely deleted from SPSS. In addition all printed data will be shredded.

A summary of the results from this study will be made available on the Facebook group from which you accessed this questionnaire.

If you have any questions or concerns about the research study, please feel free to contact either Dr. Brackenreed or myself. This study has been reviewed and received ethics clearance through

Nipissing University's Research Ethics Board. If you have questions regarding your rights as a research participant, contact: Ethics Administrator, Nipissing University, 100 College Drive, North Bay, ON P1B 8L7 or ethics@nipissingu.ca.

If you have any questions or concerns, please contact Alexandra Milak at ammilak689@community.nipissingu.ca, 705-817-2085 or Dr. Darlene Brackenreed, darleneb@nipissingu.ca, Phone 705-474-3450, EXT 4502.

Thank you for considering participating in this research.

Sincerely,
Alexandra Milak, ammilak689@community.nipissingu.ca
Dr. Darlene Brackenreed, darleneb@nipissingu.ca

Please read through the following Informed Consent Statement and select the "I Agree" button in order to proceed with the study.

INFORMED CONSENT STATEMENT

If I agree to participate I understand that: I will complete an anonymous online questionnaire regarding growth mindset intervention. No personal information will be collected and any information that I provide that might indicate my identity will be removed by the researcher. The information I will share will remain strictly anonymous and private.

Participation is strictly voluntary and I am free to withdraw from the study at any moment or refuse to participate without any penalty or consequence. If I am uncomfortable with any particular question, I may refuse to answer. I am under no obligation to participate and I am free to withdraw at any time without any prejudice to pre-existing entitlements.

The data from this study will be used in research and publications. Data will be kept securely on a password protected computer and only the researcher will have access to them.

I acknowledge that the following support resources are available should I desire to use them.
Good2talk organization: 1-866-925-5454

Ontario Mental Health Helpline: 1-866-531-2600

☐ I AGREE

Appendix D

Facebook Post Invitation to Participate in Research Study

Dear Colleagues in Education,

My name is Alexandra Milak and I am a Master of Education candidate at Nipissing University. I am completing my Major Research Paper on growth mindset intervention. Through this research, I will gain a better sense of the perceived knowledge of growth mindset intervention and what tools and strategies may be helpful for children and youth with varying mental health, and emotional health and well-being concerns. This study may provide some insight into what perceived tools and strategies are beneficial for students.

I am requesting your help in the completion of this study. I am inviting Ontario educators (Kindergarten to Grade 12) to participate in my online questionnaire. It should take approximately 5-10 minutes to complete and participants will remain anonymous.

The letter of consent and survey can be accessed at
http://fluidsurveys.com/surveys/amilak/growth-mindset-intervention/

Thank you,

Alexandra Milak

Appendix E

Growth Mindset Intervention in Ontario Schools Questionnaire

GROWTH MINDSET INTERVENTION IN ONTARIO SCHOOLS QUESTIONNAIRE

Thank you for agreeing to participate. The data collected here is completely anonymous. Please answer as many questions as you can. The survey cannot be saved, but partial questionnaires will be accepted. Completion and submission of this questionnaire implies consent to participate in the study.

1.) Do you have any experience working with students who have Mental Health concerns?

____ Yes ____ No

2.) If you answered Yes, what were some of the diagnoses? Please check off all that apply:

___ Anxiety
___ Depression
___ Eating Disorder
___ Bipolar Disorder
___ Obsessive Compulsive Disorder
___ Addictions/Substance Abuse
___ Self-Harm
___ Suicide
___ Panic Attacks
___ Oppositional Defiant Disorder
___ Conduct Disorder
___ Behaviour Disorder
___ Grief and Loss
___ Anger
___ Personality Disorder
___ Mood Disorder
___ Trauma and PTSD
___ Other (please specify) _____

Please indicate your agreement with the following statements by using the scale 1- strongly disagree, 2- disagree, 3- unsure, 4-agree, 5- strongly agree.

3.) I am familiar with the term 'growth mindset'.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

4.) I feel confident in my knowledge of Growth Mindset Intervention.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

5.) I feel capable of delivering and teaching Growth Mindset Intervention.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

6.) I have seen improvements with students with Mental Health concerns after Growth Mindset Intervention.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

7.) I think that more professional development and training is needed for educators on Mental Health.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

8.) I think that additional training on Growth Mindset Intervention would benefit students' varying mental health concerns.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

9.) Growth Mindset Intervention helped to address Mental Health concerns in my classroom.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

10.) What tools/strategies have you used as part of your Growth Mindset Intervention? Please check off all that apply:

___Explicit teaching of growth mindset vs. fixed mindset
___Brainology Student Program
___Youtube videos
___Mindset Works Resources
___Classroom discussions about growth mindset
___Frequent formative feedback
___Rewarding effort not attainment
___Motivational speakers
___Genius Hour
___Providing all students with challenging opportunities

___Anchor charts
___ Khan Academy
___Other (please specify) _____

11.) Based on the tools and strategies you indicated that you have used in question #10, how effective were they in addressing mental health concerns?

	N/A	Ineffective	Unsure	Somewhat effective	Effective
Explicit teaching of growth mindset vs. fixed mindset	1	2	3	4	5
Brainology Student Program	1	2	3	4	5
Youtube videos	1	2	3	4	5
Mindset Works Resources	1	2	3	4	5
Classroom discussions about growth mindset	1	2	3	4	5
Frequent formative feedback	1	2	3	4	5
Rewarding effort not attainment	1	2	3	4	5
Motivational speakers	1	2	3	4	5
Genius Hour	1	2	3	4	5
Providing all students with challenging opportunities	1	2	3	4	5
Anchor charts	1	2	3	4	5
Khan Academy	1	2	3	4	5

12.) Which of the following did you observe among students after Growth Mindset Intervention? Please check off all that apply:

___ Students with increased self-esteem
___ Students with perceived resilience
___ Students that appeared to be more engaged in their academics
___ Students that appeared to be more engaged in their co-curricular activities
___ Students that appeared to be more engaged in their social relationships
___ Students that appeared to be happier
___ Students that appeared to be engaged in their learning
___ Decrease in the number of perceived mental health concerns

13.) Are you familiar with the Ontario Ministry of Education document "Supporting Minds"?

____ Yes ____ No

14.) Have you received any professional development or training on the document "Supporting Minds"?

____ Yes ____ No

Demographic Questions:

How many years of experience do you have as an Ontario educator?

1	2	3	4	5
0-5 years	6-10 years	11-15 years	16-20 years	20+ years

In which division have you spent the majority of your teaching career?

1	2	3	4	5
Primary	Junior	Intermediate	Senior	N/A

You have reached the end of the questionnaire. Thank you for your time and participation in the questionnaire on Growth Mindset Intervention in Ontario schools.
For more information on Growth Mindset, please visit the following sites:
Mindset: http://mindsetonline.com/whatisit/about/
Mindset Works: https://www.mindsetworks.com/