Teachers’ Perspectives on the Integration of Critical Thinking in Elementary and Secondary Classrooms

By

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Abstract

This qualitative study served to investigate elementary and secondary school teachers’ perspectives on the use of critical thinking in the classroom. The study examines some of the effects integrating CT can have on student learning. Three semi-structured interviews were conducted with both elementary and secondary teachers. Through an analysis of the data, four broad themes emerged: classroom and school environments, teacher perceptions of critical thinking, teacher experiences with incorporating critical thinking, and lack of student engagement. After analyzing the data, implications and recommendations were made for the educational research community, as well as suggestions for future areas of research.

Keywords: critical thinking, teacher experiences, teacher perceptions, student disengagement
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Chapter One: Introduction

1.0 Introduction to the Research Study

One of the many roles teachers have today is to support young learners in becoming thoughtful, motivated members of society. Certainly, one task of educators is that of equipping students with knowledge to help them become excellent problem solvers.

One pedagogical approach that educators can use to help prepare students for the world outside of the classroom is Critical Thinking (CT) (Kettler, 2014; Ontario Ministry of Education, 2013). In the past, the role of a teacher has sometimes been thought of a “transmitter of knowledge” (Swartz, 2004). Instead, moving forward, the role of the teacher is to observe how the students learn, and help guide them through the process of engaging and interacting with information. Knowledge is acquired through critical engagement with information.

The pedagogical concept of CT is not a new one; it has been at the forefront of conversations about education for the past thirty years (Case, 2005). One of the main scholars in the field of CT is Lipman (1987). A philosopher and educator, Lipman thought of CT as “thinking with criteria” (p. 5). As a professor at Columbia University, Lipman found his students to be under-thinking, which was incredibly problematic. To help positively change how his students think, Lipman started with the youngest students in formal education, those in Kindergarten. He founded Philosophy for Children (Martin, 2011) to introduce philosophical concepts at a young age so that students would begin to interact with their knowledge at the beginning of their education, with the hope that this would continue. Lipman understood CT “to be defined by three characteristics (1) it is self-corrective thinking; (2) it is thinking with criteria; and (3) it is thinking that is sensitive to context” (p.5). This definition of CT has provided a reference point throughout this study.
CT is currently a major topic of conversation in the world of education. The Ministry of Education has just released a draft of a document that focuses on what students will need to succeed in the 21st century (Draft, Ministry of Education, 2016). Within this document, CT is highlighted as one of the key skills for students to learn that indicate success. As an educational tool it is included in numerous Ontario curriculum documents (Ontario Ministry of Education, 2005; 2006; 2007; 2009; 2013; 2015; 2016). Students are being encouraged and challenged at a younger age to think critically and independently. Young learners have the capacity to think critically and should have high expectations set for them in regards to the contribution that they can make in the world. By providing the skills to young students of how to think critically, educators can validate student learning and self-concept.

1.1 Purpose of the Study

The purpose of this study is to investigate elementary and secondary school teachers’ use of CT in the classroom. Today’s education system has evolved into one that provides tools for student success that they can use for the rest of their lives (Kettler, 2014). The main goal of education has always been for students to attain knowledge, but now there is support that knowledge can only be attained through CT (Paul, 1993). A recent fear of educators is that too strong of a focus on inquiry/CT based education is leading to lower test scores because students are not learning ‘the basics’ (Case et al., 2015). The problem this study is interested in, is the extent to which teachers implement CT in classrooms instead of a more traditional method of teaching the curriculum also known as “back to basics” (Case et al.). As there are current hesitations in implementing CT, this study investigates whether or not teachers are integrating the pedagogical approach of CT in the classroom.
1.2 Research Questions

The goal of this study is to learn through the perspective of teachers how CT effects students when it is implemented, its’ benefits to student learning, and the ways in which teachers assess CT. The study hopes to provide insight on CT for other educators through the results. The intention is to provide insight on how to implement CT and the effects of it on the classroom environment and student academic success. Kettler (2014) states that the ability to critically think is an essential skill for everyone to have in order to be successful in life. The revised Ontario Curriculum document for Social Studies (2013) incorporates the use of CT within the “Tools and Strategies to Help Achieve the Vision of the Program,” section of the document; CT is considered to be an important tool within the program to become a “Responsible Active Citizen.” With these ideas in mind, CT is a widely-supported concept within educational research that is a necessary strategy so that students will become active agents in the world at a young age. Therefore, this study’s main research question is: What are teachers’ perspectives on the effects of critical thinking on elementary and secondary students’ learning? More specifically, the study aims to investigate the following:

1. From the perspective of teachers, what are the benefits and challenges of incorporating critical thinking into the classroom?
2. To what extent and with what tools do teachers assess students’ critical thinking?

1.3 Background of the Researcher

The term Critical Thinking is not one I learned until university. I grew up within the Toronto Public School Board, and my experience with education was one that was heavily focused on textbook learning. Knowledge to me meant acquiring facts from textbooks, rephrasing it, and communicating in a number of different ways. The high school I attended in
Toronto is seen as progressive, as it focuses on diversity and community as aspects of the school values. Although this was the case, and I was exposed to different types of thought and knowledge, I was not yet encouraged and challenged to think on my own. Teachers applying critical thinking in the classroom and giving students the opportunity to expand on their responses was not an aspect of my public education in Ontario.

When I was in university classes and was encouraged to think critically, I felt a shift in the climate of the classroom. Students were more likely to challenge each other to produce better work and more thought-out ideas. Because of this experience I would like to provide my students the opportunity to learn in different ways, for example learning from each other. To me critical thinking provides this opportunity. From this study, I would like to know if allowing students to learn in different ways actually benefits them.

1.4 Introduction to Methods

The research methodology used in this qualitative study was semi-structured interviews. The chapter on methodology (chapter three) provides an in-depth response to why this type of study was chosen, including the benefits and limitations, information on each of the participants and the recruitment process that was used. Lastly, the chapter includes the important ethical considerations throughout the process of the study.

1.5 Conclusion

The study is organized into five chapters. Chapter two provides a literature review of previous studies and their connection to the current study. This chapter looks at early studies in CT and the scholars that greatly contributed to the field as well as the relevant research and discussions that have followed. Chapter three provides and describes the research methodology
and the procedure that was used in the study. For the study, three teachers were interviewed, each of them having a background in CT and applying the instructional tool into the classroom. The study was conducted through semi-structured interviews. The interviews were documented manually with their consent. Chapter four describes the research participants and provides an analysis of the data. The data was collected from three semi-structured interviews with experienced teachers, who each had a varying degree of experience with CT. Finally, chapter five explains the implications of the study and recommendations for further research. References and a list of appendices follow at the end of the document.
Chapter Two: Literature Review

2.0 Introduction to the Chapter

An ongoing goal of education has been to provide students with knowledge and the tools to acquire that knowledge. With that in mind I will be examining one particular tool to help students achieve that success — critical thinking (CT). The literature that has been reviewed for this chapter is a combination of primary and secondary sources as well as both quantitative and qualitative studies. The main concept the studies have in common is that they highlight the importance of applying CT into the classroom. This literature review is organized by first explaining the early studies conducted on CT and how that research has effected the studies occurring today. In almost every study that has been reviewed, researchers have argued for why CT needs to be implemented, and I will be discussing their reasoning (Case, 2005; Cooper & White, 2011; Daniel & Gagnon, 2011; Kettler, 2014; Swartz, 2004). In relation to this, researchers have felt strongly to defend why CT should be implemented, so this review will also address why it needs to be justified, and the barriers to CT (Case, 2005; Cooper & White, 2011; Daniel & Gagnon, 2011; Danko-McGhee & Slutsky, 2007; Kettler, 2014; Swartz, 2004). Lastly, this review will discuss how CT can be implemented into the classroom, and a variety of strategies for doing so. After reviewing this literature, my research focuses on how CT effects students, through academic success and student learning, the benefits or challenges for teachers of implementing CT, and how teachers approach assessing CT.

2.1 Early Studies in Critical Thinking

Critical Thinking (CT) has been identified by a number of researchers as essential for quality education (Cooper & White, 2011; Kettler, 2014). With this idea in mind I will provide a background of earlier studies that examine CT, what it is and the importance of implementing it
into the classroom. A scholar who has greatly contributed to the field of research that I will focus on is Lipman (1987). A few other notable individuals who influenced the field of CT are: Luke (1997), Paul (1993), and Sternberg (1986).

Lipman, a philosopher and educator, founded Philosophy for Children in 1974. As a professor at Columbia University he found that his students were largely under-thinking. To combat this problem, he decided to create a foundation that would teach children philosophy and excellent thinking skills beginning in Kindergarten. He not only found that it was possible to implement this level of thinking into the classroom, but that it was incredibly beneficial for his young students (Martin, 2011). Through Philosophy for Children, Lipman (1987) taught and wrote about the importance of integrating thought, and the process of thinking. He recognized that schools had a problem of not focusing on the ability to think as an outcome (Lipman, 1987, p.2). He defined CT as “thinking with criteria” (Lipman, 1987, p.5) and this definition later became a reference point for many researchers’ studies (Aizikovitsh-Udi & Cheng, 2015; Case, 2005; Daniel & Gagnon, 2011; Kettler, 2014; Paul, 1993).

This paper supports the work written by many key researchers but Lipman’s (1987) take on CT aligns best with my understanding of it. For the purpose of this research, CT will be defined and understood by: “three characteristics (1) it is self-corrective thinking; (2) it is thinking with criteria; and (3) it is thinking that is sensitive to context” (Lipman, 1987, p.5). I use this criterion because it not only provides a definition for other current researchers, and for this study, to use as a foundation for gathering more information on the benefits of CT.
2.2 Why Implement Critical Thinking into the Classroom?

2.2.1 Refutes classification of thinking

In the 1950s Benjamin Bloom (1956) designed a taxonomy of thinking, intended to be implemented into the classroom. Bloom identified that knowledge was the primary outcome of curriculum-based learning. From this idea, he created a taxonomy described as “the classifications of the taxonomy in general range from the simple to the more complex behaviours and from the concrete or tangible to the abstract or intangible” (Bloom, p.30). He created this list as a way to help the education system implement a practical means of attaining knowledge into the classroom. It is important to note that Bloom created the taxonomy with this in mind, “curriculum builders should find the taxonomy helps them to specify objectives so that it becomes easier to plan learning experiences and prepare evaluation devices” (Bloom, p.2). This means that the taxonomy was intended to be an evaluation tool for educators, a tool to help educators identify the objectives of their lesson in relation to the curriculum.

This model of thinking and assessment is still largely used in classrooms today; although it can be a helpful tool for assessment, it has also become largely problematic for a couple of reasons. First off Bloom’s Taxonomy (1956) was developed in a traditional wave of educational reform that identified with the Industrial Revolution. Our current society does not fit into this model anymore as we have moved towards a Technological Revolution and Information Age. His classification system is therefore no longer current. Secondly, Bloom’s Taxonomy was designed as an evaluation tool for teachers to assess a hierarchy of knowledge, but “it became popularized as a theory of teaching — prescribing when and how outcomes should be addressed” (Case, 2013, p.2). This means that the theory began with the concept that in order to access a complex task, the educator assumes that the student has already achieved the previous steps. It
has turned into a theory of teaching with the idea that in order to complete a complex task the student has to learn the simple steps first. This creates an assumption that students cannot complete complex tasks or think on this “higher order” to begin with. This assumption has been proven to be inaccurate by researchers who claim that critical thinking is not only attainable by all ages but it is also extremely beneficial (Case, 2005; Cooper & White, 2007; Daniel & Gagnon, 2011; Kettler, 2014; Swartz, 2004).

### 2.2.2 Encourages thinking with judgement

If teachers implemented CT into their classrooms their students would not only be acquiring knowledge, but they would simultaneously be acquiring thinking skills that they will use for the rest of their lives. Kettler (2014) notes that CT skills are essential to education, to students’ lives, and eventually for productive employment. By implementing these skills, teachers are encouraging complex thinking of their students, allowing for student judgment, and allowing them to engage not only with the course material that is presented to them but with the world around them. By allowing and implementing CT into the classroom students can become active agents and thinkers at a young age.

Daniel and Gagnon (2011) conducted a study in which they observed multiple classrooms in which *Philosophy for Children* (P4C) was in practice, and they looked at how P4C affected the students’ thinking skills. They also used Lipman’s (1987) definition of CT, but then built on it by adding a dialogical aspect, as they believed that critical thinking is a mode of thought that occurs socially. They understood that in order for a student to “think well,” they need to exhibit effort of “generating judgment” (p.426). Judgement here should be understood as making considered choices (Case, 2005). Daniel and Gagnon’s work indicates that students are thinking at a complex level at a young age, when they are exposed to dialogical critical thinking. This
study enforces the concept that students have the ability to think in a complex manner at a young age, they just need the tools and scaffolding to do so.

In addition to this study, Cooper and White (2011) looked at how applying CT into a classroom could prevent at-risk schools from receiving low literacy scores. They argue that by providing students with the tools to critically think they can intervene in at risk schools, schools in which literacy scores are normally achieve poor scores. By implementing these skills at a young age they believe that they could increase the literacy rates within the school. The work of these researchers (Daniel & Gagnon, 2011; Cooper & White, 2011) highlight the importance of integrating complex CT into the classroom, specifically at a young age.

2.3 Barriers to Implementing Critical Thinking

Although CT has been at the forefront of conversations about educational reform for the past thirty years, and is mentioned in many curriculum documents, there is still no wide spread notion of it in schools (Case, 2005). Researchers have suggested a variety of reasons that this is the case, but the main issue is teachers’ lack of understanding of how to implement it (Case, 2005; Swartz, 2004).

Case (2005) looks at three main reasons that CT is not at the forefront of the classroom. He begins with explaining that there are a number of research and psychological studies that have stated that there are numerous forms of thinking skills, for example, problem solving and decision making. This is problematic because CT gets lost in the list of thinking “skills” (Case, 2005, p.45). If CT is not the main priority amongst all of these other forms, it cannot be highlighted by teachers because they are given far too many options for how to teach and what is the most important. Secondly, Case (2005) discusses the problem of ranking thinking skills, based off of Blooms Taxonomy (1956) CT is considered to be higher order thinking, creating an
assumption that not all students can critically think. Lastly, in some situations, when CT is implemented into classrooms it can be done so as a separate entity from the course content. The example Case (2005) gave for this is that often in high school classrooms reflective thinking is only applied once course material has already been taught and it is not integrated fully. Until these barriers no longer exist in the classroom, CT cannot become integrated into the curriculum and classroom teaching (Case, 2005).

Swartz (2004) takes a different approach when addressing the barriers to CT. Her study focuses on the importance of teacher education programs and identifies that teachers should be taught how to critically think and how to implement it into their classroom. Through her study of teacher candidates, she notes that a significant barrier to implementing CT is the practicum placement. She notes that often students will enter into a practicum setting in which the associate teacher they are paired with may favour a traditional “transmissive” teaching approach. When this happens the teacher candidate may be discouraged from implementing new educational practices, not only into their practicum experience but into their own classroom. Practicum must correlate to what the teacher candidate is learning in their teacher education program; when there is no connection between the two, this will continue to be a problem (Swartz, 2004). Another area Swartz addressed that some students in her study had a limited experience of CT. Those students were more likely to show signs of resistance when asked CT questions.

There has been a recent decline in literacy and numeric test scores in Ontario, which has some educators worried that inquiry-based learning is at fault (Case, Gini-Newman, Gini-Newman, James & Taylor, 2015). This recent development of test results could begin to effect teachers who are implementing new forms of teaching into their classroom, and revert “back to basics” (Case et al., 2015, p.1). But researchers are claiming that the problem with the how
media report these lower test scores is that they are identify teaching content or basics as separate to inquiry based/CT teaching (Case et al., 2015). Instead this could be a moment to remind educators that properly implementing CT into the classroom should not have a separation from content, and when there is a fluidity between the two, students will succeed.

Overall, there are still significant barriers to implementing CT into the classroom. As researchers Case (2005) and Swartz (2004) noted, the major setbacks right now are the lack of understanding of how to implement it in a holistic manner and in teacher certification programs. What these researchers do have in common is that through their studies, although they clearly identify the need for improvement they also provide attainable solutions. With this in mind, the barriers of CT will hopefully cease to exist if research and practice merge together.

2.4 How to Implement Critical Thinking into the Classroom

2.4.1 Professional development

Teachers are the pathway that link researchers and students, with this in mind it is the up to educators to implement critical thinking skills into the classroom (Swartz, 2004). Researchers have noted throughout multiple studies that an important aspect of implementing CT into the classroom is through teacher development (Cooper & White, 2011; Danko-McGhee & Slutsky, 2007; Swartz, 2004).

Researchers Cooper and White (2011) conducted an action research project looking at how to improve elementary students’ literacy scores through critical thinking. They found that it was the teachers who implemented significant changes within the school climate to improve CT and critical literacy, which ultimately benefitted the students most. Cooper and White (2011) stressed that although there was progress in the literacy scores it could not have happened
without teachers’ professional development. The professional development of teachers occurred in this particular study because the educators were actively engaged in the action based research. Cooper and White (2011) strongly believed that teacher involvement in research allowed them to take ownership of their own learning and development. Therefore, within this study, the teacher development occurred simultaneously with the research, without outside training.

Researchers Danko-McGhee and Slutsky (2007) conducted a study looking at how early childhood educators could incorporate CT through visual art. This study was conducted in a kindergarten classroom, engaging students that were five and six years old to think on a complex level. This study focused on the idea that young children do have the capacity for complex thought. Danko-McGhee and Slutsky aimed to demonstrate within their research that children have the ability to take ownership of their own learning by being “investigators” when teachers participate more as facilitators and supporters of their students learning (p.16). Danko-McGhee and Slutsky also found that in order for students to thrive in this setting, teachers had to have the ability to be facilitators instead of taking on a leading role. In order to do this, teachers needed training that would promote this style of education.

Researcher Swartz (2004) constructed a self-study identifying student responses when exposed to CT. Swartz (2004) focused on initial teacher-training programs instead of professional development because she believes that educators need to be taught how to critically think and the importance of it before they have their own classroom. She argued that if CT was included in teacher certification programs, the new group of teachers could change the current pedagogy in classrooms through their experience with CT and inquiry based education.

She emphasizes that it is new teachers who will change education by working with their students to develop both the students’ and teacher’s thinking. Cooper & White, Danko-McGhee
& Slutsky (2007), and Swartz all approach teacher and professional development from different angles within their studies, either through direct professional development, development through an engagement in research, or teacher education programs. What these three studies have in common is that this training in implementing CT is essential for both educators and students, the studies vary only in how to provide this training.

2.4.2 Curriculum integration

Lipman (1987) defined critical thinking as: “thinking with criteria.” With this in mind CT can be applied throughout the curriculum, it is not a specific set of skills that should be taught to students separately (Case, 2005). Instead it should be thought of as “a powerful method of teaching all other aspects of the curriculum — both content and skill” (Case, 2005, p. 46).

Critical thinking should be fostered throughout a child’s entire educational experience from kindergarten to grade twelve. Case (2002) provided examples of how to modify questions to invite students to engage in the material that they are learning and think critically. For example, he discussed the story of Jack and the Beanstalk. Instead of just asking the students’ knowledge-based questions from the story to prove that they had read it, the teacher could challenge the students to question whether or not they felt that Jack was greedy. Not only does Case (2002) provide this specific example of how to think critically but he defines the concept as “developing sound judgment” (p.1).

In addition to Case, Danko-McGhee and Slutsky (2007) also noted in their article how to implement CT into the curriculum. They expanded on Case’s (2002) example by providing activities to do this through subject integration. They found that through particular activities teachers and early childhood educators could incorporate a variety of subjects from the curriculum, while simultaneously engaging student interest and requiring them to think. The example that they provided “The Cloud Project”, which integrated science, art, math and
literacy. This project was introduced to the class by reading different stories about clouds and having students identify the differences of the clouds in each story. The second component required students to design their own clouds in a group. They needed to compare their own cloud to the stories they had read as a class as well as artistic representations. This project requires the students to think critically because they needed to problem solve (how to make their cloud float), and they also needed to identify how to improve on their project in comparison to picture books and art (Danko-McGhee & Slutsky, 2007).

2.5 Conclusion

After reviewing literature that pertains to Critical Thinking and the current studies that have been conducted surrounding the topic I was able to gain significant insight. I have learned why educators should be implementing CT into the classroom, the barriers surrounding this and how to implement critical thinking into the classroom. The significance and importance of looking at CT in the classroom is that education is designed to provide students with knowledge but, “one gains knowledge only through thinking” (Paul, 1993). Knowledge and thinking should therefore be interconnected within the curriculum and how teachers conduct their classrooms. It is important to believe as teachers that all students have the ability to have complex thoughts. Since this transition in education has been occurring in regards to recognizing the importance of complex thought, this study will examine whether or not CT is actually being implemented by teachers in elementary classrooms, and what the benefits are for the teacher and the students.
Chapter Three: Research Methodology

3.0 Introduction to the Chapter

This qualitative study explores the application of critical thinking (CT) in classrooms by teachers, looking to identify what the effects are on elementary students’ learning. In this chapter, the research methodology is outlined. It begins with explaining the general approach taken, and decisions made in regards to choosing this method. The chapter goes on to explain the procedure, and the data collection. This is then followed with a description of the participants of the study and the sampling criteria used to choose them, and also identifies the recruitment process of the participants. The chapter proceeds in describing the data analysis procedures and ethical considerations that were vital to the study. Lastly, I explain the limitations to the study in regards to methodology while simultaneously identifying the strengths, and end on a brief chapter summary and rationale for the decisions I made throughout this chapter.

3.1 Research Approach and Procedures

The debate between which research method to use for a study, qualitative or quantitative, has been under discussion for many years (Marshall, 1996). Quantitative research is conducted to prove a hypothesis and gather data that can be generalized and reported back, and answers to a quantitative study often respond to “what” questions. Qualitative studies look to answer “why” and “how” questions. A qualitative study aims to provide in-depth and complex understandings to humanistic issues (Marshall, 1996). The research approach that was used in this study was an in-depth literature review of relevant studies as well as a qualitative method that involved semi-structured interviews with three teachers.

Qualitative research is the right approach for this study because the goal of this method is to understand and deconstruct social interactions of the participants (Merriam, 2002). This study
looked at teachers’ perspectives of applying critical thinking in the classroom, and analyzed the rich responses the participants gave of their social experiences with their students. As a qualitative researcher, it is understood that the meaning behind your data is constructed socially, and that your role is to analyze, interpret and represent the data and observations in different ways. The goal of conducting a qualitative study is to find meaning and understanding from the research (Merriam, 2002).

3.2 Instruments of Data Collection

The primary instrument for data collection used in this study is the semi-structured interviews. A semi-structured interview includes structured questions, in which desired information is collected from each participant, for example, teaching experience. It also includes a list of questions that would guide conversation, instead of a direct answer. This type of question could lead to the participant sharing a memory or experience that would provide greater in-depth meaning and further analysis for the researcher (Merriam, 2002). Semi-structured interviews allow for the participants to share their lived experiences (Creswell, 2013). As I am interested in teachers’ perspectives of CT in the classroom, this instrument of data collection aligns best with my study. By using this method, as the researcher I have designed questions aligned to the research focus but also leave room for the participant’s experiences and perspectives. The benefit of semi-structured interviews for this study is that I have data provided from the perspective of the participants, and an analysis of that data. If the primary instrument was observation, the results of the study would look quite different. Often studies include multiple instruments of data collection, with a primary focus, but for this study I used one method, that of semi-structured interviews.
3.3 Participants

In the following section, I review sampling criteria and procedures for participant recruitment. I will include a section introducing the participants once I have recruited them.

3.3.1 Sampling criterion

As the purpose of my study is to learn the perspectives of teachers who are integrating CT and the effects it has on the classroom, it is incredibly important that the participants have experience with CT. One of the first few questions I asked during the interviews is what CT means to each participant, to gather information as to how their teaching experiences differ. Another aspect I looked for from the participants is that they had at least five years of teaching experience. It is important for the study that the teacher participants have at least five years of teaching experience because the more time that educators are in the classroom, the more effective their teaching (Ladd, 2013). It was important for my study to not specify the gender of teachers because I did not want to limit those who participate. I looked for teachers who are working in the TDSB and/or an independent school because of proximity (I live in Toronto and conducted the interviews within a close-proximity to the downtown core). I also included both public and private schools because I wanted to observe if there is a difference with how CT is applied, and the effects that each teacher participant observes.

3.3.2 Participant recruitment

For this study, the sample has been chosen based on how much we can learn from them, also known as a purposeful sample. Qualitative research does not focus on the quantity of the information gathered or a large number of participants, but instead focuses on in-depth, quality data that the researcher gathers from the sample group (Merriam, 2002). To recruit participants, I contacted associate teachers and principals that I have worked with in my practicum experiences. I communicated with them about the study and asked them to recommend teachers or principals
who might be interested in discussing their work with CT. This process is important because it assures that the participants volunteered to be a part of the study, and did not feel obligated to do so. My sampling procedures were mainly convenience sampling; as a teacher candidate, I am surrounded by a community of educators that I reached out to in order to connect with and recruit teachers.

3.3.3 Participant biographies

For this study, three teachers were interviewed, two secondary and one elementary. Participant A – Alex, has been teaching elementary education in Toronto for eighteen years. They are currently teaching grade two, but spent most of their career teaching core French. They have worked in their current school for eleven years and find the school environment to be quite diverse. Participant B, Blair, has been teaching for seven years, three of those in the Ontario school system. Blair has taught mostly in the independent school system, teaching math between grades eight to twelve. They have just started working at a new school this September and are looking forward to how the school will address Critical Thinking. Participant C, Cameron, has been teaching for twelve years in the same school that they had their placement in. Cameron has taught the humanities over this time period, mainly history and English literature. The school community they work in is quite small with a close and supportive staff environment.

3.4 Data Analysis

In a qualitative research study, data analysis occurs simultaneously with data collection. This means that during an interview the researcher may assess how the participant is answering questions, taking note if anything should be changed for the next interview, for example in regards to wording. If a researcher waited until they had collected all of their data from their participants, they may have lost an opportunity to make adjustments (Merriam, 2002). The data
analysis for this study, as with many other qualitative studies is inductive. To analyze data inductively means that the researcher does not begin with a hypothesis, instead the theories and understanding emerge from the data itself. Assumptions are not made by the researcher at the beginning of the study as to what is the most important thing to ask. Instead the researcher will provide many questions and analyze what is important as they learn from the participants (Bogdan & Bilken, 2007).

Before data analysis occurred, the interviews were transcribed. The interviews were recorded and then manually transcribed at a later date. Then the coding process began, where data was coded and categories and themes were pulled from the interviews. During the coding process, there was a focus on connecting the themes to the main research questions of this study. From there the categories and themes that were compiled were compared and integrated together when possible and appropriate. The data was then analyzed in regards to what the participants did not speak to, and the significance that may have on the study. The last stage of analysis involved making meaning from the findings in relation to the rich literature review. Meaning making by the researcher is an integral part of the qualitative process (Creswell, 2013). The data analysis process is significant because connections were made between the previous research that has been conducted in the field and the findings from this study, which then provided further insight on this topic.

3.5 Ethical Review Procedures

Throughout the entire process of this study, ethical considerations were made. Ethical issues within a qualitative study can occur at all stages, not just during the data analysis process (Creswell, 2013). There are a number of different ways this study followed ethical procedures including ensuring procedural, situational, relational, and exiting ethics (Tracy, 2010).
Procedural ethics are based on a larger scope set by organizations and institutions. This level of considerations focuses largely on consent of the participants, namely that their participation is voluntary and that they have a right to know the consequences of the research (Tracy, 2010). In this study, I adhered to procedural ethics by making sure that the participants knew that all of the data is securely stored on a password protected computer and will be destroyed after five years, maintaining the privacy of the participants. As well as this, during participant recruitment, I ensured that participants volunteered for the study and did not feel obligated. I did this by providing information about the study to a principal to distribute to the staff. This ensured that the participant process was voluntary. When I chose the participants, I assigned them a pseudonym to protect their privacy and identities, as well of that of their school and students. Each participant signed a letter of consent before participating in the study, this letter is attached in Appendix A. It includes information about the study, the potential ethical implications, the expectations of the participants and clearly notes that the participants can exit the study whenever they want.

Situational ethics occur within the field of data collection; this could happen at any given moment. To assure situational ethics the researcher must identify each circumstance with participants to be unique, to ensure that they are continuing to reflect and critique their own decisions, to constantly be improved (Tracy, 2010). A major question that researchers need to be asking themselves is: is the data worth showing and reporting, or would it harm the participant or another group? In this study, I ensured situational ethics by always being aware and reflective during not only the process of data collection, but throughout all steps of the process, including participant recruitment and data analysis.
Relational ethics involves the researcher continuously being respectful and mindful of their actions and the effect it can have on participants. In this study, relational ethics was applied by providing the participants with an opportunity to review and retract any statements they made throughout the interview. Lastly, exiting ethics involves how the data is analyzed and shared. It is important that the researcher takes care in regards to the language they use to describe the participants and outcomes (Tracy, 2010).

3.6 Methodological Limitations and Strengths

A possible limitation to this qualitative study is that because the researcher is the data collector, there is a high likelihood that the data analysis would be biased (Merriam, 2002). Another way to interpret that bias, is not as a limitation but instead to include researchers’ bias within the study, through explaining positionality. What makes each qualitative study unique is that there will always be bias of the researcher (Merriam, 2002). The data analysis aspect of this study likely reflects my personal bias, but as Merriam notes, within chapter one I have included my own positionality to prepare and help the reader understand my bias and how it can influence the study. Another possible limitation to this study is the sample size. Only three teachers were interviewed, which does not represent a large population. As the sample size is small it could be questioned whether or not the results could be applicable to a wider population. As only teachers were interviewed for this study, a clear limitation is that there are no perspectives of parents. Teacher interpretation and perception was incredibly valuable to this study, but extending the study to interviewing parents and students could have provided more in-depth analysis and a wider breath of results.

One of the main strengths of conducting a qualitative study using semi-structured interviews is that it provides teachers the opportunity to share their voice and experiences.
Qualitative research can be known for collecting “soft” data, which means it is not collected for a statistical purpose but instead provides descriptions of conversations conducted within interviews. Questions are formed to provoke conversation, not to create measurable factors (Bogdan & Biklen, 2007). Given that the research purpose of this study is to understand teachers’ perspectives of the impact of integrating CT into the classroom, the qualitative research approach aligns very well with the study. To have a rich understanding of teachers’ perspectives and experiences is to invoke conversations through the interviews by providing thoughtful questions that do not illicit a response to measure, but instead to deconstruct. This method not only provides strong and detailed data, but allows for teachers’ experiences to be validated.

3.7 Conclusion

This chapter on research methodology includes the general research approach and procedures used within this study. The approach is a qualitative study and within this chapter I discussed the strengths of using this method, and compared it to quantitative studies, clearly identifying why the qualitative approach better fits this study. The next section discusses the instrument of data collection used within this study which is semi-structured interviews. Within this area I discussed a few reasons researchers support this type of data collection, simultaneously reflecting on why this method was appropriate for the study (Creswell, 2013; Merriam, 2002). From there I explained the sampling criteria and procedure for the participants of this study. I identified three areas of criteria that I looked for in my participants and why it was important to include. The next part of this chapter focused on data analysis, the unique qualities to conducting a qualitative study in terms of the analysis being simultaneous with the data collection. In this section I discussed that the data collection was inductive and what that means for a qualitative study, and I then described the process in which I analyzed the data,
through transcribing and coding. The following section discusses the ethical review procedures that were taken into account throughout the study. I describe the four different ethical procedures (procedural, situational, relational and exiting), their meaning and how they are incorporated into the study. Lastly, I describe the limitations and strengths to conducting a qualitative study with semi-structured interviews. Next, in chapter four, I report on the findings of my research.
Chapter Four: Research Findings

4.0 Introduction to the Chapter

The purpose of this study is to investigate elementary and secondary teachers’ perspectives on the use of critical thinking (CT) in the classroom. The study examines some of the effects integrating CT can have on student learning. More specifically, the study analyses whether teachers believed there to be a connection between CT and academic success, what the benefits and challenges are to integrating CT, and how teachers assess CT. For this purpose, three semi-structured, qualitative interviews were conducted, allowing for the perspective of the participants to be the focus (Creswell, 2013). The pseudonyms for the participants involved are, Alex, Blair and Cameron. Alex has been working as an elementary school teacher for eighteen years in the public school system in Toronto. Blair has been working in the independent school system in Ontario for the past four years, and has seven years of teaching experience overall. Blair is a secondary school teacher, and primarily teaches math. Cameron, the third participant, has been teaching at the same alternative public school in Toronto their entire 12-year career. Cameron is also a secondary school teacher who primarily teaches social science courses. The previous three chapters looked at the introduction to this study, a review of the recent and relevant literature, and a methodology for how the data was collected. The current chapter discusses the findings.

Four broad themes emerged from examination and analysis of the data. The first theme, classroom and school environments, connects to the research question that considers the benefits and challenges of incorporating CT in the classroom. As will be discussed, the teachers’ experiences within each of their schools, in particular the level of support from the school community, greatly affected how they were able to teach and incorporate CT. Two sub-themes will be discussed in this context, one focusing on the support of staff, and the other, on
professional development. The second theme, teacher perceptions of critical thinking, corresponds to the main research question of this study, centered on what the effects of incorporating CT had on student learning. As will be discussed, the teachers’ individual perceptions of critical thinking affected how they were using it within their classrooms. The sub-theme that will provide further detail focuses on teacher understanding of critical thinking. The third theme, teacher experiences with critical thinking, connects to the research questions of what the effects are of integrating CT on student learning, how it is assessed, and what the benefits are. As will be discussed, the experiences the participants had were positive and ultimately encouraged their use of CT within the classroom. Three sub-themes will be discussed in this context, one focusing on the benefits of student engagement, one on teachers’ experiences with curriculum integration, and the other, on teachers’ assessment strategies. The fourth theme, lack of student engagement, connects to the research question that considers the challenges of incorporating CT.

4.1 Classroom and School Environments

It was evident from the interviews with all participants that the school climate has a significant role to play in how the staff feel in regards to support. Cameron comments that they feel “supported by my colleagues and the general school environment,” they also highlight that having both a supportive principal and staff is “key to teaching.” Not only is the school environment important for teaching, but it is also important to the social-emotional learning of students (Collie, Shapka, & Perry, 2011). The support of staff is crucial to the school environment, and professional development can directly affect whether or not teachers feel they are receiving the formal support from the school.
4.1.1 Support of staff

A positive teaching environment does not just include the classroom, according to Blair and Cameron. Both explicitly highlight the importance of the support from their colleagues. This is an area that was not highlighted in the literature review, but it was found to be significant to the participants’ experiences. Blair spoke to their drive to always include CT within their lessons, but depending on the school this was sometimes easier to do than other times. They noted that a particular “school culture” had an enormous impact on whether or not they felt supported. Blair stated that how the students received their lessons on CT, highlighted whether or not they felt supported by the school. This can have a major effect on how CT is taught in all schools. CT needs to be a primary focus of the school community. If teachers receive push back and resistance from their students and colleagues it could be harder for them to integrate.

When Blair responded to the question on assessment (interview questions can be found in appendix B) they commented that how they addressed CT varied depending on the school they were working at. Blair mentioned that a particular school they taught at assessed thinking only through using a question on a test. When Blair said, “I didn’t, I was like okay, I guess this is assessing thinking,” they eluded to not fully agreeing with this form of assessment but accepting it while working at that school. This further highlights that school climate and perception of CT from the staff affect how it is taught in the classroom. Although Blair has their own ideas of what CT is and how to teach and assess it, a particular schools’ values and focus appears to affect how Blair can teach it.

Alex, the most experienced teacher out of the participants, did not discuss the impact of the support of their colleagues. Instead Alex focused on how their support derives from the curriculum documents. When asked how Alex feels supported to incorporate CT, they responded by saying, “I think it is imbedded in the curriculum, that’s as far as I would say for that.” It is
important that Alex highlights this because it may be linked to their experience with teaching. A new teacher may rely more on the support of their colleagues when integrating CT into their classroom. For example, Blair who has not been teaching for as long, stated “for me it’s all about how my colleagues do it and what the culture of the school is.” For Blair, the support of the school and the staff contributes to the comfort they feel with integrating CT. In contrast to this, an experienced teacher may not need as much support to feel confident with incorporating CT. Alex eludes to their relationship with the school community on integrating CT as not being quite as supportive as Cameron and Blair’s experiences. Alex acknowledges that they are “usually the one driving these things” on staff, eluding to the fact that they might not have the full support of their colleagues. What is significant about the differences of Alex and Blair’s responses, is that Alex seems to be less affected by their colleagues and school community. A contributing factor to this difference could be that as an experienced teacher in a public school, Alex could experience less push back on what they teach in their classroom. For Blair, as a newer teacher in an Independent school, they may experience more feedback from administration and parents on how their classroom should be structured. The difference being that Blair may be more likely to receive negative feedback for their teaching, in comparison to Alex who has 18 years of teaching experience.

Cameron, who works at alternative school, used significant emphasis when speaking about the community of the staff. They noted that having a supportive principal is “key” to allowing teachers to take risks. Cameron identifies that if a teacher wants to teach something that may be unusual “in terms of style”, or wants to try something new, having both a supportive principal and staff is vital. Cameron makes it seem that having this support allows them to feel more confident in teaching CT. It is interesting that this idea of support did not come up in the
literature, and this is an area within the findings that has added to the literature. Teachers’
perceptions of support from their colleagues, affects how and what they are teaching. With this
in mind further research could be conducted to emphasize how teachers could find support in
school environments that may be lacking in this area.

4.1.2 Professional development

The connection between Professional development (PD) and the implementation of CT is
discussed by a range of authors (Cooper & White, 2011; Danko-McGhee & Slutsky, 2007;
Swartz, 2004). Researchers highlighted that an important focus of how to implement CT is
through PD. It is interesting to note that none of the teachers interviewed had PD in relation to
CT. This is a surprising fact given that all of them incorporated CT into their classrooms. Their
integration of CT appears to be based on their personal identities, beliefs, and information they
learned from their teacher education programs. Alex discusses their understanding of CT and use
of it in the classroom as rooted in their own “values” and the way that they “think.” For Alex,
integrating CT into their classroom is something they did from the very beginning of their career
because “it is a natural way that [they] think.” Blair, briefly mentions that their background of
CT stems from their Bachelor of Education program. Cameron, as well, highlights that their
knowledge of CT derived from their teacher’s college education, and that is the place that “set
[them] on the path” of teaching CT. Each of the participants discuss their integration of CT in
relation to either what they learned within their teacher education programs, or due to their own
personal beliefs. After discovering this, there could be more of a highlighted focus on how
teacher education programs continue to affect the practice of teachers, ten years into their
careers.
4.2 Teacher Perceptions of Critical Thinking

The main reason that all three participants incorporate CT into their classrooms is because they have a positive perception of it. As Cameron explains, to them “critical thinking is everything.” Teachers’ are the mediators that introduce the concept of CT to students, they link concepts found within research to their teaching. Critical thinking is identified by researchers (Cooper & White, 2011; Kettler, 2014) as essential to quality education, and teachers are the main factor in how students achieve this. A positive perception of CT by teachers is then incredibly important for how it can be integrated into the classroom, or if it is integrated at all. In order for teachers to have a positive perception of CT, it is crucial that they have an understanding of what it actually is.

4.2.1 Teacher understanding of critical thinking

All three of these teachers shared a similar understanding of CT. Lipman’s (1987) definition of “thinking with criteria” (p.5) has provided a reference point throughout this study. Each of the participants defined it in a slightly different way, but they were all within the same realm of understanding as outlined by Lipman. Alex defined CT as “questioning information that is gathered and presented.” Alex understood CT in relation to students questioning societal norms and to be aware of the world around them. In connection to Lipman’s definition, Alex’s criteria for thinking critically is for students to question things. Whereas for Blair, CT means to “use your background knowledge to solve new problems” and that “it’s all a student’s creation.” For Blair, the criteria of thinking critically may be to encourage creativity and students’ prior knowledge. Lastly, Cameron understands it to be, “examining the nature of your own perspective, being aware of your own bias and being able to take a hard look at that and open yourself up to new perspectives and new options.” Based on these teachers’ perspectives, in
order for students to be critical thinkers they need to remain open-minded and reflective or their practice.

Each of the participants have their own set of criteria for what they value and view CT to be. This could have a significant role in the classroom because their perspective is the lens through which they teach. As Blair notes, CT is “really important, and so because of that I try and implement it daily.” Swartz (2004) highlights that in order for teachers to integrate CT into their classrooms, they must first be critical thinkers themselves. All three participants value critical thinking for themselves and for their students, and thus feel strongly that it should be integrated into the classroom. As Cameron notes, by incorporating CT as a teacher, you are providing students with a certain set of skills to “allow them the opportunity to see something from multiple perspectives.” This idea of having students look at things from multiple perspectives, could have significant impacts on students’ perceptions of the world and their place in it. All three participants seemed to contribute to wanting their students to view the world in this way. They want their students to question things and to become “actively engaged citizens” (Draft, Ministry of Education, 2016).

4.3 Teacher Experiences with Incorporating Critical Thinking

The main reason all three participants continue to incorporate CT into their classrooms is because they have all had positive experiences with incorporating it. It was evident from the participants’ responses that the positive experiences that they have had, supported and motivated their continued integration of CT. Kettler (2014) suggests that incorporating CT skills can positively affect the lives of students. Perhaps it is observing the positive effect CT has on their students, that then positively affects the teachers. Alex comments in their continuing professional goals that they are aiming for “increased student involvement, less imposed on them and more
coming from them. I want them to have more ownership in the curriculum and in the classroom.” It can be deduced that because of Alex’s positive experience with CT, they have decided to take their CT lessons into a broader context. Teachers’ personal experiences of incorporating CT, could affect if they continue to integrate it and how they might communicate these experiences with their colleagues.

4.3.1 Student engagement

Positive student engagement is the most significant benefit all three participants observed from integrating CT. Alex explains that,

It brings learning to life for the kids. It is always relevant, instead of just swallowing something, or just going along with it. Now you get them to open things up and be curious. It is much more likely conversation, much more engagement for the kids.

This is an area that converges with ideas brought up by Danko-Mcghee and Slutsky (2007), that when students are given tasks to further develop their CT skills, they become interested and engaged in the material. All three participants connect with this, as their descriptions of successful lesson integrating CT is directly related to engagement. Cameron explains that a lesson is “successful because it is engaging, because it is really present for them.” Case (2005) and Daniel and Gagnon’s (2011) argue that CT involves students generating judgments. In order for students to engage in a task in which they need to make a judgement, they become actively involved in the material, which leads to their increased engagement.

Alex discussed how including CT within a lesson, and providing an audience for students, can allow them to question societal assumptions. Alex designed a unit around toys that had students questioning their assumptions about boys’ and girls’ toys. The students presented their findings to the school, and Alex noted that it was very clear how this could show students that they can make a difference. Alex commented that this kind of engagement with the material
allowed the students to feel “empowered”, and “passionate” about the topic. Students engaging with material in a classroom that empowers them could have serious effects on their learning. As an elementary school teacher, Alex approaches how they introduce CT skills to their students in a similar way to how Cameron, a secondary school teacher does.

Cameron spoke to a lesson they taught that had students using literary theory as a tool of analysis for music videos. They explained that the lesson for them was “successful” because it was “engaging” and “present” for the students. The students were able to use tools they had learned in class to analyze and perceive a piece of art in a completely different way than they had originally. Cameron had the students use their own judgement to approach the music videos from a different perspective. Cameron’s lesson aligns with both Case (2005) and Daniel and Gagnon’s (2011) argument that when lessons allow for students to participate in a task involving judgment, student engagement in turn increases.

4.3.2 Curriculum integration

The experiences all three teachers have with integrating CT have been largely affected by the curriculum. CT is specifically highlighted in numerous Ontario Curriculum Documents (Ontario Ministry of Education, 2005; 2006; 2007; 2009; 2013; 2015; 2016). This indicates the Ministry’s push for educators to include CT as one of the essential 21st century skills for student (Kettler, 2014). This section looks to answer what the effects of integrating CT was on student learning. Research indicated by Case (2005) suggests that CT should be integrated among all subject areas, rather than in isolation. Students would then have the understanding that this set of tools could be implemented in all academic settings.

When asked when they began implementing CT into their curriculum, Alex replied by saying, “When I first started teaching I was a music and French teacher, so there wasn’t too much to deal with, once I got into teaching grades I think I was probably already starting to go
for it.” This comment eludes to the idea that CT is something that would not be integrated in the subject areas of French and music, but once they were teaching in a general classroom, it was consistently integrated. When asked the same question, Cameron responded by saying that they are “pretty fortunate in terms of my subject because they really lend themselves to the implication of critical thinking or the inclusion of those skills directly.” What can be gathered from both of these participants’ statements is that they may not have been made aware of the inclusion of CT in such a wide range of curriculum documents. For Blair, a secondary school math teacher, they indicated that CT “is really important, so because of that I try to implement it daily.” What is interesting with this response is that although Blair teaches in a subject area that was not the same as Alex and Cameron, they find it equally as important to implement CT. Blair may have a different experience with incorporating CT than the other participants because they are the newest member to the profession. Blair mentioned when discussing if they had PD in relation to CT, “I did have some in my Bachelors of Education program.” This could indicate that Blair has had a more recent update of what is included in the curriculum in comparison to the other participants.

One of the main reasons Alex may have given this response could be because the previous curriculum document for French as a Second Language (1998) did not include anything about CT. For Cameron, as a social sciences high school teacher, they may not be reading the curriculum documents of subjects they are not teaching. These updates to the curriculum documents could affect teachers’ overall perceptions of CT and whether or not they include it. If specific teachers think that what they are teaching is easier in terms of integrating CT, that could mean that there are other subjects in which they may think it could be harder to integrate. This may be an idea that discourages teachers who are in those other disciplines from incorporating it.
4.3.3 Assessment strategies

Assessment is an important aspect of teachers’ experiences with CT as it is largely associated with how CT is taught in the classroom. All three participants used different strategies of assessment which could be beneficial for other educators and for future research. Alex, who teaches at a primary level, discussed their use of co-created rubrics. They discussed the importance of scaffolding the information with students and having them understand why “analyzing” and “critiquing an idea” or an “assumption” would be “advantageous” to them. They then go on to explain that deciding together as a class, when creating this rubric would be the best way for students to be involved. As an elementary teacher, this is an explicit way to include students in the process of assessment, and to assure that they have an understanding of what the teacher is looking for.

Cameron discusses that they assess CT mostly through classroom discussion. They informally assess whether or not the students are understanding the material and using the skills that are being offered. They also identify that not every student is comfortable with speaking in group settings. To accommodate this, Cameron includes individual assessments through one-on-one conversations, personal reflections, or journals. Within each of these opportunities for students to be assessed, Cameron looks for students to “show their thinking” and “how they are using critical tools to do something differently.” As a secondary school teacher, Cameron focuses their assessment strategies in more of an informal way, consistently checking for student understanding and use of CT skills.

Blair’s response to this question was interesting, because as was previously mentioned, they change their strategy to assess based on the school. They did identify that the strategy that they most aligned with was what they learned from an education consultant, who argued that CT should only be assessed through in-class assignments. The same consultant asserted that students
should understand the fact that their teacher is there to facilitate and support them. But the work is independent and can be completed using the resources within the classroom. Blair explains how they now assesses CT in relation to the advice from the consultant, when they say:

It should only ever be in-class assignments, you know you’re there to help facilitate but it’s independent work or they can talk to their peers, but they have all of the resources there to help them through the assignment. So, I’m leaning towards that.

All three of the participants have different strategies for assessment, that work for them and the subject and grades that they are teaching. Each of these strategies could be helpful for other teachers who may be struggling with how they might assess CT.

4.4 Lack of Student Engagement

Student engagement was previously mentioned as a positive experience for teachers when integrating CT, but it is also their greatest barrier. Blair notes that a lesson is successful based on “how the students approach it,” which suggests that if students have negative perceptions, as Blair mentions it would be incredibly “challenging” to teach. The research addressed in the previous literature review suggests that the main barriers for integrating CT are teachers’ lack of understanding of how to integrate it, teacher education programs and the problem with practicums, and a recent decline in test scores with the assumption that inquiry-based learning is at fault (Case, 2005; Case, Gini-Newman, Gini-Newman, James & Taylor, 2015; Swartz, 2004). Although these are the main barriers that were highlighted, Swartz (2004) identifies that within her study, student teachers that did not have previous experience with CT were more likely to be resistant to it. Swartz’s study focuses on adults, but the same idea could be applied to an elementary classroom, especially considering the experiences of both Blair and Cameron.
Blair mentioned that “if the kids are used to thinking critically in class then I feel very supported. If not, then it is a real struggle.” This experience converges with the research found in Swartz’s (2004) study, that resistance is likely to occur when students are not exposed to CT. When Blair expands on the barriers they have experienced, they explained that the attitude and approach of their students had a significant impact on the lesson. Blair identifies their main challenge with incorporating CT as, “how the students approach it. Therefore, if they are tired or distracted or anything like that, then I find it challenging.” This is an observation that Cameron recognized as well as a challenge. Cameron discussed that when there is “no buy in” the students are not “engaged” and do not find the material “compelling” and when that happens it is a “really tough sell.” This was an area that diverged from the research as the participants discussed situations in which they experienced daily, rather than viewing integration and discussion of CT through a theoretical lens.

4.5 Conclusion

This chapter on research findings examined the data using four themes. Classroom and school environments looked at the experiences of teachers incorporating CT and how the environments surrounding them affected that integration. What was found from the participants was that the school environments did have a role to play in how the teacher felt supported. This area of analysis diverged from the literature review, as the previous research did not comment on how the school environment affected the integration of CT. The next theme that was discussed was teacher perceptions of CT. Within the analysis of the data, what was found was that all participants had their own understanding of CT and their responses aligned with the definition used for this study, “thinking with criteria” (Lipman, 1987). What was significant about the data found within this theme is that all three of the participants not only had concrete
understandings of what CT is but also had similar goals for incorporating it. This inspires confidence that the statistics (Case, 2005) regarding how many teachers are incorporating CT may be changing, and with that in mind, the barriers and limitations are changing as well.

The section on teachers’ experiences with CT specifically considered how their experiences connected to student engagement and curriculum integration. All three participants articulated that the benefit to incorporating these CT skills was that students became increasingly engaged and excited about what they were learning. The data from the next sub-theme looked at how the participants were not entirely aware of how CT is integrated into numerous curriculum documents, not just social sciences (Ontario Ministry of Education, 2005; 2006; 2007; 2009; 2013; 2015; 2016). Two of the participants implied that integrating CT is easier in certain subjects, which is important because that perception could affect other teachers’ integration of CT in their own classrooms.

Although student engagement was previously noted in this chapter as a positive effect of the integration of CT, it has equally been described as a barrier by the participants. This area diverged from the research as the main barrier has typically not come from students (Case, 2005; Case, Gini-Newman, Gini-Newman, James & Taylor, 2015; Swartz, 2004). To a large extent, student engagement dictates how a lesson proceeds. Even if teachers feel supported by their colleagues and have had successful lessons integrating CT in the past, the students may still not be engaged. The findings from this chapter have highlighted key areas that converge and diverge with the previous literature. The following chapter highlights the implications of the research findings and offers recommendations and suggestions for further research.
Chapter Five: Implications

5.0 Introduction to the Chapter

This study was designed to learn more about the implications of critical thinking (CT) on students’ learning. The findings serve to support the existing literature pertaining to the effects of CT on student learning, and to explicitly describe teachers’ perceptions of the use of CT in the classroom. More specifically the findings highlight the benefits and challenges teachers experience when integrating and assessing CT. The previous four chapters identified the introduction to this study, a review of the relevant literature, a methodology for how the data was collected, and an analysis of the findings. This chapter reviews the research findings, emphasizes the present study’s implications for various stakeholders, provides several recommendations, and proposes direction for further research.

5.1 Key Findings and their Significance

Subsequent to completing interviews with three teachers, a data analysis revealed four broad themes: first, school and classroom environments; second, teacher perceptions of critical thinking; third, teacher experiences with incorporating critical thinking; fourth, lack of student engagement.

The first theme, school and classroom environments, functioned as a reminder that the support of staff is crucial in teachers’ comfort with integrating CT. An important part of this was the level of support teachers received from their colleagues. The more support teachers received, especially early on in their careers, equated to teachers feeling more comfortable with integrating CT. Professional development (PD) was another important aspect of teachers’ comfort with CT. Secondary literature (Cooper & White, 201; Danko-McGhee & Slutsky, 2007; Swartz, 2004) highlights the importance of PD when it comes to teachers implementing CT, yet none of the
participants in this study had any PD in this area. Although none of the participants had any PD, they did implement CT because they had learned about it in teacher’s college. If the participants in this study did not have prior training in teacher’s college or the support of their colleagues, they would not have been educated on integrating CT. This is important because if teachers are not receiving PD on CT, or learning about it in teacher’s college, how would they know how to integrate it and feel comfortable doing so?

The second theme analyzed teacher perceptions of CT. It was found that how teachers perceived CT had an effect on its implementation in the classroom. The more positive the perception of CT, the likelier it is that teachers will integrate CT in the classroom. The three participants all had positive perceptions of CT and as Blair stated, “it is really important so because of that I try and implement it daily.” Swartz (2004) highlighted the importance of teachers having both positive perceptions of CT, and an accurate understand of what CT is in order for them to integrate it. All three participants in this study shared a positive perception of CT and implemented it in their classrooms.

In addition to perception, teachers’ experiences with incorporating CT, the third theme, are vital to their continuous integration of CT. It was apparent from the data that the positive experiences supported teachers’ continued integration of CT. One of these positive experiences was tied to student engagement. All three participants identified that the benefit of incorporating CT was that students became increasingly engaged and excited about what they were learning. This served as motivation for the teachers to continue to integrate CT into their classrooms.

In contrast, a lack of student engagement was identified as the teachers’ main barrier to integrating CT. The participants identified that how students perceive a lesson dictates how the lesson will proceed. Blair mentioned that it would be incredibly “challenging” to teach when
students are disengaged. It was found that CT cannot be properly integrated unless students are engaged.

5.2 Implications of Findings

This study has three implications for altering education in Ontario. For the broader educational research community, this study should serve as a reminder to school boards and curriculum planners that without PD, teachers may not be aware of what CT is or how to implement it. Consistent with the conclusions of Cooper and White (2011), Danko-McGhee and Slutsky (2007), and Swartz (2004), PD is an important aspect of teachers implementing CT.

Secondly, new teachers rely on the support of their colleagues to integrate CT, without PD this support may be the only guidance teachers’ have for integrating CT. Lastly, for individual practice, this study should remind and inform teachers that the main barrier associated with implementing CT has been student disengagement.

The findings from this study reveal that teachers often do not receive PD on CT. In order for teachers to implement CT they need to know what it is (Swartz, 2004). If they have not learned about it within their teacher education programs, they would ideally then learn about it through PD. The expectation of the Ministry of Education (Ontario Ministry of Education, 2005; 2006; 2007; 2009; 2013; 2015; 2016) for teachers to implement CT should equate to PD being available for teachers. None of the participants had that. This is problematic because the lack of PD results in teachers having to rely on their colleagues for support, which could greatly affect whether or not CT is being implemented into the classroom.

School administrators should be aware that teachers’ comfort with integrating CT is dependent on the support they receive. In order for teachers to be successful in integrating CT, school and staff environments must be positive. Without these reassurances of a positive staff
environment, teachers would likely be uncomfortable with integrating CT and may not implement it at all.

The lack of student engagement towards CT lessens teachers’ willingness to integrate it. When students are disengaged with the material they are learning in class, teachers will have a more difficult time teaching a lesson that incorporates CT. Without addressing this issue of disengagement, when teachers encounter student disengagement they may decide to implement CT less. This is an area that could be discussed in PD to assist teachers with strategies when encountering disengagement. The teachers in the study articulate that resistance from students does happen. Cameron notes that “if you’re being too aggressive in conveying certain ideas you could easily turn students off.” Disengaged students, consequently will not have the opportunity to develop their CT skills. Their resistance could affect what they retain from the remaining lesson. The goal of a successful lesson is for students to learn information in an engaging way. For my own practice, student disengagement could affect my confidence with integrating CT. Student response to lessons is the main deciding factor for the continued integration of CT. If students are consistently disengaged I would likely feel discouraged and less willing to integrate it. Teachers should receive more support for delivering affective lessons integrating CT, with this their confidence and willingness to integrate it will likely increase.

5.3 Recommendations

The implications that emerged from this study lead to numerous recommendations for school boards, school administrations, teachers and teacher education programs.

First, to encourage teachers to implement CT into their classrooms, all teacher education programs should include CT. It is important that new teachers feel confident in their ability to integrate CT when entering the classroom. By including training on CT within education
programs all new teachers would be equipped with CT skills and strategies for implementing it. Teachers may be more likely to integrate CT into their classrooms if they feel confident in the training they have received.

Secondly, to further increase their confidence it is important that teachers undertake specific training pertaining to CT. PD could provide teachers with the knowledge they need to integrate CT. In addition, it could provide teachers with strategies if they encounter student disengagement. Considering the lack of training that teachers are currently receiving in CT, PD would be a critical factor in improving teacher practice in this area. PD would help to ensure teachers’ confidence with integrating CT. To guarantee that teachers are well equipped, school administrators and Ministries of Education should provide PD for teachers on CT.

Thirdly, new teacher induction programs should include areas of support towards introducing new pedagogical styles. Within their first year of teaching, educators require a lot of support to feel confident in their teaching. A specific area of the induction program that could encourage CT-use in the classroom would be to ensure that mentor-teachers are appropriately supporting the new staff. They could do this by working in teams to plan units which could help to build supportive relationships.

Lastly, school administrators should work towards creating positive staff environments. A positive environment could lead to more communication among teachers. School administrators should be increasingly aware of the importance of fostering these environments for new teachers. New teachers in particular need this positive environment to feel confident with integrating CT.
5.4 Areas for Further Research

While this study has added to the existent literature, it also indicated a need for further study. It is recommended that future research undertakings place a greater emphasis on examining student resistance and disengagement to CT. This area was introduced within this study but should be further expanded upon for a greater understanding of why student disengagement may occur. As a main barrier to integrating CT, further research on student engagement can assist educators on how to respond to moments of disengagement.

Furthermore, it would be beneficial for future researchers to look into the correlation of academic success and CT. This was an area that was not discussed within the present study. Teachers may be more likely to integrate CT if there is evidence indicating an improvement of academic achievement upon implementation of CT skills in the classroom. Lastly, further research should also delve into teacher confidence in regards to implementing CT. Research should focus specifically on the disparity of confidence of new and experienced teachers in order to further recognize how this affects the integration of CT. The outcome of this research could provide insight for Ministries of Education and school administrators in regards to supporting all educators based on their needs.

5.5 Concluding Comments

The purpose of this study was to investigate teachers’ use of CT in the classroom, and to answer the main research question of: What are teachers’ perspectives on the effects of critical thinking on elementary and secondary students’ learning? Through the findings this study evolved into exploring how teachers are supported in integrating CT.

The findings of this study are valuable to teachers and school administrators because they highlight areas in which CT can be reinforced within classrooms. CT has been recognized
by the Ministry of Education as an essential skill students will need to succeed in the 21st century (Draft, Ministry of Education, 2016). In order for this to be upheld in classrooms, it was found that teachers, especially new teachers, need to be supported. The participants of the study all recognize the importance of CT and the benefit that it has on student engagement. The participants incorporate CT into their classrooms regularly but none of them received PD. It is evident from the findings that PD needs to be available to all teachers to provide support and ensure confidence. To conclude, in order for CT to be effectively integrated and positively affect student learning, the priority of future research needs to focus on how to support teachers throughout this process. CT is an essential skill for the future. For this to be achieved, support is critical for students and staff alike.


Merriam, B. Sharan. (2002). Introduction to Qualitative Research. *Qualitative research in practice: Examples for discussion and analysis, 1*, 1-17.


Appendix A: Letter of Signed Consent

Date:

Dear _______________________________,

My name is Alana Evanowich, and I am a student in the Master of Teaching program at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). A component of this degree program involves conducting a small-scale qualitative research study. My research will focus on Critical Thinking and teachers’ implementation of it in the classroom. I am interested in learning about teachers’ perspectives of the effects of critical thinking on student academic success as well as the overall classroom environment. I think that your knowledge and experience will provide insights into this topic.

Your participation in this research will involve one 45-60 minute interview, which will be transcribed and audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient for you, outside of school time. The contents of this interview will be used for my research project, which will include a final paper, as well as informal presentations to my classmates. I may also present my research findings via conference presentations and/or through publication. You will be assigned a pseudonym to maintain your anonymity and I will not use your name or any other content that might identify you in my written work, oral presentations, or publications. This information will remain confidential. Any information that identifies your
school or students will also be excluded. The interview data will be stored on my password-protected computer and the only person who will have access to the research data will be my Course Instructor Angela Macdonald. You are free to change your mind about your participation at any time, and to withdraw even after you have consented to participate. You may also choose to decline to answer any specific question during the interview. I will destroy the audio recording after the paper has been presented and/or published, which may take up to a maximum of five years after the data has been collected. There are no known risks to participation, and I will share a copy of the transcript with you shortly after the interview to ensure accuracy. Please sign this consent form, if you agree to be interviewed. The second copy is for your records. I am very grateful for your participation.

Sincerely,

Alana

Alana Evanowich

Course Instructor’s Name: Ken McNeilly
Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw from this research study at any time without penalty. I have read the letter provided to me by Alana Evanowich and agree to participate in an interview for the purposes described. I agree to have the interview audio-recorded.

Signature: ______________________________________

Name: (printed) ______________________________________________

Date: ______________________________________
Appendix B: Interview Protocol

Thank you for agreeing to participate in this research study, and for making time to be interviewed today. This research study aims to learn what teachers’ have found to be the effects of implementing critical thinking into the class. This interview will last approximately 45-60 minutes, and I will ask you a series of questions focused on Critical Thinking, the effects on student academic success, and overall classroom environment. I want to remind you that you may refrain from answering any question, and you have the right to withdraw your participation from the study at any time. As I explained in the consent letter, this interview will be audio-recorded. Do you have any questions before we begin?

Section A – Background Information

1. How many years have you been working as a teacher in Ontario?
2. What grade are you currently teaching? What grades have you taught in the past?
3. How long have you been working at this school?
4. Can you describe the school community that you are working in? (Parent involvement, socioeconomic status)

Section B – Teacher Perspectives/Beliefs

5. What does critical thinking mean to you?
6. Have you participated in any teaching development training in relation to critical thinking?
7. How do your views on critical thinking relate to your teaching philosophy?

Section C – Teacher Practices

8. Can you explain how critical thinking effects your curriculum?
9. When did you start implementing critical thinking into your curriculum?
10. Can you give me an example of a lesson you teach that supports critical thinking?

11. How often approximately do you incorporate critical thinking into your lessons?

12. Can you describe a lesson involving critical thinking that you felt went really well and was a great lesson? Can you also explain why you think it was so successful, or what made it great?

13. Can you describe a lesson involving critical thinking that you felt did not go as planned, and why you think that happened?

14. How do you assess critical thinking?

Section D – Supports and Challenges

15. In what ways do you feel supported to incorporate critical thinking?

16. What resources are you using in regards to implementing critical thinking?

17. What challenges, if any, do you experience when teaching a lesson that incorporates critical thinking?

18. What benefits have you observed in the classroom when a lesson includes critical thinking?

Section E – Next Steps

19. Is there anything you wish you knew as a beginning teacher? Any advice you would give to someone starting out?

20. What are your continuing professional goals?

Thank you for your time and participation in this research study. It is greatly appreciated.