READING TO LEARN: PRE-SERVICE SECONDARY SCHOOL TEACHERS’ UNDERSTANDINGS OF SUBJECT AREA LITERACY

by

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Abstract

This study explored the subject area literacy knowledge and beliefs of five pre-service secondary school teachers in a Bachelor of Education program at a university in Eastern Ontario. It explored the factors that informed the development of participants’ thinking about subject area literacy, including their conceptualizations of how to integrate literacy into their subject area classrooms, and their reactions to a text-based activity that used both a researcher-selected and a participant-selected text selection. Participants represented three teachable subject areas, including history, mathematics, and English.

Subject area literacy is an important concept in adolescent literacy, as secondary school classes require advanced skills for successful completion. Each subject area has its own inherent structures and knowledge bases that one must understand to be successful in that area. These contribute to how successfully one interacts with subject area texts, but do not necessarily transfer between subject areas. Research posits that subject area teachers must explicitly instruct students in “reading to learn,” which was how this study conceptualized literacy.

Participants completed semi-structured interviews that included a text-based activity. Participants were asked to engage with two subject area texts to explore how they believed students would interact with the text, and the support they anticipated students might need to “read to learn” from the text. These interviews resulted in data about pre-service secondary school teachers’ understandings about subject area literacy; how they would integrate literacy into their teaching; the factors that contributed to their thinking about subject-specific literacy; and their understandings about the use of text within their classrooms. These findings could have implications for teacher-education program instructors.

Keywords: subject area literacy, pre-service teachers, secondary school, understandings
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Chapter 1
Introduction

There is an oft quoted phrase in education that states, “every teacher is a language teacher.” While it has become almost cliché, its importance cannot be understated. In fact, the Ontario Ministry of Education (OME), in the opening statement for its “Think Literacy: Cross-Curricular Approaches, Grades 7-12” resource document, describes the document’s audience as follows: “Literacy learning is a life-long process that belongs to every teacher. This resource document is intended for teachers of all subject areas” (Ontario Ministry of Education, 2003, p. 1). This statement underscores the notion that the responsibility for literacy skills falls upon all teachers, regardless of subject area, while emphasizing that it also falls upon teachers of all grade levels. While we often think of literacy as being the domain of the English language arts teacher, research has come to recognize that this is not so; every teacher is a language teacher (Shanahan, T. & Shanahan, 2008).

That the OME produced a resource document on literacy instruction for teachers of Grades 7 through 12 indicates that the notion that every teacher is a language teacher is of particular importance to subject area teachers at the intermediate and senior levels. This concept (i.e., the integration of literacy within subject areas) has increasingly become the focus of much literacy research. Subject area literacy is a particularly important concept for adolescent literacy, as intermediate-senior level classes (i.e., Grades 7 through 12) require advanced skills for successful completion and are taught by teachers specialized in subject areas (Edmonds et al., 2009; Ontario College of Teachers, 2016b). As students progress through the education system, the basic literacy skills they develop during the primary and junior levels of schooling (i.e.,
Kindergarten through Grade 6) do not automatically lead to the development of the more complex literacy skills that are required for successful interactions with more sophisticated subject area materials, such as those at the secondary school level (Shanahan, T. & Shanahan, 2008). Skills such as vocabulary, for example, become increasingly specific to the content the student is learning and do not necessarily transfer to other subject areas. Students must build these skills, and learn how to apply them to specific types of texts and situations. T. Shanahan and Shanahan (2008), and Goldman (2012), who cited Chall’s 1983 work on the stages of reading development, both posited that since research evidences that competency in early literacy skills does not automatically translate into successful literacy skills as older students, the education system has on ongoing obligation to support students in the development of these skills. This suggests that the teacher has a responsibility to help his or her students develop advanced, subject area literacy skills.

The OME recognizes this, and has incorporated this responsibility into its curriculum policy documents. In its “Ontario Schools, Kindergarten to Grade 12: Policy and Program Requirements” (2016) document, the OME refers to curriculum as follows:

The Ontario curriculum outlines the knowledge and skills that students are expected to develop and demonstrate in their class work, on tests, and in various other activities through which achievement is assessed and evaluated (see section 2.3). All elementary curriculum expectations from each relevant curriculum policy document for a grade, and all secondary curriculum expectations for a course, must be accounted for when planning the classroom program. (pp. 24-25)
This is noteworthy with respect to subject area literacy, and the role of the teacher in developing subject area literacy skills in his or her students. If curriculum documents are policy documents, and each expectation found in the applicable course curriculum policy document must be accounted for in the classroom program, with literacy skills being noted in many of the secondary school curriculum documents, then all Ontario secondary school teachers would be language teachers to some degree. For example, the current “Ontario Curriculum Grades 9 and 10: Mathematics, Revised” document states that:

- Literacy skills can play an important role in student success in mathematics courses.…
- The language of mathematics includes special terminology. The study of mathematics consequently encourages students to use language with greater care and precision and enhances their ability to communicate effectively. (OME, 2005a, p. 27)

An example of a specific expectation that aligns with this explanation of the place of literacy skills within the mathematics curriculum is: “Explain the roles of $a$, $h$, and $k$ in $y = a(x - h)^2 + k$, using the appropriate terminology to describe the transformations, and identify the vertex and the equation of the axis of symmetry” (OME, 2005a, p. 47). This falls under the communication category of the achievement chart of knowledge and skills found in the mathematics curriculum policy document. In mathematics, the communication category emphasizes the use of mathematical thinking and expression of meaning through the conventions of the subject area. These conventions include such things as terms, symbols, and visuals (e.g., graphic and algebraic forms) that do not necessarily apply to other subject areas.

Similarly, the current “Ontario Curriculum Grades 9 and 10: Canadian and World Studies, Revised” document emphasizes the importance of literacy skills in that subject area:
Many of the activities and tasks that students undertake in the Canadian and world studies curriculum involve the literacy skills relating to oral, written, and visual communication. For example, they develop literacy skills by reading, interpreting, and analysing various texts, including diaries, letters, government legislation and policy documents, interviews, speeches, treaties, information from non-governmental organizations, news stories, and fiction and non-fiction books. In addition, they develop the skills needed to…extract information from, and analyse various types of maps and digital representations…In all Canadian and world studies courses, students are required to use appropriate and correct terminology, including that related to the concepts of disciplinary thinking, and are encouraged to use language with care and precision in order to communicate effectively. (OME, 2013, p. 51)

This document emphasizes not only the subject-specific vocabulary important to Canadian and world studies, but also that students must be able to read and extract information from a variety of sources of text and visual representations. This shows the diversity of literacy skills, especially when compared to the mathematics curriculum policy document’s reference to literacy. Regardless of the subject area, it is evident, as noted in the Canadian and world studies curriculum policy document, that, “Literacy instruction takes different forms of emphasis in different subjects, but in all subjects, literacy needs to be explicitly taught” (OME, 2013, pp. 50-51).

With this emphasis on literacy within subject areas, and as a recent graduate of an Ontario Bachelor of Education (B.Ed.) program, I began to think about my own feelings of preparedness to teach explicitly such subject-specific literacy skills. Particularly, I became
interested in reading as a specific literacy skill, and how I might go about teaching my students how to read to fully understand, engage with, and learn from a variety of texts. This curiosity led me to conduct this research study, which explored secondary school pre-service teachers’ knowledge and beliefs about subject area literacy, focusing on the factors that pre-service teachers expressed as having contributed to the development of their knowledge and beliefs.

**Rationale for the Study**

As an area of educational research, literacy has received a significant amount of attention. Compared to other areas of interest in this field, literacy is relatively well-developed. However, there remain aspects of literacy that require further attention and investigation. One such aspect is literacy instruction for older or adolescent learners. Research has often focused on emerging readers, centring on early elementary years (i.e., below Grade 4, when literacy still focuses largely on foundational skills rather than comprehension), thus neglecting older students (Cain, 2010; Edmonds et al., 2009). Similarly, while concepts of literacy within the language arts or English classroom are well-established, research focused on subject-specific literacy skills, which will be more fully explained in Chapter 2, is still developing and continually being refined (Alvermann, Friese, Beckmann, & Rezak, 2011; Edmonds et al., 2009; Moje et al., 2004; Shanahan, T. & Shanahan, 2008).

These two aspects of literacy are important, because as students progress in school they are expected to engage with increasingly complex subject-specific materials, which often involves reading to learn from texts. This means that students are required to have advanced, subject-specific literacy skills in order to interact successfully with the content. These skills, which include subject-inherent structures (i.e., schemas) and knowledge bases, do not necessarily
transfer between subject areas (Alexander, 2006; Alvermann et al., 2011; Gritter, 2010; Moje et al., 2004). What one needs to be successful in the English classroom, for example, may differ from what one needs to be successful in the history or mathematics classroom (Alexander, 2006; Alvermann et al., 2011; Mayer, 2008). Research posits that subject area teachers must explicitly instruct students in “reading to learn,” or reading to access the knowledge contained in a text (Shanahan, T. & Shanahan, 2008). This has been noted by the OME, and is reflected in the intermediate and senior level curriculum policy documents that teachers use to guide and structure their teaching. As such, it is important to explore how pre-service teachers understand and conceptualize subject area literacy within their subject-specific classrooms, and to get a sense of how they would approach developing such skills in their students. Gaining an understanding of this, alongside the factors that pre-service teachers express as influencing their understandings of subject area literacy, is important to ensure that teachers are prepared to meet the demands of the education system into which they are entering.

**Positioning the researcher within the study.** As an avid reader, and recent B.Ed. graduate and Ontario Certified Teacher with intermediate-senior qualifications in the teachable subjects of history and French, I have particular ties to and stakes in the study of literacy. My personal investment in the act of reading has led me to view it as an important area of student development; literacy practices were something for which I had a keen eye during my practicum experiences throughout my concurrent education journey. I constantly sought to gain knowledge on how to develop these skills in students, while promoting reading engagement inside and outside of the classroom. Part of this was regularly engaging in conversations about practicum experiences with my fellow pre-service teachers. Our discussions often involved discussing
literacy and how we could prepare our students, in all pathways, with the requisite skills for success in our particular teachable subjects. This is a personal conviction; while I place particular value on the development of literacy skills, and believe it is important for success in all areas of learning, I also recognize that this view may not be shared to the same extent by others in the field of education. In conducting this study, I hoped to describe the beliefs of other pre-service teachers about literacy within their subject areas, so as to develop a picture of what a small group of pre-service teachers had to say about literacy.

I acknowledge that my own experiences in the B.Ed. program influenced the direction of my research, and I tried to remain cognizant of the potential this held to present itself as a bias in the research. L. Richardson (1994) claimed that writing is not the final product of research, but could become part of the research process, as it is constantly revisited, refined, and revised. As such, L. Richardson (1994) suggested that writing is part of the inquiry process, used to discover more about the data, the writer him or herself, and could be used as a process of analysis. Writing necessarily involves choices, such as vocabulary and emphasis, and my writing style could influence the way the data is regarded and interpreted, both by participants and the larger audience of the research (Creswell, 2013; Richardson, L., 1994). This final written product inherently reflects my values and interpretations, as the researcher, and leaves room for the presence of bias. In consistently reflecting on my own identity as a researcher, and being transparent about my perspectives and position in regards to the conducted study, I attempted to minimize this risk.
Research Purpose

The purpose of the study was to describe the subject area literacy (i.e., reading comprehension or “reading to learn”) knowledge and beliefs of pre-service secondary school teachers in a B.Ed. program at a university in Eastern Ontario. I was particularly interested in exploring the factors that pre-service secondary school teachers expressed as having contributed to the development of said knowledge and beliefs. The goal of the study was not to assess, but rather to describe pre-service secondary school teachers’ knowledge (i.e., what they expressed they would do in the classroom compared to what the literature suggested was best practice; the strategies they would use; and the considerations they would make with respect to reading in their classroom) and beliefs (i.e., whether or not they thought literacy instruction was their responsibility; if they believed literacy was important for their subject area; and value statements that they made about literacy within their subject area) about literacy, as well as the various factors that contributed to those understandings.

Research Questions

The study considered the following four research questions:

1. What are pre-service secondary school teachers’ knowledge of and beliefs about the role of literacy within their subject area?

2. What are pre-service secondary school teachers’ conceptualizations of how to integrate literacy into their subject area?

3. To what do pre-service secondary school teachers attribute the development of their subject area literacy knowledge and beliefs?
4. What are pre-service secondary school teachers’ reactions to a text chosen by the researcher, as well as to a text they self-select? Specifically:
   a) What do they perceive to be the benefits and challenges that the text presents to students?
   b) How would they frame the text within a lesson?
   c) What is the source of their knowledge about the benefits and challenges that the text presents to students, and about how they would frame the text within a lesson?

Definitions of Terms

The study included pre-service secondary school teachers in an Ontario Bachelor of Education program; this program included education in both theory and practice. Pre-service teachers were thus those individuals enrolled in such a program, with secondary referring to those teaching at the high school or Grades 9 through 12 level.

When considering this area of research, a number of terms are used interchangeably to address the concept of subject areas. Alexander (2006) stated that academia and education have historically grouped knowledge into distinct fields or subjects, known as domains. Research has demonstrated that such terms as domains, fields, subjects/subject areas, content areas, and disciplines/discipline-specific have all been used to describe knowledge and understandings that apply to a particular area of study. In education, domains can be seen as the various subjects that students study, such as reading and writing (or, more generally, language arts), mathematics, or history, and so this study relies on the term “subject areas” to refer to this concept. This term is
echoed from the OME’s “Think Literacy” (2003) document, confirming its appropriateness for this study.

*Inherent structures* and *knowledge bases* refer to subject-specific skills and knowledge sets that are necessary for both comprehension of material and the ability to work with and manipulate data and ideas within the domain. These inherent structures may be noted as schemas or scripts about a particular subject that allow one to make sense of the material with which he or she works, and to add to and modify the knowledge base as exposure to more advanced material increases (Jetton & Alexander, 2004; Mayer, 2008; McDevitt & Ormrod, 2012). For example, Alvermann et al. (2011) and Hillman (2013) highlighted the development of skills in the area of mathematics, focusing on how students develop mathematical skills and how teachers can better foster those specific skills. An example used in both studies was solving word problems. While this involves subject-specific literacy, there are also certain skills involved in the task that are inherent to mathematical cognition (Hillman, 2013). Subject-specific literacy skills can therefore be seen to build upon the inherent domain structures to promote success.

Finally, it is important to establish what *literacy* indicates within the context of this study, since, as Bartlett (2008), and Keefe and Copeland (2011) stated, the definition establishes the boundaries within which literacy operates. Traditionally, literacy has been regarded as the ability to read and write. This includes making sense of text and demonstrating understanding; it is largely an independent action (Cain, 2010). This study focused on reading, and the “making sense” aspect of reading. Reading is defined in the context of more advanced literacy skills, focusing on reading comprehension or “reading to learn” (Cain, 2010).
Overview of Thesis

This thesis is comprised of five chapters. In this chapter, I explored my interest in the topic at hand, providing insight into why I chose to pursue this research topic. I then introduced the rationale for the study, outlined the purpose and research questions that guided the study, and defined key terms as they applied to the study. These came together to provide the context for the research I conducted. Chapter 2 provides a detailed overview of my theoretical framework and the related literature, including adolescent and subject area literacy and the implications those concepts hold for teaching and learning. It finishes with an explanation as to why a qualitative, multi-method approach was the best fit for this research. In Chapter 3, I detail my qualitative research methodology. I outline the study design and the data collection tools, selection of participants, and finally the analysis of the data. I also briefly introduce the participants. The results of the study are presented in Chapter 4. Organized according to the study’s four research questions, the findings present the story the data had to tell about pre-service secondary school teachers’ knowledge and beliefs about subject area literacy, and the factors that informed their understandings. Chapter 5, the final chapter, discusses the findings in relation to the existing literature, addressing such points as similarities and differences between this study’s findings and those of previous studies, the limitations of the current study, future directions for research, and the implications this study could hold for education.
Chapter 2

Literature Review

In this chapter, I first establish the theoretical framework that guided the study, and then provide a general overview of the concepts of adolescent literacy as well as subject-specific literacy. This is followed by an explanation of key constructs to these aspects of literacy, such as subject-specific inherent structures and knowledge bases, which are supported by brief examples from the domains of history, science, and mathematics. These domains were chosen because they have a dominant presence in the field of subject-specific research. These concepts will be addressed in relation to subject area literacy practices, and the potential barriers these structures present to integrating literacy effectively into these domains will be discussed. Implications for practice will be explored. I close the chapter by providing a rationale for the use of a qualitative approach to data collection.

Theoretical Framework

Subject area learning and subject area literacy. This study was based in the work around the construct of subject areas, and its implications for teaching and learning. The concept of subject areas is important to teaching and learning because it revolves around more than just the notion that a subject area contains particular knowledge (Biglan, 1973). Subject areas have such elements as their own organizational patterns, vocabulary, modes of inscription (i.e., representation of concepts in symbolic form), and core tasks and problems (Alexander, 2006; Jetton & Alexander, 2004; Mayer, 2008; Moje et al., 2004). An understanding of these elements is a requirement for progression to more advanced levels of education and is essential for subject area learning at the secondary school level. This understanding is essential not only for the
student, but also for the teacher, who must recognize the key concepts of his or her subject area and act in a manner that fosters those structures and knowledge bases in his or her students (Alvermann et al., 2011; Hillman, 2013; Moje et al., 2004).

With respect to this study, the importance of recognizing the notion of subject areas is the implication it holds for literacy instruction. A level of reading ability is required, to some extent, in all subject areas, since knowledge is typically shared and demonstrated through written text (Alexander, 2006; Edmonds et al., 2009; Jetton & Alexander, 2004; Mayer, 2008). Research on subject areas raises an important point about subject area teaching: while subject area teaching has often been regarded as separate from reading instruction, this notion can be harmful to students’ development in subject areas. Typically, it is believed that formal reading instruction, seen as including instruction on such elements as the development of decoding, fluency, vocabulary, and basic comprehension, ceases upon completion of the primary-junior level of education (i.e., Grades Kindergarten through 6) (Jetton & Alexander, 2004). However, if this notion were true, it would mean that although students are required to engage with text that, alongside the content of the courses, becomes increasingly difficult and complex as they advance in grades, they are not receiving the instructional support on the skills and strategies they need to fully access the knowledge in those texts (Edmonds et al., 2009; Shanahan, T. & Shanahan, 2008). Since reading allows the student to access the knowledge about the subject area contained in a text, it follows that the subject area teacher should include literacy instruction in their instructional approach. Research supports this claim, and suggests that subject area teachers should explicitly instruct students in “reading to learn” in order for students to engage successfully with subject area texts and to access the knowledge that they contain (Shanahan, T.}
Further, research indicates that literacy should be integrated within the subject knowledge and developed alongside subject area knowledge (Hillman, 2013; Jetton & Alexander, 2004; Moje et al., 2004; Snow & Moje, 2010). Literacy instruction should continue to be developed and refined throughout the secondary school years as it pertains to specific subjects. This study acknowledged this, and sought to describe pre-service secondary school teachers’ knowledge and beliefs about teaching literacy within their subject area.

**Social constructivism.** The study used a social constructivism interpretive framework, in that it explored literacy realities as they were perceived by pre-service secondary school teachers. The study was less concerned with the actual reality of subject-specific literacy instruction than it was with the knowledge and beliefs about literacy held by pre-service secondary school teachers. Social constructivism acknowledges the role that interaction with one’s environment, such as people and experiences, plays in the construction of subjective beliefs and meaning (Creswell, 2013; Patton, 2002); knowledge and beliefs are not developed in a vacuum, but result from experiences and interaction with the world beyond oneself. This philosophy is particularly important when considering the aim of this study, as the study sought to contextualize the development of pre-service secondary school teachers’ understandings of subject area literacy.

**Development and growth of teacher beliefs.** A significant component of the B.Ed. program is completing practicum blocks. This is a chance for pre-service teachers to put their learning into practice, often for the first time, in a real classroom (OCT, 2016a). Thus, of particular importance to this study was research that suggests that the relationship between teachers’ beliefs and their instructional practices is bi-directional in terms of development and
growth. Both Guskey (1986, 2002) and V. Richardson (1990, 1998) emphasize the importance of practice in developing teachers’ knowledge and beliefs. Each suggests that changes in teachers’ beliefs and practices occur after a period of reflection, and often hinge on the effect a suggested practice has on student achievement or outcomes (Guskey, 1986, 2002; Richardson, V., 1990, 1998). If, for example, the practice results in a positive change in student achievement, the teacher is more likely to continue incorporating that practice into his or her instructional approach, and his or her beliefs will likely change to value that practice. Supporting this framework is Gritter’s (2010) study on secondary pre-service teachers’ beliefs about subject area knowledge and literacy practices. Gritter (2010) suggested that completing tutoring placements working with at-risk readers was beneficial to the development of pre-service teachers’ understanding of and beliefs about subject area literacy practice. This indicates the importance of “practice” in developing pre-service teachers’ knowledge and beliefs, reflecting the work of Guskey (1986, 2002) and V. Richardson (1990, 1998). The present study acknowledged this relationship by exploring participants’ reflections on their practicum experience, and its implications for their subject area literacy knowledge and beliefs.

**Adolescent Literacy**

While the body of literature surrounding literacy is relatively well-developed, the area of adolescent literacy has been neglected in comparison to the extent of research on developing readers. The majority of literacy-related empirical studies focus on readers in the primary grades, who are learning how to read—that is, the research has focused largely on the fundamental skills required for reading (Goldman, 2012; Shanahan, T. & Shanahan, 2008; Torgesen et al., 2007; United States Department of Health and Human Services, National Institute of Child Health and
Human Development, 2000). More recent research on literacy instruction has begun to address this gap. Adolescent literacy is gaining attention, as is subject area literacy as a sub-section of adolescent literacy research. However, Goldman (2012) noted that although research on subject area literacy is beginning to accumulate, there are limitations: (a) in that the research is based largely on small-scale studies (i.e., studies on instructional interventions rely on data from anywhere from 1–30 teachers); and (b) because this research area is just developing, the work is biased toward the descriptive rather than experimental. It should also be noted that due to the limited body of literature, a small number of researchers are represented in the literature.

Despite the limited existing research on adolescent literacy, studies have shown that direct and explicit instruction of reading strategies and skills, such as the type of instructional approach used with early elementary students, is effective in addressing the needs of older students who have low literacy skills (e.g., Edmonds et al., 2009; Mastropieri, Scruggs, & Graetz, 2003; Roberts, Torgesen, Boardman, & Scammacca, 2008; Torgesen et al., 2007). Students should be instructed in practices that both allow them to make meaning of text and to address problems they encounter throughout the reading process. They can then use these problem-solving strategies to support the end goal of comprehension. Edmonds et al. (2009) stressed that while younger students are equipped with problem-solving strategies, this instructional emphasis declines during adolescence, just as courses become more specialized and the academic demands placed on students increase.

In their synthesis, Edmonds et al. (2009) reviewed 29 studies and completed a meta-analysis of a sub-set of 13 studies to determine the efficacy of intervention programs and supports on students’ reading comprehension. The studies focused on older students, in Grades 6
through 12. This demographic was chosen due to the lack of current research on reading interventions for older students; while there is an extensive body of research investigating early intervention strategies, literature on struggling readers has tended to neglect students in middle and secondary school (Edmonds et al., 2009). Edmonds et al. (2009) reviewed studies completed between 1994 and 2004 in an attempt to focus analysis on the most recent and relevant intervention strategies.

Edmonds et al. (2009) included studies that investigated the most commonly used intervention approaches, including strategies targeted at comprehension, fluency, word study, and multi-component interventions. The goal was to present a broad analysis of the efficacy of these approaches when they were implemented for older students. In selecting studies, Edmonds et al. (2009) conducted a search of ERIC and PsycINFO, as well as manual searches of 11 journals. The studies were then analyzed using effect size as an indication of positive outcomes on comprehension; a small effect size was labeled as 0.20, moderate as 0.50, and large as 0.80. The result was an overall large effect (effect size = 0.89, as a weighted average) in favour of students who received intervention over their peers who did not receive intervention.

The findings indicated that this demographic needs direct and explicit instruction in reading intervention strategies, specifically targeted toward comprehension (Edmonds et al., 2009). Edmonds et al. (2009) recommended that teachers seek to achieve fidelity in their intervention practices; when strategies were applied by researchers, there was a greater effect size (effect size = 1.15) than when applied by teachers (effect size = 0.77) (Edmonds et al., 2009). This suggests that when students receive instruction from a teacher who intends to implement an intervention practice about which he or she has become aware, reading
comprehension outcomes will be better when the instructional delivery matches almost perfectly with the intervention practice. Another important aspect of adolescent literacy is that a combination of factors affect the reading comprehension outcomes of students. Such factors as students’ background knowledge and their ability to use strategies independently must be considered when designing instructional approaches (Edmonds et al., 2009). These findings are significant because instruction in these strategies declines after the early elementary years, leaving older students at a loss for means to improve their reading. In turn, students experience a greater risk of falling even further behind. This synthesis provides evidence for the need to implement explicit instructional strategies and for the need to continue research in this area of literacy intervention. This is especially important given the context of domain-specific reading and writing that students experience in secondary school. Rather than relying on general literacy skills that provide a foundation for literacy success, students may come to rely on increasingly subject-specific skills to make sense of a text and achieve success (Alexander, 2006; Jetton & Alexander, 2004; Mayer, 2008; Moje et al., 2004).

Edmonds et al. (2009) raised a number of issues with the study of literacy intervention that could lead to further research and review of literature. The study ignored several contributing factors that are important to note when understanding students’ inability to make sense of texts. For example, in discussing the limitations of the study, Edmonds et al. (2009) suggested that the role of context, including social and cultural elements, on comprehension needs to be further investigated. Other areas for future investigation included how comprehension is measured; how pre-service and in-service teachers are advised to support struggling students with reading comprehension development; what strategies work with older
students and if they work with all struggling students or just specific sub-groups (e.g., students with learning disabilities); if there are known effective strategies, why are these not being implemented in the classroom; and, how should educators encourage students to use appropriate intervention strategies when students work independently?

**Subject Area Literacy**

The set of skills and cognitive strategies required to be successful varies across subject areas; this includes the types of literacy skills students must acquire (Alexander, 2006; Alvermann et al., 2011; Gritter, 2010; Hillman, 2013; Mayer, 2008; Moje et al., 2004; Snow & Moje, 2010). Literacy within a subject focuses on comprehension or “reading to learn,” as students already have the foundational skills to support their engagement with the text at a higher level; the goal, then, is reading to access knowledge from text. An important point about subject area literacy is that it varies not only between humanities, and science, technology, engineering, and mathematics (STEM) subjects, but also within each of these categories. For example, both history and geography are categorized as humanities subjects, but each has its own literacy nuances. History emphasizes the relationships amongst groups of people, the implications of manmade objects, and the results of policies enacted by government and groups of people; it is focused largely on the implications of human interactions with each other. Geography, however, emphasizes the natural, physical structures of the world, and the interactions of humans with those structures (OME, 2013). Subject area literacy is different from traditional, general views of literacy in that teachers must develop in their students the specific set of skills required for their subject area, since literacy skills from a language arts, or English, context will not necessarily foster success in other subject areas (Alvermann et al., 2011; Hillman, 2013). The nuances in
specific subject areas include such things as subject-specific vocabulary (e.g., “photosynthesis” in science), notation systems (e.g., numbers and formulas in mathematics and the sciences), reading of visual representations (e.g., graphs), text structures and genres, and ways of communicating (e.g., formulas, lab reports, charts, and graphics) (Alvermann et al., 2011; Hillman, 2013; Moje et al., 2004; Snow & Moje, 2010).

This definition of literacy as subject-specific is important to the current study because literacy at the secondary school level becomes less focused on the skills required in the English language arts classroom and more focused on developing the specific skills required in each subject area. As the subject area skills become more advanced, so, too, must the focus on literacy instruction for the particular subject. For example, the “Ontario Curriculum Grades 11 and 12: Science, Revised” document states:

When reading in science, students use a different set of skills than they do when reading fiction or general non-fiction. They need to understand vocabulary and terminology that are unique to science, and must be able to interpret symbols, charts, diagrams, and graphs. In addition, as they progress through secondary school, it becomes critically important for them to have the ability to make sense of the organization of science textbooks, scientific journals, and research papers. To help students construct meaning from scientific texts, it is essential that teachers of science model and teach the strategies that support learning to read while students are reading to learn in science. (OME, 2008, p. 41)

That this aspect of science is highlighted in the curriculum policy document demonstrates the importance of appropriate instruction in literacy skills that are specific to the subject. It also
highlights that, in general, science has its own inherent structures and knowledge bases with which students must be familiar in order to be successful. Furthermore, the OME teacher resource document, “Think Literacy: Cross Curricular Approaches, Grades 7-12” (2003), is devoted to subject-specific literacy at the intermediate-senior level. This document has subject-specific companion documents that suggest instructional approaches for each subject area and express the importance of literacy instruction in all domains. For example, the “Think literacy, Subject-Specific Examples: Geography, Grades 7-9” (2005b) document provides tips on how to teach students to “read” maps, an essential skill in the geography classroom. Students need to know how to access and accurately interpret the information held in a map, making it imperative that teachers develop this skill in their students. The document states:

Maps are visual representations of places or things: the surface of the earth or of planets, of routes, or the components of things or landscapes. Simply put they show the “what” and “where” for a set of data at a specific time…. Grade 9 students participate in an issues based approach to geographical studies. They are expected to gather information in order to undertake analysis of issues, identify various points of view as well as develop their own supported opinions. Maps are read to support this decision-making process. (p. 2)

As noted earlier in this section, geography emphasizes the interplay between the natural structures of the world and humans. “Reading” a map is a fundamental skill required to engage fully with information in the geography domain, making subject area literacy an important concept to its teaching. While the notion that literacy is specific to the language arts classroom,
or the English classroom at the secondary level, persists amongst society at large, it is clear that the OME recognizes literacy to be an important concept in all subject areas.

**Inherent Structures and Knowledge Bases of Domains**

Mayer (2008) highlighted that while educational psychology has long focused on general theories of learning, more recently the focus has shifted to consider theories that are specific to each domain (pp. 31-32). Instead of exploring learning and development in its overarching sense, research is beginning to seek answers to more specific questions about processes involved in a particular domain, such as the word problem-solving example given above when I defined inherent structures and knowledge bases. This recognizes that there are specific skills and structures within each domain that require special attention and do not necessarily transfer from one domain to another. It is important to acknowledge that researchers have made a more defined differentiation in educational psychology, for it holds implications for the teaching and learning of subject areas, including the integration of literacy within domains.

When considering domains and addressing the inherent structures and knowledge bases, the source of that knowledge must be considered. How is it known what is inherent to a domain? Knowledge about the inherent structures and knowledge bases of domains is derived from examining the way domain experts act. Jetton and Alexander (2004), and Hillman (2013) noted that expectations about student learning are based upon the thinking and skill sets employed by experts in the field. Hillman (2013) suggested that subject area teaching should focus on determining how a scientist acts as a scientist, a mathematician as a mathematician, and an historian as an historian, and work to develop those skills in students through a modeling and apprenticeship approach. These “masters” of their fields have developed the necessary
understandings and skills for advanced success in their disciplines, demonstrating in their success certain patterns of thinking and interactions with the content that have allowed them to achieve advanced standing. Understanding how they interact with the content may shed light on the fundamental skills required for domains.

Both Biglan (1973) and Jetton and Alexander (2004) noted that domains organize information in specific ways; while there may be overlap, there are also specific organizational patterns, knowledge bases, and structures that are unique to a domain and that must be developed for participants of the domain to be capable of more advanced thinking in that area. Knowledge is organized around key concepts or principles. Fisher and Frey (2016) referred to these as “enduring understandings,” and defined them as, “statements that summarize what students need to learn and revisit throughout their schooling as they systematically deepen their knowledge” (p. 525). For example, teaching and learning about history is centred on both time (i.e., historical era) and geographical location, whereas in science, and biology in particular, the teaching and learning centres on systems and their subsystems (Jetton & Alexander, 2004, pp. 16-17). These organizational systems help domain participants make sense of information and make connections to prior knowledge, a key aspect of learning (McDevitt & Ormrod, 2012).

An obvious example of experts having distinct ways of thinking and interacting with content based on their respective subject area is the division of higher learning institutions (e.g., universities) into subject areas through departments or faculties. In studying the organization of American universities, Biglan (1973) examined the characteristics associated with each department, having posited that one possible reason universities are organized into departments is because of the particular requirements that arise from the characteristics of the subject area.
Relying on data obtained from scholars working within a large university (168 faculty members representing 36 academic areas) and a small university (54 faculty members representing 30 academic areas), Biglan (1973) sought insight on what dimensions they used to think about their given academic area in comparison to other academic areas. Participants were asked to group the academic areas into categories based upon what the participant believed to be their similarities. Biglan (1973) then completed nonmetric multidimensional scaling (i.e., using ordinal data to create a visual map of the stimulus points based on the similarity of the stimuli) of the data to determine the dimensions the participants assigned to the academic areas.

He found that scholars at both the large and the small university thought about academic areas in similar ways, distinguishing between academic areas based on three dimensions: (a) the degree to which an area subscribed to a paradigm (i.e., a body of theory to which all members of a field subscribe, and which organizes study around acceptable phenomena and areas for further research); (b) the degree to which an area was concerned with application to practical problems; and (c) the degree to which an area concerned itself with life systems (whether that was biological or social) (Biglan, 1973). This indicated that subject area experts were cognizant of at least the basic, underlying differences amongst their fields of study. It also evidenced the claim that subject areas organize information in different ways, and emphasized the importance of understanding those means of organization as a part of being successful in a given area.

Furthermore, C. Shanahan, Shanahan, and Misischia (2011) addressed the specificity of skills in relation to subject area reading comprehension when they examined the differences in reading approaches employed by subject area experts in history, chemistry, and mathematics. In a study funded by the Carnegie Corporation, T. Shanahan and Shanahan (2008) used subject area
experts to determine the literacy approaches used by experts, and then involved teachers and teacher-educators to distill those approaches down into useable strategies in the high school classroom. In their 2011 paper, C. Shanahan et al. reported on one aspect of the 2008 study, and described the reading approaches used by the subject area experts. Data were gathered through interviews and think-aloud protocols with the two subject area experts (i.e., tenured professors in the middle to end of their careers) from each of the three subject areas. Each expert interacted with a total of five text selections: two selected by the researchers that were at the experts’ academic level; one self-selected by the expert; and two selected by the researchers that were representative of typical texts in a subject area high school classroom. Each selection provided by the researcher was at least 1.5 pages in length (Shanahan, C., Shanahan, & Misischia, 2011). Following the think-alouds, the researcher used probing questions to gain further information about comments made during the process, usually related to information about reading approaches used to make sense of the text or the ways reading and understanding text were regarded in the subject area (Shanahan, C. et al., 2011).

To identify how the subject area experts differed in their approaches to reading subject-specific texts, the researchers cross-coded each interview and think-aloud protocol, identifying instances when an approach used by one of the historians, for example, might have been mentioned by a chemist or a mathematician, and vice versa. Their analysis found that the experts differed both in the approaches they implemented and the degree to which they made use of a particular approach (Shanahan, C. et al., 2011). The experts engaged in similar strategies, including sourcing, contextualization, corroboration, critiquing of the argument, use of text structure, and attention to visual or graphic information (e.g., photos, equations). However, the
ways in which they used these strategies, and the degree to which they used them, varied greatly. For example, contextualization (i.e., the context in which a text is written) was found to be very important to the two historians, who considered the time period in which the text was written, the stance the text took compared to controversies in the field, and the expertise represented in the text (e.g., cultural, political, social history). The two mathematicians, however, did not use contextualization during their think-aloud protocols. Both indicated that, because the field of mathematics progresses slowly, an article published years before was just as relevant in the present, and neither made reference to situating the text within a specific branch of mathematics or theoretical approach (Shanahan, C. et al., 2011). Another notable distinction was the influence of subject area text format on reading approaches. C. Shanahan et al. (2011) found that the historians generally ignored the graphics in their texts, placing value instead on the arguments contained in the text itself. Graphics were viewed as supporting an argument, but not central to making the argument. On the other hand, C. Shanahan et al. (2011) found that both the chemists and the mathematicians emphasized that text and graphics or equations were equally important. These experts emphasized that the graphics carried unique insights into the content under study.

The overall finding of C. Shanahan et al.’s (2011) study was that subject area expertise is one of many factors that influences how experts in the domain read. This combines with other factors, such as level of subject area knowledge, the characteristics of the text, and the reason for reading it, to determine how a reader approaches a text. This connects back to inherent structures and knowledge bases within subject areas, and the ways in which subject areas organize information, because these understandings about a subject area influence how an individual approaches a text.
C. Shanahan et al.’s (2011) study identified strategies that experts used to support their reading comprehension, and then hoped to use that information to create strategies to support secondary school students’ reading comprehension. However, research has questioned whether knowing this and teaching this to novices actually helps the novice perform better. Expert-novice research identified strategies that experts used, and carried out experimental, intervention studies to test these claims. The research identified that teaching this knowledge explicitly to students would help them perform better. For example, an experimental study on strategic reading instruction to support reading comprehension in Grades 3 and 4 students by Droop, Elsäcker, Voeten, and Verhoeven (2016) found that direct instruction in strategies identified as effective can improve student performance. The study implemented an intervention (strategic reading instruction) over two years using a pre-test/post-test control group design, whereby the teachers in the experimental group received training in and implemented the identified effective strategies. Forty schools, comprised of 62 classrooms, participated, and were randomly assigned to either the control or the experimental group (Droop, Elsäcker, Voeten, & Verhoeven, 2016). Strategy instruction included teaching such things as previewing text, monitoring comprehension, and summarizing. Teachers who participated in the experimental group carried out reading comprehension instruction that was integrated with reading aloud and independent reading, three times a week. Once a week, reading comprehension instruction was integrated into other subject areas, such as science. The focus was on instructing students in a limited set of strategies over a period of time (Droop et al., 2016). The study found that students in the experimental group had greater growth and positive gains in their learning than students in the
control group. This evidenced the efficacy of providing direct instruction to novices about the strategies proven to be effective by experts.

**Vocabulary.** Vocabulary is likely the widest recognized difference amongst domains. Not only are there terms that are subject-specific, terms that are used in everyday language may hold different connotations when used in the context of a domain; for example, the term “bill” in the context of a history classroom means something different from its use in everyday life. In the history classroom, it most likely refers to a draft of a law presented to a legislature for enactment, whereas in everyday life it would most likely be taken to mean a form of currency or a statement of charges for food or drink when eating out (Alexander, 2006; Jetton & Alexander, 2004). Vocabulary also includes terms that are pertinent to the core tasks and problems of a domain. In science, for instance, this would include “hypothesis,” a term that may not be familiar to students if not taught explicitly, but that is essential to the scientific process—an important task in science (Alexander, 2006). This has clear implications for student success and thus teaching. It is also linked to the idea of discipline-specific literacy instruction, since vocabulary is considered a literacy skill. McKeown and Beck (2011) emphasized the important relationship between vocabulary and comprehension; vocabulary is tied to background knowledge and allows the reader to make sense of a text. An important concept for vocabulary instruction is that it is tied to context. This means that discussing vocabulary in terms of domains is even more important. If a student misses key terms or reads them out of context, the student is denied access to materials and fails to develop advanced domain skills. McKeown and Beck (2011) suggested a tiered approach to vocabulary instruction, dividing words into three tiers. Tier 1 includes words that are found in everyday language and typically do not require additional instruction for appropriate
student use. Tier 2 includes words that can be used generally, but that are more common in text than in oral language—“cherish,” for example. Finally, Tier 3 includes words that are generally subject-specific and do not contribute to one’s general vocabulary (McKeown & Beck, 2011). In this sense, McKeown and Beck (2011) noted that Tier 3 vocabulary is taught not to enhance everyday vocabulary, but rather to improve subject knowledge. This demonstrates the overlap between inherent structures and knowledge bases and the need for subject-specific literacy instruction.

**Modes of inscription.** Modes of inscription is another important concept, especially in terms of literacy within subject areas (Jetton & Alexander, 2004). Often, these modes of recording and transmitting knowledge are divided between the humanities and STEM subjects (Alexander, 2006); humanities rely on linguistic conventions, while science and mathematics make use of numeric representations, graphic representations or formulaic representations (Alexander, 2006; Alvermann et al., 2011; Hillman, 2013; Mayer, 2008; Moje et al., 2004; Snow & Moje, 2010). Mathematics and science are particularly demanding of students because they may use multiple forms of inscription at one time (Alexander, 2006). These various forms of recording and transmitting knowledge are important because they transmit values about the domain and its procedures and tasks (Alexander, 2006). Students must become fluent in using the varying notation systems in order to fully grasp the subject area knowledge.

**Core tasks and problems.** Each domain also has its own core tasks and problems that define its activity as an academic area of study (Alexander, 2006; Jetton & Alexander, 2004; Mayer, 2008). Engagement with material focuses on producing specific outcomes and these outcomes are promoted by typical patterns of thinking. Fisher and Frey (2016) posited that these
are known as “essential questions,” and are derived from the “enduring understandings” that frame a subject area. These questions guide study and inquiry in the subject area. For example, the organization of historical concepts into time or geographic units leads to thinking that revolves around causal relationships (Alexander, 2006). History seeks explanations and uses interpretive structures and patterns of thinking to construct knowledge and conduct analysis (Alexander, 2006). These core tasks and problems guide activity within the domain, making them important concepts to teaching and learning. Students must be taught these tasks and problems explicitly, meaning teachers themselves must be familiar with the concepts.

This section, which described the nature of inherent structures and knowledge bases within domains, including elements such as vocabulary, modes of inscription, and core tasks and problems, has begun to demonstrate the complicated nature of domain-specific teaching and learning. Further complicating the matter is the concept of subject area literacy, which is addressed next.

Subject-Specific Literacy Integration

It has long been established that reading is a domain that is required for success in other domains (Alexander, 2006; Edmonds et al., 2009; Mayer, 2008). As has been previously mentioned, all subject areas, to some extent, rely on the written word to demonstrate and share knowledge (Jetton & Alexander, 2004). When accounting for this fact, T. Shanahan and Shanahan (2008) noted that a commonly held belief is that literacy skills are fully developed in early grades, and that proficiency in reading at the primary-junior level of education will support students in their later years of schooling; this has been referred to as the “vaccination model” of literacy instruction. This belief assumes that enhanced instruction during primary years will lead
to enhanced outcomes later on, without a continued emphasis on literacy instruction. This model is incorrect (Goldman, 2012; Shanahan, T. & Shanahan, 2008). In her review of twenty-first-century literacy skills that students need to succeed, as well as the instructional approaches that teachers can implement to help students develop these skills, Goldman (2012) noted that reading to learn differs from the “learning to read” stage. She emphasized that learning to read requires mastering procedural skills, while reading to learn moves beyond procedural skills to gathering information from text. If students are to be successful, they require instruction in these new skills and the reading tasks being demanded of them (Goldman, 2012). This notion has been supported by recent research focused on adolescent literacy, and subject-specific literacy.

Research on domains raises an important point about subject area teaching: while subject area teaching has often been regarded as separate from reading instruction, this notion can be harmful to students’ development in subject areas. The exploration of some of the various subject-specific elements in the above section began to highlight the interconnectedness of subject knowledge and subject area literacy. Further to this, Moje and colleagues (2004) posited that, “it is difficult to distinguish between content learning and content literacy learning. In fact, a critical aspect of learning in any discipline involves learning to communicate through oral and written language, among other forms of representation, in that discipline” (p. 45). Research has argued that subject area learning necessarily includes literacy as part of the overall learning, and that it should not be considered an additional skill to develop in students; rather, literacy should be integrated within the subject knowledge and developed alongside subject area knowledge (Hillman, 2013; Jetton & Alexander, 2004; Moje et al., 2004; Snow & Moje, 2010). Literacy instruction should not be regarded as complete once students leave the elementary level of
education, but should continue to be developed and refined throughout the secondary years as it pertains to specific subjects.

This view was supported by Alvermann et al. (2011) who looked at the use of an online mentoring approach to study the interactions between subject area knowledge in mathematics and subject area literacy knowledge. Two pre-service mathematics teachers were paired with two in-service middle school mathematics teachers, who mentored them while they completed an online course designed to support and mentor them in the integration of subject area reading instruction and mathematics subject area knowledge. The reading course instructors (one subject area reading teacher educator and one graduate teaching assistant completing doctoral studies), as well as a mathematics subject area teacher-educator, mentored the in-service teachers, by providing feedback and engaging in dialogue with both them and the pre-service teachers (Alvermann et al., 2011). The pre-service and in-service teachers completed nine modules that required them to develop, implement, and reflect on four lessons where they worked to use their subject area knowledge to select appropriate reading instructional strategies for middle school classes. Data were gathered from e-mail communications amongst the participants and the researchers (who were also the course instructors), the course syllabus, texts used in lesson planning and instruction, lesson plans designed by the pre-service teachers, student artifacts, reflections on the lessons, instructor feedback, and interviews conducted at the mid-point and end of the course (Alvermann et al., 2011).

Their findings demonstrated that both subject area reading and subject area knowledge skills were necessary for effective instruction, as demonstrated in participants’ reflections on the lessons (Alvermann et al., 2011). However, the findings indicated that, typically, one area was
valued more than the other, in relation to the participants’ background. For example, when giving feedback on a lesson, the reading instructors might have been pleased with the lesson design and instructional strategies, while the mathematics instructor might have been disappointed with the depth of mathematical thinking involved in the lesson (Alvermann et al., 2011). The implication of this for teacher educators, Alvermann et al. (2011) indicated, was that subject area reading teacher educators should be cognizant of their value systems, and should put in place checks to ensure that subject area knowledge is valued equally with subject area reading instruction knowledge. Subject area reading strategies must correspond to the ways of thinking and practices within the subject area or the strategies will not support students effectively. Furthermore, the use of an online mentoring approach was not conducive to the development of practices that integrated equally both subject area reading instruction and subject area knowledge instruction. It was not enough to suggest to pre-service teachers that subject area knowledge and subject area literacy skills were equally important and must be used; the study implied that explicit teaching and modelling of these skills is necessary for pre-service teachers’ success in the integration of these two components (Alvermann et al., 2011).

**Implications of Subjects on Teaching and Learning**

Moving from general theories of learning to subject-specific theories of learning holds vast implications for teaching and learning. While learning in general is largely understood, research is still establishing the finer points of learning within subject areas. The growing empirical research on subject area learning will promote more targeted approaches to instruction, focusing on developing the specific structures and knowledge bases demanded by a subject area. Awareness of the nuances of a subject area will allow educators to prepare for the challenges
presented by clashes in patterns of thinking, and conflicting sources of knowledge, and help educators structure lessons that better support struggling learners (Alexander, 2006; Hillman, 2013; Jetton & Alexander, 2004; Mayer, 2008; Moje et al., 2004; Snow & Moje, 2010). Several implications are worth noting, including conceptualizations of “hard” versus “soft” knowledge, conflicting values of subject knowledge and subject area literacy, and the interplay between subjects and concepts of adolescent literacy.

Conceptualizations of subjects offer information on and present a barrier to effective teaching and learning within subject areas. Subjects can be defined in terms of “hard” (or “structured”) and “soft” (or “ill-defined”) knowledge, or “pure” and “applied” (Biglan, 1973; Gritter, 2010; Jetton & Alexander, 2004). “Hard” knowledge is said to be that which is “verifiable, definitive, and cumulative” (Gritter, 2010, p. 148), whereas “soft” knowledge is that which is based more on interpretation (Gritter, 2010). Similarly, “pure” knowledge is said to be more intellectual, dealing with theoretically-based ideals and more abstract contexts, while “applied” is more practical and context-dependent (Gritter, 2010, p. 148). While these labels provide information on the types of structures that are important to the subject, they also influence how the subject area is perceived not only by the students, but also by the teacher.

For example, in Gritter’s (2010) study involving ten secondary pre-service teachers in a variety of humanities and STEM subjects, she found that even participants who identified as being from a “soft” knowledge subject area valued “hard” knowledge more so than “soft” knowledge. Participants were enrolled in a school of education, and completing a subject area literacy course for the first time. Participants’ subject area expertise included art, journalism, physics and mathematics, music, English, history, biology, audiology, family and computer
science, and French. Each subject area was represented by one pre-service teacher, which was a limitation of the study. Data were gathered through individual interviews about subject area knowledge and teaching, as well as subject area literacy instruction. Gritter (2010) found that each participant had a firm view of the type of knowledge (i.e., “hard” or “soft”) of which they considered their subject area to be a part. For example, participants in art and journalism both described their subject areas as having a “hard” knowledge base (one that was fixed and had accumulated by experts, and that should be reproduced by students), but one that was learned through application of that knowledge. Participants in music, English, and history, on the other hand, suggested that their subject areas were “soft” knowledge, due to their interpretive nature, but that became “hard” knowledge as it was canonized by large-scale consensus (e.g., the preferential treatment of certain theories, approaches, or works in English and history) (Alvermann et al., 2011). Perceiving a subject as “hard” or “soft” has implications for the instructional approach adopted by the teacher, and the attitudes that students adopt when interacting with the material.

The particular “hard/soft,” “pure/applied” label offers information about the expectations and inherent structures of a subject. This includes how and why an individual engages with the content (Jetton & Alexander, 2004). Understanding that a “hard” subject focuses on verifiable knowledge signals that the subject will include tasks that test the answers one finds; on the other hand, a subject that is “soft” will require skills such as creating well-supported arguments and seeking causal relationships, with no correct answer, per se (Alexander, 2006; Biglan, 1973; Gritter, 2010; Hillman, 2013; Jetton & Alexander, 2004).
These conceptions, however, can also result in stereotypes that create barriers to effective instruction, including the integration of literacy. For example, subject areas viewed as dealing with “hard” knowledge, such as science or mathematics, might be seen to be static in their knowledge base, encouraging routine and transmission approaches to teaching (Gritter, 2010). As well, these stereotypes might foster negative connotations toward specific subjects. A “soft” subject, for example, might be seen as less rigorous and credited with less academic standing because it is based in subjective interpretations rather than verifiable and definitive answers (Gritter, 2010). These concepts must also be considered given that secondary school teachers are specialized in particular domains (Ontario College of Teachers, 2016b). The domains in which they specialized may be at odds with the domains of education (i.e., from a holistic perspective, considering education as an area of both research and specialization in and of itself) and reading (i.e., English language arts), which fall under the “soft” category of knowledge (Gritter, 2010). This could create the potential for a discrepancy between the necessary teaching and learning strategies of the subject area compared to the subject area literacy teaching and learning strategies. Gritter (2010) explained this as follows:

The content of teacher education courses is generally soft and applied knowledge giving schools of education a double whammy of low status in the Academy. However, secondary education majors also possess the knowledge that composes their major(s) and/or minor(s). Secondary pre-service teachers may coexist in two (or more) worlds of knowledge and may not be consciously aware of how their knowledge frameworks affect views of good teaching or content area literacy instruction. (p. 149)
For example, a participant in Gritter’s (2010) study whose subject areas were physics and mathematics stated that his subject area would be considered “hard” and “applied” knowledge, and emphasized a transmission style of teaching. He suggested that good teaching was more about the content knowledge than the pedagogical knowledge when he said he would be open to uncertified teachers teaching his subject area, as long as they had the mathematics background (Gritter, 2010). However, when he discussed literacy practices, his focus was on using text to gain deeper personal insights into the content: “I've noticed students tend more toward [problems] where you get a concrete number answer. Why that is…is beyond me because, personally, I think the more philosophical aspect of how does this work…is more interesting” (Gritter, 2010, p. 162). This discrepancy between views of subject area knowledge and subject area literacy makes subject-specific literacy an important issue to explore in relation to teacher development.

Emphasizing subject-specific structures and knowledge can become a barrier to integrating literacy skills effectively into the subject area. Gritter (2010) sought participants’ views on subject area teaching, including the integration of literacy into subject areas. Each of her 10 participants noted that they held specific knowledge that would be valuable to their students and tended to view that knowledge as being the key to good teaching. Their responses evidence the prominence of the view that subjects have inherent structures and knowledge bases that individuals need to be successful in that area. Adhering to this belief can mean emphasizing the subject knowledge at the expense of explicitly teaching subject area literacy skills. Alvermann et al. (2011) demonstrated this in their study in a mathematics context. In attempting to incorporate subject-specific literacy, what they described as cultural capital influenced the
efficacy of instruction in both subject knowledge and subject area literacy. In each of the two cases they explored, either subject knowledge or subject area literacy received more attention, resulting in a power imbalance between the two constructs. This imbalance meant that neither was addressed to its full potential (Alvermann et al., 2011). Their findings support the notion that teachers must be aware of the interdependence of subject knowledge and subject area literacy, and acknowledge this relationship in their teaching approaches. While research has demonstrated that focusing on theories that are particular to a subject results in more effective teaching and learning, finding a balance between the notions of subject knowledge and subject area literacy remains a must. Alvermann et al.’s (2011) study demonstrated that the delivery of subject area knowledge and subject area literacy skills needs to be more fully integrated into instruction. Future research should, as Alvermann et al. (2011) suggested, focus on how to prepare pre-service teachers to provide this balanced instruction, and how best to put these practices into play in the classroom—that is, focusing on closing the theory-practice gap in this area.

Another implication of subject-specific learning is that it places stress on students as academic demands increase. Typically, it is assumed that students at the secondary level have well-developed literacy skills and can engage with text to gain meaning and conduct critical analysis of the content with which they interact (Edmonds et al., 2009; Jetton & Alexander, 2004). However, as the level of education increases, the support for literacy decreases. This decrease in attention to further developing and supporting literacy skills is at odds with the increasing complexity of the subject area material. More complex subject area material implies a need for more complex literacy skills, while secondary level teaching largely neglects and overlooks this need (Edmonds et al., 2009; Jetton & Alexander, 2004). The empirical research
demonstrates a clear need for paralleled teaching of subject knowledge and subject area literacy. However, if conceptions of adolescent literacy lack an emphasis on continued literacy support, this practice could be difficult to implement effectively. This once again emphasizes the need for further research on how best to introduce these concepts to pre-service teachers to begin to close the theory-practice gap.

**Rationale for a Qualitative, Multi-Method Approach**

Qualitative research allows the researcher to obtain detail-rich data, which was essential to achieve the noted purpose of the study. By implementing a multi-method approach that resulted in data from both interviews and content analyses, I enhanced the trustworthiness of the study through triangulation of the results across the two methods (McMillan & Schumacher, 2010). Although interview data was the central method, participants’ interactions with text selections and the content analyses of those texts resulted in informative data that contributed to answering the study’s research questions.

Using a qualitative approach for this study was supported by the existing research that explored various aspects of literacy beliefs. In considering the aims of studies found in the literature, as well as their approaches to data collection, qualitative and mixed-methods approaches were more common than quantitative approaches. This demonstrated the value of qualitative research when the purpose of a study was to understand participants’ perspectives.

For example, Alvermann et al. (2011) used a qualitative case study, including document analysis and interviews, to explore pre-service and in-service teachers’ beliefs about subject area literacy instruction in relation to domain knowledge in the area of mathematics. Similarly, Bainbridge and Macy (2008) used in-depth interviews to explore the development of teacher
voice, looking at this in relation to pre-service teachers’ experiences with literacy instruction. Devere Wolsey et al. (2013), and Massengill Shaw and Dvorak (2007), addressed pre-service teachers’ perspectives through mixed-methods approaches, using interviews and document analysis, and open-ended surveys, respectively, to focus on the efficacy of pre-service teacher education programs to prepare pre-service teachers for literacy instruction. Further, Moje et al. (2004) adopted an ethnographic approach to examine what they defined as the “funds” of knowledge students draw from when contextualizing information presented in school, relating this to subject area literacy. Their study relied on observation, document analysis, and informal and formal interviews with students to draw conclusions about knowledge funds. Finally, Gritter (2010) employed interviews with pre-service secondary school teachers to explore subject-specific beliefs about subject area knowledge, subject area teaching, and incorporating literacy into specific subject areas. The common thread in these studies was that each presented participants’ perspectives through qualitative approaches, reinforcing their importance and appropriateness for the current study.

The literature on research methodologies emphasizes that a qualitative approach accounts for the individuality of a particular case, setting, individual, or phenomenon (Bogdan & Biklen, 1998; Patton, 2002). This study sought to describe pre-service secondary school teachers’ knowledge and beliefs about subject area literacy, as well as the factors that the participants expressed as having contributed to the development of said knowledge and beliefs. Since each B.Ed. program is designed by the institution through which it is offered, and the structure of courses (e.g., philosophical underpinnings and content emphasis) and practicum experiences (e.g., practicum length and placement in the overall program) may vary, B.Ed. programs must be
regarded on an individual basis. This indicated a level of individuality for the context of this study, something for which a qualitative methodological approach would account. Thus, this study relied on the perspectives of participants from a single institution in Eastern Ontario to gather detail-rich data, through interviews and content analysis, to make conclusions about the participants’ knowledge and beliefs about subject area literacy. Previous studies have demonstrated a tendency to employ an interview approach to data collection (e.g., Bainbridge & Macy, 2008; DeVere Wolsey et al., 2013; Gritter, 2010; Massengill Shaw & Dvorak, 2007; Moje et al., 2004). These studies supported the use of an interview approach for this study. The level of detail afforded by an in-depth interview was also a means to enhance, to some extent, the transferability of the study, as the reader can hopefully make generalizations by combining the findings with his or her own personal experience (Bogdan & Biklen, 1998; Falk, & Guenther, 2006; Morse, 1999; Myers, 2000; Polit & Beck, 2010).

**Summary of Chapter and Looking to the Next Chapter**

In this chapter, I provided an explanation of the framework within which the study was situated, and described in detail the relevant literature for the study. In doing so, I have covered adolescent literacy; subject area literacy; inherent structures and knowledge bases of subject areas, which includes such aspects as vocabulary, modes of inscription, and core tasks and problems; subject-specific literature integration; as well as the implications of subjects on teaching and learning. These concepts provide the context for this study and act to situate the currently discussed research within the area of subject-specific literacy. I closed the chapter by discussing some of the relevant literature on qualitative methods that supported the use of a qualitative approach for the current study. In doing so, I provided a rationale for the approach
and demonstrated its suitability for addressing the study’s research questions. The next chapter describes the methodology I used to conduct this study, and explains the rationale for the methodological choices I made.
Chapter 3

Methodology

This study implemented a descriptive, qualitative approach to explore pre-service secondary school teachers’ understandings of subject area literacy. This qualitative approach was chosen because it allowed me to explore, in detail, the experiences of the participants. Over the course of one interview, participants were initially asked to share their knowledge and beliefs about literacy in relation to their subject area, and were later asked to engage with and share their thinking about two selections of text used in their subject area. The aim of asking participants to engage with texts used in their subject area classroom was to increase the authenticity of the participants’ thinking, allowing them to reference something concrete in their discussions with me, the researcher, about subject area literacy.

In this chapter, I focus on the methodology implemented in the study. I open the chapter by providing some context for the study, including re-visiting the purpose of the study and the research questions; as well as a note on ethical considerations. I then discuss the specifics of data collection, including recruitment; participant selection and characteristics; the use of interviews and a text-based activity; and data analysis. Further, throughout the chapter I comment on credibility and trustworthiness, as these pertain to each topic.

Research Purpose

The purpose of the study was to describe the subject area literacy knowledge and beliefs of pre-service secondary school teachers, and in particular to explore the factors that pre-service secondary school teachers expressed as having contributed to the development of said knowledge and beliefs. The experiences of five participants were explored through in-person,
60-minute semi-structured interviews that involved both interview questions and text-based activities. One of the text-based activities involved the participant bringing to the interview a text that they had used in their most recent practicum. This artifact provided an opportunity to look more concretely at the ways in which the participant considered subject area literacy within their given teachable subject, and provided another lens through which to explore the participants’ understanding of subject area literacy.

**Research questions.** The study considered the following research questions:

1. What are pre-service secondary school teachers’ knowledge of and beliefs about the role of literacy within their subject area?

2. What are pre-service secondary school teachers’ conceptualizations of how to integrate literacy into their subject area?

3. To what do pre-service secondary school teachers attribute the development of their subject area literacy knowledge and beliefs?

4. What are pre-service secondary school teachers’ reactions to a text chosen by the researcher, as well as to a text they self-select? Specifically:
   a) What do they perceive to be the benefits and challenges that the text presents to students?
   
   b) How would they frame the text within a lesson?
   
   c) What is the source of their knowledge about the benefits and challenges that the text presents to students, and about how they would frame the text within a lesson?
Ethical Considerations

In accordance with Canada’s Tri-Council policy, this study received ethics approval from the Queen’s University General Ethics Review Board (GREB) both in its initial proposal and as amendments were made to the original research design (these approval letters can be found in Appendix A). Further, and also in accordance with the Tri-Council policy, I completed the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: CORE) course before beginning my research. These steps ensured that any research I undertook was safe for my participants, and that my conduct was in line with Canada’s ethics policies on research involving human participants.

During the recruitment process, potential participants were provided with a physical copy of the study’s Letter of Information (see Appendix B). Any individuals that contacted me via e-mail with questions or an expression of interest in participating in the study was also given an electronic copy, so that they were fully aware of what participation in the study entailed. Those who chose to participate in the study were given their own copy of the Letter of Information when we met to conduct the interview, and were also provided with a Consent Form (see Appendix C) at that time. They provided one copy of the signed Consent Form to me, and were given a second signed copy for their records.

Before beginning the interview, I explained to the participants what would happen in the interview, including that the interview would be recorded and transcribed verbatim; that any identifying information would be removed, to the extent possible, and names (e.g., their own name, their associate’s name, the name of their host school) replaced with pseudonyms; and, that they were under no obligation to answer questions which they did not feel comfortable
addressing. I also addressed any questions that the participants had before beginning the interview. The participants were made aware of when the recorder was turned on, as well as when it was turned off at the end of the interview. All data collected were kept in password-protected electronic files or in a locked cabinet. Data that were shown to my supervisor were anonymous and, as much as possible, contained no identifying information. These measures were taken to increase participants’ comfort level during the interview, and to comply with ethics protocols.

**Ethical considerations for participation incentive.** Due to difficulties faced during the recruitment phase of the study, an amendment was approved to add an incentive for participation. After a review of the literature on types of incentives used in research with human participants, it was concluded that a gift card to Starbucks in the amount of $10.00 was an appropriate incentive to encourage participation in the study.

A smaller, guaranteed incentive was chosen because it was fair and ensured that all participants were compensated equally for their time, receiving the same benefits as each of their fellow participants (Brown, Schonfeld, & Gordon, 2006). This incentive was also chosen because it accounted for potential compromises to informed consent, and the potentially increased enticement offered by a larger, lottery style incentive. Brown et al. (2006) and Zangeneh et al. (2008) argued that a larger lottery prize could encourage individuals to participate in a study without full consideration of the risks and benefits of the study, because they might be drawn to the possibility of large pay-out. In a lottery style incentive, participants may not fully understand their chances of winning the draw, and may therefore over-estimate the likelihood that they will win (Brown et al., 2006; Zangeneh et al., 2008). With these
considerations in mind, I chose a guaranteed incentive to avoid compromising participants’ ability to provide informed consent.

The amount of $10.00 was selected because it reflected the approximate amount of income a participant could have earned for working the same amount of time that participation in the study entailed (approximately 60 minutes). An incentive amount in line with what one could expect to earn from employment for the same period of time as participation in the study was suggested by Cyr, Childs, and Elgie (2013) in their guide on recruiting post-secondary student participants. Since I recruited from this sample pool, and with the challenges raised against a lottery-style incentive noted, I chose the smaller, guaranteed incentive to be in line with ethics protocol.

**Data Collection**

Data for this study were gathered through in-person, semi-structured interviews of approximately 60 minutes, and included interview data as well as data from content analysis. A semi-structured interview method was chosen because it allowed me to pursue leads that arose during the interview to obtain relevant data that might not otherwise have resulted from the interview questions (Creswell, 2013; Patton, 2002). During the interview, participants responded to interview questions and probes, as well as engaged in two text-based activities. When responding to the interview questions, participants were asked to consider their previous experiences, as well as their current experiences in the B.Ed. program. Previous experiences could have included formal or informal teaching, volunteer work, their own student experience, their upbringing or any other experience they felt was relevant to the question. The text-based activities occurred at two different points in the interview: participants were first asked to engage
with a text provided by the researcher (e.g., a textbook or novel), and later in the interview they were asked to engage with a text that they had selected and brought to the interview (e.g., a novel, scrapbook or worksheet). The aim of including these text-based activities was to make the situation more authentic, especially as the participant was able to choose a text selection relevant to his or her own experiences.

**Sampling and recruitment.** Convenience sampling was used to recruit pre-service secondary school teachers from one Eastern Ontario university. Originally, only pre-service teachers with teachable subjects in history and biology were asked to participate. However, following challenges with recruitment, and because, as a qualitative study, my ability to draw comparisons between subject areas and make wider generalizations was already limited, I opened the invitation to participate to pre-service secondary school teachers in all subject areas (Bogdan & Biklen, 1998; McMillan & Schumacher, 2010). Individuals from both the concurrent (i.e., students take both the requirements for their undergraduate degree as well as education courses) and the consecutive (i.e., students complete their undergraduate degree and then begin taking education courses upon entrance into the B.Ed. program) streams were welcome to participate.

Recruitment involved several means, which evolved as the study changed to address setbacks faced during this phase. Initially, I presented to each section of the university’s history curriculum course on two separate occasions, and distributed the Letter of Information to the class on each occasion. A presentation recruitment approach was implemented by Bainbridge and Macy (2008) in their study on the development of teacher voice in relation to pre-service teachers’ experiences with literacy instruction, and it was found to be effective. Because it
offered a more personal touch, and was found to be effective in a study related to my own work, I implemented presentations as my first choice for recruitment means. When I did not receive any interest in my study, I expanded the study to include all subject areas, and implemented further means to recruit participants. I conducted another presentation, this time to an education psychology course in which all pre-service secondary school teachers were enrolled. I also posted recruitment posters with tear-off information tabs, and relied on word-of-mouth to gather participants. As I started my interviews, I also asked each participant to pass on my study information to his or her peers in an effort to implement snowball sampling; this technique did not result in any further participants.

**Ethical considerations for recruitment.** At the time the study was conducted, I was a teaching assistant for one of the B.Ed. courses that all of the university’s pre-service teachers were required to complete. Since the whole of the B.Ed. program was expected to complete this course, there were two teaching assistants responsible for monitoring the pre-service teachers’ actions in the course, and responsibilities were divided alphabetically between us. As the result of this conflict of interest, persons whose last names began with A through K could not participate in the study, so as to avoid compromising their free and informed consent to participate in the study.

**Final participant sample.** Five participants completed the study, representing three teachable subjects: history (three participants); mathematics (one participant), and English (one participant). All participants involved in the study had completed undergraduate degrees before completing the B.Ed. program. Three participants were in the concurrent stream, and two participants were in the consecutive stream, meaning they had less formal experience with
teaching. Four participants were female and one participant was male. All participants were in their early to mid-twenties. Table 1 provides an overview of the participants’ demographic information.

Table 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Teachable Subject</th>
<th>B.Ed. Stream</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>History</td>
<td>Consecutive</td>
<td>Female</td>
</tr>
<tr>
<td>P2</td>
<td>History</td>
<td>Consecutive</td>
<td>Male</td>
</tr>
<tr>
<td>P3</td>
<td>Mathematics</td>
<td>Concurrent</td>
<td>Female</td>
</tr>
<tr>
<td>P4</td>
<td>History</td>
<td>Concurrent</td>
<td>Female</td>
</tr>
<tr>
<td>P5</td>
<td>English</td>
<td>Concurrent</td>
<td>Female</td>
</tr>
</tbody>
</table>

**Interviews.** Interview questions were carefully planned out to match the purpose of the study: to describe the subject area literacy knowledge and beliefs of pre-service secondary school teachers, and in particular to explore the factors that pre-service secondary school teachers expressed as having contributed to the development of said knowledge and beliefs. The interview questions underwent a process of review to ensure their appropriateness for the information I hoped to elicit. This reflexive planning enhanced the trustworthiness of the study and ensured the data I gathered addressed the purpose of the study.

**Piloting of the interview questions.** Interview questions were reviewed by several parties, including my supervisor, committee member, and external individuals whom I asked to pilot my questions. Throughout this process of review, I continued to reflect on my questions,
considering their appropriateness for the study’s purpose, as well as practical issues such as the sequencing and clarity of the questions. It was imperative that my questions be open-ended, and avoid addressing two concepts in one question (i.e., double barreling), so as to eliminate the potential for bias as much as possible from the interview process (McMillan & Schumacher, 2010).

Interview questions were piloted with three individuals: two Ontario Certified Teachers who had recently graduated from a B.Ed. program, and one pre-service teacher who was completing his B.Ed. program at the time. Participants had relevant experience in either history or biology. This was to gather input from both humanities and STEM perspectives, as participants could fall into either group. Suggestions were noted, as well as my reactions to their comments and body language (e.g., facial expression or hesitation in responding), and this information was incorporated into revising the interview questions.

The final interview questions were composed of both adapted and original interview questions. Several questions were adapted from studies by Bainbridge and Macy (2008) and Gritter (2010) (see Appendix D for a list of interview questions). Interview questions focused on demographic information, as well as domain-specific teaching beliefs and practices, and included two text-based activities that used texts typically found within the subject area. Demographic information was collected to allow me, the researcher, to situate the data, providing valuable contextual information. Questions on domain-specific teaching beliefs and practices, for example, what the participant believed to be important habits of mind or skills necessary for his or her subject area, were asked in order to gain a better sense of the participant’s overall thinking
about his or her subject area, and to allow the researcher to situate the participant’s thinking about literacy within his or her overall beliefs about the subject area.

Once the questions were finalized, they were mapped onto the research questions to ensure the interview questions aligned with the research questions, as well as to ensure there was a balance, as much as possible, of interview questions eliciting data for each of the research questions (see Appendix E). This step allowed me to foresee any potential gaps in the interview design, and address them so as to gather adequate data to address each of the research questions (McMillan & Schumacher, 2010).

**Interview process.** One semi-structured interview of approximately 60 minutes was conducted with each participant to collect data. Interviews were conducted at the participant’s convenience, and occurred between mid-December 2015 and late-January 2016, as participants consented to participate in the study. This timeframe meant that the interview fell after the pre-service teacher participants’ second practicum block if they were in the consecutive stream (they had completed one three-week observational practicum block during the previous spring when they began the B.Ed. program, as well as one six-week teaching-focused practicum block in the fall), while the interview fell after several practicum blocks for the pre-service teacher participants in the concurrent stream (they had completed both short-term observational and teaching-focused practicum blocks throughout their undergraduate degree, as well as the single six-week teaching-focused practicum block in the fall semester of their B.Ed.) (information found on the website of the teacher education program that participants attended). Interviews were conducted in-person, and occurred on campus, in the library. This was a location familiar to the participants, and convenient for meeting, which helped make the participants more
comfortable with the interview procedure (Creswell, 2013; Wibeck, Abrandt Dahlgren, & Öberg, 2007; Winlow, Simm, Marvell, & Shaaf, 2013). The library also afforded a quiet and more private atmosphere, and helped maintain the participants’ confidentiality (McMillan & Schumacher, 2010).

Interviews were recorded using two audio-recording devices, so as to ensure there was no loss of data. The choice to record the interviews was made to enhance the validity of the study, and allowed for the interviews to be transcribed verbatim (Creswell, 2013; McMillan & Schumacher, 2010). Observational data in the form of anecdotal notes on tone and body language (e.g., were the participant’s hands knotted; arms or legs crossed; was his or her tone high pitched and rapid or mono-toned and slow; did he or she make eye contact or avoid it?) were collected for a more accurate interpretation of the data (Patton, 2002).

Using an interview approach relied on collaboration between the researcher and the participants, placing value on the trust relationship between the involved parties. Creswell (2013) suggested that this relationship creates built in “validation check[s],” as the researcher and participant co-construct meaning. Validity was further enhanced through member checking at the end of each interview to verify what appeared to be the emerging key points (Creswell, 2013; McMillan & Schumacher, 2010; Winlow et al., 2013). At the end of each interview, I expressed to the participant that I was going to summarize what I believed to be the main points he or she had raised over the course of our conversation, and welcomed him or her to comment if he or she did not agree with what I was saying, wanted to add further detail to a point or add something that he or she felt was important but that was not mentioned in my summary. In this manner,
each participant confirmed my initial interpretations and was given the opportunity to address any concerns with my interpretation.

**Text-based activity.** Two text-based activities that relied on texts typically found in the particular subject area classroom were included as part of the interview in hopes that providing something tangible with which participants would interact would elicit more fully developed responses and prompt their thinking about subject area literacy. Stake (2010) suggested that interviews can often benefit from including “exhibit questions” that rely on a specific statement, story or artifact to elicit a response (p. 97). Such questions give the participant a clearer direction and bring their thinking into focus by providing something concrete for him or her to reference (Stake, 2010). The text-based activities are an example of exhibit questions that rely on an artifact. In this study, participants were asked to interact with two artifacts, one chosen by the researcher and one they self-selected. Asking participants to engage with these texts added depth to the interview and allowed me to focus more clearly on the purpose of the study, by providing participants with concrete examples of text they might encounter in their real classrooms. Rather than relying on a hypothetical concept, participants had a tangible artifact that they could think about and connect to their practicum experiences.

Participants were asked a series of questions in relation to their engagement with the text selections. The interview questions for this component of the interview were developed by myself and my supervisor, and aimed at understanding participants’ views of the text and how they would use it in a classroom (see a list of all interview questions in Appendix D). Participants were asked to discuss what they believed to be the benefits and challenges the text might present to students, as well as to explain how they would frame each text within a lesson.
Furthermore, they were asked to comment on the source of their knowledge for their responses to the previous two questions.

**Text selections.** The researcher-provided text was selected ahead of the interviews, and was either a selection from an OME approved textbook on the Trillium List, meaning it met Ministry standards for the course and grade level, and at least 85% of its content aligned with the course curriculum expectations (OME, 2016); or a selection from a text that in-service teachers expressed was used regularly in the applicable subject area classroom (see Appendix F for samples of researcher-selected text selections). Since history and mathematics courses have approved textbooks on the Trillium List, the researcher-provided text was chosen from this list with insight from in-service teachers. I chose the specific page selections in conjunction with advice from my supervisor. *World Civilizations: A Comparative Study* by Robert J. Walker (1998), the text for “World History to the Sixteenth Century” (CHW3M), was used with history pre-service teachers, while *Foundations of College Mathematics 11* by Erdman, Etienne, Petro et al. (2007), the text for “Foundations for College Mathematics” (MBF3C), was used with the mathematics pre-service teacher. Since, at the time of text selection, there was no approved English textbook for a Grade 11 course at the college or college/university pathway level, advice from in-service teachers was used to select the researcher-provided text that would be representative of a text found in a classroom. *Lord of the Flies* by William Golding (1954) was used with the English pre-service teacher. These texts were chosen because they were at a Grade 11, college or college/university pathway level. This pathway was chosen because, at that point in high school, classes are divided into specific subject areas, and require advanced skills for successful interaction with the material and for overall completion of the course. As well,
students at the college or college/university level may require more explicit instruction in how to interact successfully with discipline-specific texts. It was hoped that selecting texts used in this pathway would enable participants to engage in richer discussions about the implications their students’ preparedness for interacting with texts held for their approaches to literacy instruction.

The goal of asking participants to supply their own text was to make the interview, and task, more authentic to the participant, providing a richer context for understanding the development of their subject area literacy knowledge and beliefs. The specifications for the text participants were asked to bring were quite broad, leaving it open to numerous forms of text so as to reflect the various text-based interactions that occur in discipline-specific contexts. The text had to be something the participant had encountered during his or her most recent practicum experience, and could have been a print resource or an online text. It could have been a text that the participant implemented or one that he or she had observed his or her associate teacher using in a lesson. Because of the broad definition of what type of text they could bring, a range of text formats were represented in the final data. Texts included a memoir, a scrapbook resource, a map and information worksheet, and a news report template (one participant’s text had to be excluded from the study due to it not being used with students, but rather for the participant’s own lesson planning). Copies of the text selection were made where possible or I obtained copies for further analysis through my own personal collection or through the university library. Further details on the texts participants brought to the interview will be outlined in the findings in Chapter 4.

Data Analysis

Upon completion, each interview was transcribed, and the file identified with a code to maintain each participant’s confidentiality. Interviews were transcribed verbatim to enhance the
validity of subsequent data analysis (Creswell, 2013; McMillan & Schumacher, 2010). This resulted in between 22 and 31 pages of interview transcript for each participant, and 133 pages of transcript data in total (see Appendix G for an excerpt of a transcript). To the extent possible, identifying features were removed from the transcripts, and pseudonyms were used where names had been mentioned. The data were then uploaded to Nvivo 11, a computer-assisted data analysis software.

**Computer-assisted data analysis.** Computer-assisted data analysis was conducted, as research suggests it is more time efficient, assists with organization, and can make retrieval of information easier (Creswell, 2013; Thompson, 2002). I found these claims to be true during my analysis of the data, and relied on Nvivo 11 especially for the retrieval of data and to track the connections and density of coding. It is important to note that when using computer-assisted data analysis, the researcher remains the key instrument in the data analysis. I had to be just as well acquainted with my data as is necessary with traditional manual methods of analysis; Nvivo 11 simply aided with the mechanical aspect of analysis, leaving me free to focus my attention on the conceptual part of the analysis (Thompson, 2002).

The data were explored in an iterative manner to ensure accurate coding and a thorough analysis of the data. Data were explored for emergent themes and coded using an inductive analysis approach. Attention was paid to discrepant data to enhance the validity of the analysis (Creswell, 2013; Patton, 2002). Accounting for discrepant data enabled me to present a more fully informed representation of the data, as well as the participants’ views, in Chapter 4.

**Analysis of interview data.** The interview data were coded using an inductive approach, allowing key findings to emerge from the data. This aided in eliminating bias, because I allowed
the key findings to emerge as I analyzed the raw data, rather than imposing preconceived notions onto the data (Saldaña, 2013). I analyzed each interview individually using a descriptive coding process (Saldaña, 2013). Throughout the coding process, I continued to return to each interview to review the codes and make adjustments as necessary.

All research involves inherent biases, as researchers make judgement calls about how to gather and analyze data (Bogdan & Biklen, 1998; Saldaña, 2013). I recognized that throughout the coding process I was making judgement calls about how to distill several phrases or chunks of data into one descriptor (i.e., code), and that I had to remain cognizant of the biases I brought to my analysis process. To address this, throughout the coding process I conferenced with my supervisor to review my coding process and confirm my thinking. This process also acted as a trustworthiness measure (McMillan and Schumacher, 2010; Patton, 2002). We worked through two of the five interviews together, allowing me to refine my coding and implement the strategies and ideas we had discussed when I coded the three remaining interviews. Furthermore, we briefly reviewed the final codes at the end of the coding process to ensure the codes were an accurate representation of the data. The coding process resulted in 68 unique codes. Examples of the codes included: (a) “slow readers,” (b) “critical thinking,” (c) “connecting text and graphics,” (d) “graphing,” (e) “marking up the text,” (f) “prior knowledge,” (g) “visuals,” (h) “text accessibility,” (i) “ease of finding resources,” and (j) “own student experience influence.”

Following this, the codes were collapsed into categories by reviewing them for commonalities. I identified 12 categories across the interviews. These included: (a) “general instructional strategies,” (b) “instructional strategies for supporting reading,” (c) “considerations when choosing texts,” (d) “source of resources,” (e) “subject area skills,” (f) “challenges faced
by students when reading,” (g) “suggestions as to why students struggle with reading,” (h) “descriptors of readers,” (i) “text use in the classroom,” (j) “knowledge sources,” (k) “practicum experience,” and (l) “other” for codes that did not have enough in common with other codes to be grouped into a distinct category.

Presenting the findings in terms of research questions. Upon examination of the emergent categories, it became apparent that creating larger themes out of the categories would not accurately depict what I had come to understand as the key findings through the practice of coding the data in an iterative manner. Collapsing the categories into themes would not have resulted in an accurate representation of what the frequency counts of the codes demonstrated to be the key findings, nor would it have reflected the nuances of participants’ responses to the interview questions in a way that addressed the research questions in a comprehensive manner (participants’ responses to interview questions and prompts did address the research questions in detail). However, presenting the findings in relation to the research questions would allow for these subtleties to be expressed and depicted more accurately. Instead of being collapsed into themes, the categories were mapped onto the research question that was most relevant, which allowed me to present a better picture of the story the data had to tell. Thus, Chapter 4 examines the findings of the study by outlining how the data answer each of the study’s research questions.

Content analysis. Content analyses were completed on both the researcher-selected and the participant-selected text selections. Content analysis is a research method in which the researcher analyzes a textual document to draw conclusions about the text’s content (Kohlbacher, 2006). Content analysis was carried out to gain information on the types of texts
with which participants engaged, including readability levels, and, where applicable, the texts’
application of the multi-media principle that posits that learning outcomes are better when
information is presented in both words and pictures, rather than words alone (Mayer, 2009). The
approach used to explore these documents more closely represented a content analysis than a
true, thematic, document analysis of the texts (Bowen, 2009).

Readability for each text was determined using a Fry Graph, which provides an
approximate grade level for the samples of text provided. A Fry Graph was chosen because it
provided a grade level as a measure of readability, which could be easily compared to the
intended grade of the text selection, and is a well-known and easily accessible readability
measure (Begeny & Greene, 2014; Fry, 2002; Gunning, 2003). A Fry Graph calculates
readability based on 3 randomly selected samples of 100 words. The number of sentences in
each 100 words sample, as well as the number of syllables, are counted and averaged to be input
into the readability calculation (Fry, 1977). Counting sentence length is meant to account for
syntactic difficulty, while counting syllables is meant to account for semantic difficulty (Fry,
2002). I used the website “Readability Formulas” (2017), available at
http://www.readabilityformulas.com/free-fry-graph-test.php, to create a Fry Graph for each text
selection.

I also conducted an analysis of the researcher-selected history and mathematics textbook
text selections, as well as Participant 2’s and Participant 4’s text selections, in relation to
Mayer’s (2009) multi-media principle. These selections were analyzed in this way because they
contained both text and images, whereas the other text selections only contained text. These
analyses helped to mediate the fact that the Fry Graph readability measure does not account for
images in its calculation of text grade level. A basic analysis was done comparing the texts against the principles that guide what Mayer (2009) referred to as multi-media instruction. These principles provide guidance on how to create effective multi-media learning resources, such as textbooks, slide shows, and videos. The principles can be divided into three categories with distinct aims: (a) principles that reduce extraneous processing, (b) principles that manage essential processing, and (c) principles that foster generative processing (Mayer, 2009).

Although Mayer (2009) outlined 12 principles, for the purpose of the current study only the six principles that were applicable to text resources were used:

- The coherence principle, which states that people learn best from a multi-media resource if extraneous material is excluded. Mayer (2009) posited that people are better able to focus on essential information if material that could distract them is excluded.
- The signaling principle, which states that people learn best when cues are included in the multi-media resource that highlight the resource’s key information. For example, outlines, headings, highlighting or underlining, or pointer words (e.g., first, second, third).
- The spatial contiguity principle, which posits that people learn best when corresponding printed words and images or graphics are displayed close to each other on the page. This presentation format allows the reader to make better connections between the two elements.
- The segmenting principle suggests that people learn better when the material is presented in segments, the pace of which the learner can control. This allows the learner to process one segment before having to move on to the next.
The pre-training principle posits that people learn best when they learn the key names and characteristics of the main concepts, before the more in-depth learning. This is because the learner can focus on the connections in the information, because they do not need to focus on remembering the names or characteristics of key elements.

The personalization principle states that people learn best when the tone of a resource is conversational. This is because the learner may feel a heightened sense of social presence, which might make him or her try harder to comprehend the information.

The analyses of the texts against these principles are presented in a table format, indicating whether the researcher believed the principle to be highly applicable to the text or limited in its applicability to the text. See Table 2 for an example of the format of this table.

Table 2

Example of the Table Outlining the Application of Multi-Media Principle to Text Selection

<table>
<thead>
<tr>
<th>Text Selection</th>
<th>Principle</th>
<th>High Applicability</th>
<th>Low Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of text selection given here</td>
<td>Coherence Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signaling Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spatial Contiguity Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Segmenting Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-Training Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personalization Principle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*An X will be placed in the corresponding category (i.e., high or low) to indicate the applicability of the principle to the text*

These analyses (the readability measure and the comparison to Mayer’s multi-media principle) were conducted to determine alignment of the text selection with the grade level for
which is was used, and to understand better the potential challenges and benefits the text presented to students. These findings were considered in comparison to participants’ responses to related interview questions about the use of the given text. This analysis helped me better understand the participants’ ideas about factors to consider when selecting texts for lessons, how to use the texts in the classroom, and how to support students in their ability to read to learn from the text. Analyzing these text selections therefore provided data on participants’ experiences with texts; knowledge about texts, subject area teaching, and subject area literacy; actions taken during practicum or proposed actions based on their interpretation of the text; and their values about literacy and subject area texts.

Summary of Chapter and Looking to the Next Chapter

In Chapter 3, I outlined the qualitative approach I implemented to achieve the study’s purpose of describing the subject area literacy knowledge and beliefs of pre-service secondary school teachers, with a focus on exploring the factors that pre-service secondary school teachers expressed as having contributed to the development of said knowledge and beliefs. By implementing a semi-structured interview approach, coupled with two text-based activities that provided documents for analysis, I was able to gather detail-rich data from five participants that enabled me to answer my research questions. Analysis of these data through Nvivo 11 resulted in the decision to present my data through the lens of my research questions, rather than themes. The findings of the study are discussed in detail in the findings chapter, Chapter 4.
Chapter 4

Findings

This chapter presents the findings of my research, organized according to the four research questions that guided the study. These findings are the result of analyzing the data gained through semi-structured interviews with five pre-service secondary school teachers with teachable subjects in history (three participants), mathematics (one participant), and English (one participant), as well as through content analysis of both the text selections that I provided during the interviews and of the text selection that each participant brought to his or her interview. This chapter demonstrates how the data address the study’s purpose, which was to describe the subject area literacy knowledge and beliefs of pre-service secondary school teachers, and in particular to explore the factors that pre-service secondary school teachers expressed as having contributed to the development of said knowledge and beliefs.

As outlined at the conclusion of Chapter 3, I felt that what I had come to regard as the key findings of the study during the iterative analysis process would not be represented accurately, should I collapse the categories into themes and present the findings in such a manner. As such, the data are presented as they pertain to each of the study’s four research questions. The questions that guided this study, and therefore guide the structure of this chapter, are:

1. What are pre-service secondary school teachers’ knowledge of and beliefs about the role of literacy within their subject area?

2. What are pre-service secondary school teachers’ conceptualizations of how to integrate literacy into their subject area?
3. To what do pre-service secondary school teachers attribute the development of their subject area literacy knowledge and beliefs?

4. What are pre-service secondary school teachers’ reactions to a text chosen by the researcher, as well as to a text they self-select? Specifically:
   a) What do they perceive to be the benefits and challenges that the text presents to students?
   b) How would they frame the text within a lesson?
   c) What is the source of their knowledge about the benefits and challenges that the text presents to students, and about how they would frame the text within a lesson?

Drawing on both interview and content analysis data (i.e., the analysis of the texts involved in the text-based activity portion of the interview) as applicable, the findings are presented as they correspond to each of the above noted research questions. These findings contribute to building the argument that subject-specific literacy is an important concept for teaching and learning, and one about which we must be especially cognizant when discussing adolescent literacy. These implications are further discussed in Chapter 5. For now, I turn to presenting the findings.

A Note on the Citation System

Throughout this chapter, participant quotations are used to share data in the participants’ own words and voices. At the end of each participant quotation, the source of the quotation will be included, referencing the participant, the page number, and line number from the corresponding transcript. The format will take the following form: (P#, p. #, line #).
Research Question 1: What are Pre-Service Secondary School Teachers’ Knowledge of and Beliefs about the Role of Literacy within their Subject Area?

Each participant answered a series of identical base questions (which were built upon depending on the responses given by the participant, leading to an overall semi-structured interview approach) that addressed their knowledge of and beliefs about the role of literacy within their subject area. Interestingly, teachable subject qualifications did not seem to result in obvious differences in the types of responses I received for this set of questions. Similar knowledge and beliefs across subject areas emerged, despite there being three subject areas (i.e., history, mathematics, and English) represented in the data.

Knowledge of subject-specific literacy. Participants’ knowledge about subject-specific literacy centred around instructional approaches that they would use in their classrooms to support the development of their students’ literacy skills. Participants tended to speak about such skills in a general sense, and with greater concern for their subject area content than the literacy skills in and of themselves. For example, such strategies as defining key or challenging vocabulary terms, providing context, and using visuals were suggested as approaches that the participants would implement to support literacy skills within their subject area classrooms. These strategies can be applied regardless of discipline, and did not necessarily suggest that the participants had an in-depth understanding of strategies that might be applied solely to their subject area. Overall, participants’ knowledge about subject-specific literacy did not vary greatly across subject areas; in fact, similar key ideas were raised by all participants.

Vocabulary. Vocabulary was the most prominent idea participants expressed when discussing how to support students’ literacy skills. It did not matter in which subject area the
participant was qualified, each mentioned the importance of knowing key terms when comprehending a text. For Participant 5, whose teachable subject was English, the importance of being familiar with key terms extended to include dialect. Overall, although none of the participants suggested explicitly that vocabulary was the most important literacy skill, they all continued to return to this idea when discussing the role that literacy played in their subject areas, how they conceptualized literacy within their classrooms, and when outlining the benefits and challenges of text. When asked about the importance of literacy to her subject area, Participant 4, whose teachable subject was history, said: “Explaining, before and after, what some of the key terms are, I think, helps in the reading process” (P4, p. 8, lines 247-248). She expanded on this, adding: “Some of the terms they’ve never heard of before, and so they’ll just guess the definition off of a literal meaning or something like that, and then afterwards they’ll be like, ‘Oh, I know it’s that because I just read it’” (P4, p. 9, lines 253-257). This point was also touched upon by Participant 3, whose teachable subject was mathematics. When discussing the creation and reading of graphs in her Grade 10 Applied mathematics class, she stated:

I didn’t really use those definitions, because it was a Grade 10 Applied class, the words horizontal and vertical, even I still get them confused sometimes, and so I’d rather not use them. Instead, I always said, “Rise, what do you think of?” Up and down, right? Because you’re rising in an elevator. “Running, which way do you run?” You run across a road, straight or sideways, right? (P3, p. 17, lines 546-555)

Her point was that the traditional vocabulary might not be accessible to all students, especially in an applied level class. To better support her students, her strategy was to simplify the vocabulary to make it more accessible so students could engage with the mathematics content without the
comprehension barrier. Adding to this, and tying the concept of vocabulary to the concept of context, Participant 2, whose teachable subject was history, stated:

Their comprehension is essential to what’s being presented to them, so if they don’t understand the context or if they don’t understand some of the vocabulary or the grammar in it [the text], it’s going to affect the way they perceive the history. (P2, p. 6, lines 186-188)

This point is particularly salient when portraying participants’ understanding of the place of vocabulary in subject-specific literacy instruction. Participants often referred to vocabulary as one of the main barriers to and supports for helping students engage with a subject area text. This ties back to the notion I presented at the beginning of this chapter, that participants were, on the whole, more concerned about conveying the knowledge of the content material rather than the literacy skills that students might need to support their understanding of that material. Despite this emphasis on content material, and a lack of detail about the specifics of what their vocabulary instruction might look like or the types of words it might emphasize, it is noteworthy that participants discussed vocabulary at such length. Vocabulary is certainly one layer of the larger picture of effective adolescent and subject area literacy instruction, and must be supported in subject area classroom instruction at the secondary school level. That participants emphasized vocabulary is promising with respect to their understandings about the integration of literacy skills into their classroom teaching. However, their views about vocabulary instruction are simplistic, as they do not differentiate, even in vague terms, between the tiers of vocabulary that need to be addressed in vocabulary instruction (see the discussion of McKeown and Beck’s tiered classification of vocabulary in Chapter 2). Although the participants spoke about
addressing key terms and challenging vocabulary, they spoke about these words in a broad sense and did not differentiate between everyday terms (i.e., Tier 1 vocabulary), more sophisticated synonyms for Tier 1 vocabulary (i.e., Tier 2 vocabulary), and subject-specific terminology (i.e., Tier 3 vocabulary).

**Context.** Four of the participants, those whose teachable subjects were in either history or English, spoke about context as being a key idea for their subject area in terms of reading comprehension. These four participants expressed that context played a part in familiarizing students with the ideas that would be covered in a piece of text, and allowed students the opportunity to make connections to their prior knowledge and life experiences, which would support their ability to make sense of the text. For example, when asked about subject area habits of mind (“habits of mind” is a simplification of the terms “inherent structures” and “knowledge bases,” which were defined on p. 10, and explored in more detail on p. 22), Participant 1, whose teachable subject was history, said, “Having knowledge of the context is, I think, important…and by that I mean knowing what’s going on, and what might be different from between now and whenever you’re studying, that would inform whatever you’re reading” (P1, pp. 2-3, lines 57 and 64-66). Participant 2, whose teachable subject was also history, added detail to this point in his interview, outlining certain types of questions that he would encourage his students to address to help them establish the context for a given text: “Questioning, perhaps, who wrote the document, if you’re looking at a primary source, who wrote the document, why they wrote it, who were they writing it for?” (P2, p. 4, lines 99-100). These quotations emphasize the context of a text in terms of framing it in time and purpose, both key ideas in historical inquiry. This is in contrast to the ideas about context that Participant 5, whose
teachable subject was English, raised during her interview. Participant 5’s ideas of context were more all-encompassing, perhaps given the wide range of genres with which students interact in the English classroom:

I think context is really important. If you don’t know what you are getting into beforehand, it’s really hard to wrap your head around. That can be historical background, anything like that, even learning about the author a bit before you start. (P5, p. 3, lines 72-76)

Later in our interview, Participant 5 added to this point by raising the importance of having some understanding of geography and dialect when engaging with texts in the English classroom. Although each subject area had different emphases in terms of context and background knowledge, participants whose teachable subject was history or English believed it to be a key component of supporting students’ subject-specific literacy skills.

**Visuals.** All five participants also emphasized the importance of appropriate visuals to support students’ comprehension of texts. Regardless of the type of text, for example, a textbook, a primary document, a graphic novel or a novel, all of which were referenced in the interviews, participants believed that visuals were an important aid to help students comprehend text. Participant 2, whose teachable subject was history, perhaps expressed this idea most clearly when he said:

Also a skill is taking the text and applying it to the image or taking the image and applying it to the text. That is a skill that if a student has it, it can definitely help them, but if they lack that skill, they may lose out on some of the nuances of the document. (P2, p. 24, lines 788-790 and 792-793)
A good text, the participants said, would have text as well as images or graphics (e.g., photographs, maps or graphs) that complemented and added meaning to the text.

An example of this complementary text and images layout was found in the researcher-selected mathematics textbook; Participant 3 looked at this text selection during the text-based activity portion of her interview (see Figure 1). The text selection contained an image of a person kicking a soccer ball, which corresponded to a graphing problem the students were asked to solve. Participant 3 expressed that this image was something to which students could relate, as they had probably seen a soccer ball being kicked. Students could therefore link the image to the concept of graphing a parabola, because, like the path of the kicked soccer ball, the path of a parabola is graphed as a smooth curve, rather than a pointed “V.”

![Figure 1](image.png)

**Example 1** Use a Graph to Identify a Quadratic Relation

The table shows a soccer ball’s height above the ground over time after it was kicked in the air.

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.10</td>
</tr>
<tr>
<td>0.5</td>
<td>7.80</td>
</tr>
<tr>
<td>1.0</td>
<td>12.00</td>
</tr>
<tr>
<td>1.5</td>
<td>13.80</td>
</tr>
<tr>
<td>2.0</td>
<td>13.00</td>
</tr>
<tr>
<td>2.5</td>
<td>9.75</td>
</tr>
<tr>
<td>3.0</td>
<td>4.00</td>
</tr>
</tbody>
</table>

- a) Graph the data. Draw a smooth curve through the points.
- b) Describe the shape of the graph.
- c) What was the ball’s maximum height?
- d) For about how many seconds was the ball in the air?

Participant 5, whose teachable subject was English, also emphasized this point when she referenced *The Absolutely True Diary of a Part-Time Indian* by Sherman Alexie (2007), the novel that the Grade 12 College English class read while she completed her practicum. She said that she found that novels were the most accessible genre for her students, and that the inclusion of visuals in this particular novel made it more engaging: “They were engaging with that one. It was fantastic, and I think it was because there were pictures in it as well” (P5, p. 17, lines 543-544). When asked about her students’ reactions to the visuals alongside the text, she said:

It was really well constructed in that way, that they [the visuals] weren’t necessarily like, “Here’s what I’m saying and here’s a picture of it.” They worked well together, the pictures and the text. The premise is that the narrator is the author and the illustrator, and he’s telling you his story like he’s speaking to you, but then he’s actually drawing the pictures for you. So, at one point he was deciding whether he wanted to leave the reserve he lived on, whether to go to school there or to the white school just outside. So, he’s debating all of these things and then draws a picture of the debate using a street sign with all of the different arguments, and he looks confused. It was complementary. (P5, p. 18, lines 556-570)

Her experience was that the students were able to use the visuals to aid the meaning-making process, because of the complementary nature of the text and visuals. She also felt that the students were more engaged with the novel because it was a contemporary novel that incorporated visuals.
However, participants also recognized that visuals were less important or even detrimental to comprehension if they did not add meaning to the text. When discussing the visuals in the researcher-selected history textbook, Participant 4 said:

I think the one on the left, the picture of the excavated walls of Jericho, probably doesn’t help that much. At this point, there isn’t much context given to what this place is and why it’s important, so just showing a picture [see Figure 2] of what it looks like now in its ruins doesn’t really contribute that much to this chapter. (P4, p. 13, lines 399-400)

So, while participants were keen on texts incorporating visuals and believed them to be a useful tool to support the development of literacy skills in their subject area classrooms, they also recognized that visuals must be incorporated into the text in a meaningful way for them to have a positive impact.
The earliest known village is Jericho, which archaeologists date back to 8000 BCE. Another early village site was Catal Hüyük in southern Turkey, which prospered between 6500 BCE and 5700 BCE. Archaeologists have discovered that the Neolithic residents of Catal Hüyük lived in houses of sun-dried bricks with flat roofs made of mud-covered reeds. One of the unusual features of these homes was that they had no door. To help protect themselves against attack, residents entered their houses by ladder through a hole in the roof. Floors were covered with carpets of rushes and sleeping platforms were draped with mats.

A fairly steady food supply allowed Neolithic villagers to spend more time at activities other than farming. One of the most important new skills that they learned

Figure 2. Image of Jericho found in researcher-selected history textbook. From Walker, R. J. (1998). World Civilizations: A Comparative Study. Don Mills, ON: Oxford University Press.

Support strategies for reading comprehension. Participants expressed a range of support strategies to address reading comprehension. Many of these focused on a reactive approach to
supporting students, rather than proactively working to build students’ comprehension skills. These strategies also overwhelmingly relied on oral communication, and in some circumstances allowed students to avoid having to read altogether when they appeared to be struggling with reading comprehension. The concepts of reactive and oral communication support strategies will be explored in further detail when I address research question 2, which explored how pre-service secondary school teachers conceptualized the integration of literacy into their subject area classrooms. For now, I focus on outlining the specific support strategies the participants expressed during their interviews. Along with focusing on context, vocabulary, and visuals, participants also emphasized taking a one-on-one approach to support students who struggled with reading comprehension. Participants also commented on the usefulness of read-alouds as a literacy strategy to support students’ comprehension of texts.

Participants found strategies that provided one-on-one aid to be the most effective way of supporting students who struggled with reading comprehension. This included one-on-one support from the teacher or an educational assistant, or pairing the student with a stronger-skilled student who could help the struggling reader through the activity. Participant 4 expressed this during her interview when asked about instances in which she saw students struggling with reading comprehension in her Grade 10 Applied history course (she noted that this particular class had a number of students with Individual Education Plans, as well as an educational assistant for support):

They would work individually or with a partner, and for reading, especially, after a while you know which kids would struggle the most, and so we would just sit down with the individual students and help them read. You would make sure they’re understanding as
they’re reading, and help them step-by-step to see that they can actually read for comprehension…in that classroom they really needed the individual support. (P4, p. 17, lines 507-517 and 523)

Adding to this, she said that the best strategy for helping these students in one-on-one situations was to read to the students or express the ideas contained in the text in her own words, so as to simplify the wording:

I think it helped a lot if I just told it to them, and said it in my own words instead of reading off the page, because I think that, especially for history, some of the things are a little bit more round about in the textbooks…. Giving them that, not exactly summary, but just a different way of saying it to them. (P4, pp. 17-18, lines 528-532 and 539-540)

Participant 1 also emphasized that a one-on-one approach was used during her practicum with her Grade 10 Applied history class, but noted that they also used partnering to support the students that had been identified, either formally or informally, as needing more support with reading:

Sometimes it worked for partnering up if we said, “Could you sit with so-and-so and read this through together?” or we just put everyone in partners and said, “Okay, everyone find a partner, you’re reading this together;” so it doesn’t single them out. (P1, p. 14, lines 426-428)

She also noted, which was unique to this participant, that some of the students who had been identified as needing extra support were intentionally placed at desks that had an empty desk beside them: “They had an empty spot next to them, so we could just go sit or crouch next to them and help” (P1, p. 14, lines 439-440). Either the educational assistant or the teacher would
use the empty spot to provide the one-on-one support that the participant said students needed to accomplish the assigned tasks.

A one-on-one support strategy was reflected in all of the participants’ responses, and seemed to be a go-to strategy for supporting students. However, participants recognized that this strategy might not always be feasible, due to time constraints and student to teacher ratio. Participant 1 articulated this most clearly when she explained what a typical class might look like when students were given time to work in-class:

What I was normally reading to them was, they had a worksheet to do, so say it was a series of five questions on what we’ve done or on the video we’ve just watched. I would read him the first two questions and tell him what they were, and then I’d say, “Okay, I’ll be back in two minutes, think about your answers, and then I can help you write them down,” because he also needed a scribe. That way, I could do that, circulate around, figure everyone else out, and then come back to him and write down his answers. Unfortunately, sometimes he just kind of had to sit there for a while, because there were 20 other kids in the class that all needed attention, so unfortunately he kind of had to sit, but it happens. Can’t be everywhere. (P1, p. 14, lines 445-459)

When discussing this form of support, she said that having extra bodies in the room, in the form of an educational assistant and her being there for her practicum block, made it easier to provide this particular form of assistance to students struggling with reading. She expressed her understanding of the limitations of a one-on-one approach when she said, “I don’t know how she [her associate teacher] does it on her own!” (P1, p. 13, line 414).
Read-alouds were another popular strategy, although this technique was mentioned only by participants with teachable subjects in either history or English. A read-aloud approach was used to help support students’ engagement with the text, as some participants reported that reading the text as a group was more likely to be received positively by their students than silent, independent reading. Participants suggested that this approach also held two other benefits: (a) it allowed the teacher (i.e., the participant) to address comprehension issues while promoting engagement; and (b) it allowed all students to engage with a text when the school did not have sufficient copies for each student. Participant 5, whose teachable subject was English, described this best when she addressed the approach her practicum classes implemented when completing novel studies:

In my last placement, I was in an English classroom, in Grades 9 and 12 classes, and in both of them it was all reading aloud for a couple of reasons: for the auditory learners and that side of things, and they were having issues with the number of books they had. If they only had one class set, and two classes were reading it, you weren’t allowed to bring the books home. So, it was a matter of the slow readers weren’t allowed to read slow, so you had to kind of catch them up in a way that wasn’t picking on them. (P5, p. 9, lines 268-276)

She acknowledged that this was not the ideal approach, as it in turn limited those readers who were successfully comprehending the text and wanted to read ahead, but noted that the strategy seemed to be the most effective approach and had worked well in her experience.
Now that I have outlined the knowledge aspect of my first research question, I will move on to discussing the participants’ beliefs about subject-specific literacy, touching upon the value they placed on literacy and where they positioned it within their subject areas.

**Beliefs about subject-specific literacy.** All participants, regardless of their teachable subject area specialization, said that they regarded literacy as important to their subject area. This emphasis was more pronounced in the participants whose teachable subjects were history or English, but all participants made reference to the importance of literacy. When asked about their beliefs or philosophy on teaching reading and the place of reading in their subject area, participants indicated that an ability to read for comprehension was a foundational skill that their students would need in order to interact with the content material in their subject area; reading comprehension was important to the extent that it was necessary to achieve an understanding of the course content, which was the primary concern for the participants. Although all of the participants believed that reading comprehension was important to their subject area, each subject area tended to have distinct beliefs, which I will now detail.

**Beliefs of participants with a teachable subject in history.** All three of the participants who had a teachable subject in history expressed similar views about the place of literacy in their subject area. Each of them expressed the opinion that an ability to read and comprehend text was the foundation upon which history was built, as students would inevitably have to interact with text at some point in their history courses. For example, students would need to read for comprehension when examining primary documents, which participants suggested was a main component of how history was taught. This group of participants understood reading comprehension as a necessary skill that students had to have to be successful in history, and to
engage in the types of critical thinking and historical literacy focus that the curriculum has emphasized in recent years. Participants also expressed that this was not just the case for history, but for most subject areas, particularly the arts. In speaking to this, Participant 1 said:

Definitely for history, really for anything, you need to be able to read…. I definitely think it’s incredibly important…You need to learn how to read first, because so much of what we do in history, and really in any of the arts, is reading, right? Or engaging with the text. You can watch videos and photos, but you’re inevitably going to have to read something, especially when teachers are using a textbook. (P1, p. 5, lines 144, 147, and 155-160)

This idea was also expressed by Participant 4, who again emphasized the place of reading in learning in general:

In terms of reading, specifically, I think that it’s the first step to a lot of textual-based learning, obviously, because you can listen and you can speak, but to get the kind of school work, and kind of academic side of learning done…it’s the first step for academics. (P4, pp. 7-8, lines 215-223)

This was a common theme running throughout the interviews with participants who had teachable subjects in history. Perhaps because of the nature of the subject area, they repeatedly expressed that an ability to comprehend, especially at a more sophisticated level, was important to their students’ success. Students could not merely have basic literacy skills; they had to be able to read and engage with complex pieces of text, such as those written before their time, in order to get at the nuances of historical thinking. Participant 2 expressed this when asked about his beliefs about the place of reading in history:
Definitely it’s important for history, the comprehension of what the students are engaging with, I mean a lot of the time it’s going to be through text, that’s the way most history’s presented. Obviously there’s oral history, and I mean students can engage with it through, say, a video, perhaps, or maybe even a video game, but a lot of the time there’s going to be text there or they’re going to be listening to what’s happening, so their comprehension is essential to what is being presented to them. If they don’t understand the context or if they don’t understand some of the vocabulary or the grammar in it, it’s going to affect the way they perceive the history, and then, in turn, how they can critically analyze what’s being presented. (P2, p. 6, lines 179-191)

This circles back to the importance of literacy as a base for accessing the subject area knowledge, which was the primary concern of the participants.

**Beliefs of the participant with a teachable subject in mathematics.** The sole participant whose teachable subject was mathematics also expressed the importance of reading in her subject area, but her beliefs were quite different from those of her colleagues with different teachable subject qualifications. This is something that she herself noted a number of times, stating that, “Reading in math is completely different than the other subjects” (P3, p. 5, line 142). She also noted that, “For me, reading in math, it depends on the type of question that’s being asked” (P3, p. 5, line 145).

One of the main ways that Participant 3 stated reading applied to mathematics was in solving word problems. Reading in mathematics, for her, was about getting students to understand the story behind word problems, and therefore supported students in being able to correctly identify the mathematical operation they needed to complete. Reading was seen as a
necessary skill that enabled students to put together the puzzle pieces required to solve the word problem, and then reflect logically upon their answer:

A lot of students, they read the question, get the answer, but it doesn’t make sense to what the question is asking, and they don’t ever reflect back on, “What is this question actually asking me?” So it definitely is a struggle because they just, they see the numbers, and they’re like, “Okay, I know what operation I need to do, bam, here it is.” They don’t actually take the numbers and the story behind it and put it together and see if it all fits together in the end. (P3, p. 5, lines 146-150)

When asked about how she would support students in making the connections between the numbers and the story, she expressed that having students go through the question in a sequential manner, where they would underline important information, and ultimately reflect back on the question to examine if the answer was a logical response to the story, was key:

Whenever you have a word problem, first of all, what is this question asking us to find? Most important part. Now, you have this piece of information, what does this piece of information tell you? What would it be in the equation that you would use, for example? How does it relate to the story? So, you put that connection there, and underline, okay, 700 is the whatever in the question, 800 is the whatever, plug it in, get our answer, does that make sense? (P3, p. 5, lines 156-161)

Word problems presented students with a challenge, in her opinion, because the equation and the corresponding values were not readily provided. Students had to understand and make sense of the story to make a choice about which numbers to insert into the equation to solve it. Her
emphasis on reflection as a key component of literacy in mathematics came up throughout the interview.

Further, she made a salient point when I sought to clarify a point she was making about subject area literacy skills: “It’s math literacy, is what it is. We don’t use words, we use numbers, but you have to understand what those numbers are when you read them” (P3, p. 18, line 603-604). Reading in mathematics meant using words and numbers to support the subject-specific literacy skill of reading equations and graphs. She highlighted two examples of instances where her Grade 10 Applied mathematics students struggled to connect numbers to their meaning in order to make sense of what the question was asking them: variables and graphs. With regards to variables, she said that students did not understand the concept of a variable, $x$, for example, representing an unknown value:

One thing a lot of kids do struggle with is in high school whenever you start taking away the “$x$” for multiplication and now “$x$” has become a variable…So, if you’re trying to expand something with brackets, a lot of kids struggled with it, because they knew they had to multiply in, for example, and they’re like, “Okay, so I know I have to do 3 times $x$,” they didn’t understand that $3x$ is just 3 times $x$. That was a huge struggle for a lot of people. So they would either just write 3 or they would just write $x$…But they would get the three times five, and be like, “Okay, that’s 15.” But, that’s something that was a huge struggle for a lot of people…they’re not used to the concept of just using brackets for multiplication, they’re not used to the concept of using a variable. So, another math literacy issue. (P3, p. 18-19, lines 609-610, 619-623, and 628-632)
According to the participant, students were unable to “decode” the information contained in an equation, much like the process involved in reading words. When reading words, an individual decodes by knowing which sounds correspond to which letters, as well as how those sounds combine to form a word. In this example from Participant 3, the students had to understand what each part of the equation represented, and decode it to get the information (e.g., see Mayer, 2008 for an overview of decoding, as well as the required skills for solving mathematics problems).

She also noted that students struggled with connecting numbers to their meaning when we spoke about graphs:

Whenever it was just calculating slope, they were perfectly fine because the graph is already there and they just had to draw a little triangle and be like, “Okay, go up this many and sideways this many.” But, again, in terms of reading, they wouldn’t read the axes and if the axes went up by twos, for example, and it went up three squares, they would say, “Three.” And I’m like, “But read what the axis is telling you. It’s going up by twos. So, yes, it went up three squares, but really it went up by six, right?” So that was a struggle for some people.

When asked about how she would support students’ development of this skill in relation to graphs, Participant 3 relied on a literacy analogy:

The example I kept giving them: “How do you read words in a book? You don’t start from the right side in a book and read backwards, it’s always left to right. A graph is the exact same thing.” I’m like, “Look at the numbers on the graph, how does it become more positive? Where do the numbers get bigger? Towards the right, so obviously you have to read towards the right.” (P3, p. 17, lines 563-566)
That she used the example of a book to help her students grasp the concept of reading a graph and interpreting its axes is telling. It demonstrates that literacy skills, particularly reading, can and do support students in understanding mathematical concepts, even if they look slightly different than in other subject areas, as she noted during the interview. This is what the concept of subject area literacy gets at, and evidences why it is important that secondary school teachers have an understanding of how literacy fits into their teachable subject.

**Beliefs of the participant with a teachable subject in English.** Participant 5, the only participant with a teachable subject in English, also expressed the importance of literacy to her subject area. However, her view was slightly different from the other participants, in that she said reading comprehension was the “first level of reading,” a distinction that her colleagues did not make (P5, p. 6, line 177). When asked about how she would teach reading comprehension in her English classroom, she said that her students needed to be able to understand the text, but that comprehension was only the first step:

Comprehension, I think is the first level of reading almost, in the English context, at least. They all know how to speak the language, but being able to pull out the details and important things that way is like the first step to understanding anything. So they’re not going to be able to look at things critically if they don’t understand what they’re reading first, so you have to kind of see the point before you analyze it. (P5, p. 6, lines 177-185)

More important was moving beyond achieving a basic understanding of the main ideas, to being able to look at texts in a critical manner and begin to analyze them.

Another important distinction that Participant 5 made that is relevant to the current study, but that her colleagues did not mention, was that reading is a life-long skill:
I think it’s really important to teaching English to learn how to read. That’s a third of the language, really, the written, reading, speaking. My personal philosophy is it is a life-long skill, it is something that you run into everywhere, even if it’s just interpreting your text message or something like that. And, so, I think it’s essential that you give them the skills to be critical readers. (P5, p. 6, lines 165-170)

What is important in this passage is that she emphasized that learning to read is an ongoing process, one with which even she, as a secondary school teacher, must engage to support her students successfully. She also recognized that the context of the reading matters, when she mentioned that students need to know how to interpret such things as text messages.

While each of the five participants spoke of the importance of reading and literacy skills to their subject area, there were subtle distinctions in the ways that the participants of the different subject areas discussed the specific importance to their teaching. Despite these distinctions, all five participants gave similar responses when asked about how they would incorporate literacy into their subject area teaching. I now turn to discuss these ideas, as I present the findings that address research question 2.

**Research Question 2: What are Pre-Service Secondary School Teachers’ Conceptualizations of How to Integrate Literacy into their Subject Area?**

Participants’ responses to interview questions that addressed how they conceptualized integrating literacy into their subject area teaching resulted in three prominent ideas. Across the subject areas, participants’ responses led to two key ideas: (a) participants seemed to take more of a reactive approach to literacy, addressing individual students’ needs rather than building in skill development; and (b) participants viewed textbooks as more of a guide for teachers, a starting
point or a tool for review, rather than the main resource with which students would interact. The third prominent idea arose from the interview data of a single participant, making it stand out against the responses of her peers. Participant 1 expressed that, as a subject area teacher, she lacked a solid understanding of how to approach literacy at the secondary level. Her goal moving forward was to acquire this pedagogical skill and apply it to her teaching to support her students.

**Reactive approach to literacy.** As a whole, when participants spoke of incorporating literacy skills it tended to be in response to difficulties that they saw their students experiencing. Participants did not express in a specific manner that they would automatically incorporate strategies to continue the development of their students’ literacy skills. Instead, they tended to speak in terms of supporting only the struggling students, using approaches such as one-on-one instruction, marking up the text, and oral communication to support struggling students’ comprehension.

For example, Participant 1 spoke of this when she addressed how literacy support was incorporated into her practicum with a Grade 10 Applied history class:

> My teacher had one thing that she was trying to really push with her class, and that a lot of the classes where they can work on literacy, like in history and English, are trying to do in that school. They’re doing marking up the text, where you highlight words that you don’t know, you underline sections you think are important, and question marks next to things you might have a question about or not really understand. That was a good approach, but that required them to be able to actually read. There weren’t any active, in the classroom, teaching the student how to really read, it was more of just, “Okay, I’m going to read this to you, because we don’t have time.” (P1, p. 6, lines 167-177)
Although the participant highlighted the use of a “during reading” comprehension strategy, she also noted that many students in her class struggled with basic reading, making this strategy less effective than if their literacy skills had been more developed. The reaction to this reality was that her support became reactive, due to time constraints, and resulted in her supporting students via one-on-one, oral communication of the text.

**Oral communication.** One of the prominent ideas that participants expressed was that they relied on oral communication strategies to support students who were slow or struggling readers. Due to what participants expressed as time constraints, instead of addressing literacy skills, they often used visuals, videos, and reading aloud to students to allow the students to access the subject material. Participants, especially those with a teachable subject in history, said that they avoided using materials with a lot of text, as students would struggle to comprehend the document and therefore lose out on accessing that subject area knowledge.

When asked about what types of text she used in her Grade 10 Applied history classroom, Participant 4 noted, “I actually did a lot of videos” (P4, p. 20, line 599). She continued:

But for the text-based ones, I guess the closest one to purely text-based is the lesson we did during World War Two. The information was about Hitler and his march into the Rhineland and so forth, so this was as information heavy of a text that I would give them (P4, p. 20, lines 599-605)

The resource she was referring to was the text selection she brought to the interview (see Appendix J). With this document, she also used oral communication to read the information to the students and explain what was expected of them. Overall, she said her instructional choices
included a lot of watching videos and discussion-based forms of conveying information, because her students did not engage well with text.

Participant 1, whose teachable subject was also history, conveyed this point explicitly when she addressed her shock at her Grade 10 Applied history students’ lack of reading skills:

Originally when I went into the classroom, I was like, “Oh, there’s a textbook, it will be really nice to be able to follow along through the textbook.” I used the textbook once when I was teaching, because as soon as you ask them to open the textbook and read anything, some people were fine, some people were done in five minutes, other people didn’t even engage in it because they were like, “I don’t know how to read this,” or “This is going to take me so long, I’m not going to do it.” Other people had no idea what was on the page. We did do some reading, but it was a lot of me telling them information or watching a video on information, talking about it or, when there was a worksheet, we would read through all the questions first, and that kind of thing, so I had to learn very quickly. (P1, p. 8, lines 230-238)

Because teaching the curriculum in a text-based manner presented so many barriers for her students, and because her students’ literacy skill levels varied so greatly, Participant 1 chose an instructional approach that allowed her students to access the subject area information—oral communication.

Textbooks’ place in the classroom. Participants whose teachable subject was either history or mathematics said that they would use textbooks as a form of reinforcement in the classroom, rather than the main source of knowledge. During the text-based activity portion of
the interview, participants were asked to read and respond to a researcher-selected text, which for history and mathematics was an OME approved textbook from the Trillium List.

When asked about how they would use the text in a lesson, participants from these two subject areas said that they would use the textbook as a teacher guide, rather than a resource for students. Participant 1 stated, “The textbook is great. It was a great resource for me as a kind of guide, this is what they want us to cover—especially if it’s a Trillium textbook, it’s like, ‘Okay, this aligns with your curriculum’” (P1, p. 20, lines 652-654). In this sense, the textbook was used as a guide to provide an outline for structuring the course and how it progressed.

If students were to interact with the textbook, participants suggested it would be more for reinforcement and review of content than for the main learning component of a lesson. For example, participants indicated that they would use the textbook as a source of questions for students or replicate the text and have students complete a fill-in-the-blanks activity as a form of review. With respect to how she used the course textbook during her practicum, Participant 1 noted:

I found that the few times, I maybe used the textbook one or two times, that I did use it I would essentially re-write the textbook and they just had to fill in the blanks. So, getting them to read through and you have to literally find the blank and put it in, which does re-inforce and it gets them to re-read over stuff, but I didn’t like doing that a lot because I found it boring. (P1, p. 21, lines 671-677)

Part of the reason participants seemed hesitant to use the textbook as a main resource for students was the light in which the content was presented. Participants expressed the opinion that textbooks were often boring and that they wanted to present the subject area material in a more
inviting and interesting manner. Participant 3 expressed this when asked about textbooks in the mathematics classroom:

I find textbooks are good for homework, I guess, for the most part, but a lot of the questions are so dry and boring, and they’re just not fun. I would prefer to make my own questions that have at least a little bit of humor to them or something, so it’s more fun to read. (P3, p. 21, lines 688-690)

A main concern of participants was that the textbook was, to them, not presenting their subject area in way that would engage students and make them see it as “fun.” This led to participants viewing the textbook as more useful as a teacher guide or, as I outline next, as a starting point to bring in more engaging materials.

Rather than relying solely on the textbook, participants suggested that it could act as a starting point that would be supplemented with further sources. Participant 2, whose teachable subject was history, conveyed this when asked his opinion on the researcher-selected text, which was a textbook:

I think that textbooks, they do provide great general information, and it’s a starting point. I wouldn’t necessarily say it’s an end point to the interpretation, to the analysis, to the critical thinking that you want them to be doing. (P2, p. 26, lines 842-847)

Supplementary material was also highlighted in the context of accessibility. Participants expressed that textbooks are not conducive to learning when your students cannot read the material to access the knowledge; therefore, as Participant 1 noted, they would, “build on top of that by adding in primary sources, secondary sources, and other kinds of activities that they can do that are a little more accessible than just reading the textbook” (P1, p. 20, lines 658-659).
Only one participant offered any positive feedback about the potential for textbooks to be a great stand-alone resource that was both engaging and informative. Although she did not believe the textbook in her history classroom was engaging, Participant 1 did comment on textbooks with which she had worked in French classrooms, her other teachable subject. Without being prompted to provide information on how textbooks could be improved, she said, “Ideally, it would be cool if you could have a textbook that has the content at a level that is accessible, but also has primary sources and links to videos that are related” (P1, p. 20, lines 642-644). She continued:

French is really good for that, the textbooks. They have great links, you can watch a video, and there’ll be a whole crime unit and you watch all these videos, it’s like a mini crime series, but they’re all related to what grammar you’re using. (P1, p. 20, lines 644-648)

When combined with built-in interactive and supplementary materials that connect to the curriculum, Participant 1 seemed to view textbooks as a strong resource for both students and teachers. She finished her thought with, “So, I feel like, I don’t know, maybe I just haven’t found the textbook yet” (P1, p. 20, 648-649).

**Lack of pedagogical knowledge about literacy.** Although participants said that literacy was important to their subject area, most participants also implied that they did not have a firm or concrete understanding of how to integrate literacy instruction into their subject area. Apart from supporting students by providing context, highlighting key vocabulary, using visuals, and relying on oral communication to skirt the issue of struggling readers, participants expressed that they did not know how to integrate literacy skills directly into their teaching. Although all
participants implied this, Participant 1 was the only participant to mention it explicitly in her interview. She mentioned, numerous times, how she felt ill-prepared to support students’ literacy skills development in her subject area classroom, particularly because her students were at the secondary school level. Her response is unique in this regard.

Participant 1 expressed this sentiment best when she said this was of primary importance to her, but she had no idea how to begin to approach teaching literacy:

I don’t really have any strategies that I’ve seen my past teachers use because they didn’t really have to. I think about seeing other people teach little kids how to read and that’s kind of what I’ve modelled my approach on. But, it’s definitely something that I want to learn more about, because I really have no idea how you teach someone how to read, especially when they’re at such an advanced level where they know a lot of stuff, and they know the content, but they just can’t access it through the text. (P1, p. 7, lines 215-225)

This comment was a reaction to her shock at how many students in her practicum class struggled with reading, which limited her ability to incorporate text-based tasks into her teaching. Even before she could consider incorporating strategies specific to history, her teachable subject, she was concerned about supporting students in their development of basic literacy skills that would allow them to comprehend the text in a basic sense. She went on to further express that she is eager to learn more about teaching literacy skills within her subject area:

I definitely realize that I need to bring a lot more literacy skills into what I’m teaching…I need to learn how to bring in more of those literacy skills into teaching the content and all the other skills on top of the content, because a student is not going to get historical
literacy…if they just can’t even read what’s in front of them or engage in it at all. (P1, p. 22, lines 712-713 and 721-724)

Although she expressed that this was something she wanted to build into her lessons, she also expressed, multiple times, that, “I would try and build them [literacy skills] in, but I mean, I don’t even know where to start with literacy skills” (P1, p. 23, lines 743-744). Learning this was her goal moving forward.

**Research Question 3: To What Do Pre-Service Secondary School Teachers Attribute the Development of their Subject Area Literacy Knowledge and Beliefs?**

Across subject areas, participants repeatedly attributed the source of their knowledge and beliefs about subject-specific literacy, and other aspects of teaching their respective subject areas, to the same sources. Noted most often were the participants’ own experiences as students, and, to a lesser extent, the experiences they had while on practicum, as well as their B.Ed. courses. There were also two discrepant influences in the data: upbringing and textbooks. These last two influences were reported by a single participant each.

**Own experiences as students.** Overwhelmingly, when asked about the source of their knowledge and what made them think or act in such a way when describing the role of literacy within their classrooms, participants referred back to their own experiences as students. They outlined that they chose methods that worked well for them or that they had seen other teachers use.

Participant 2, whose teachable subject was history, made reference to this influence most often when explaining why he chose to focus on definitions as a literacy support in his classroom. He stated, “I remember when I was a student we did a lot of definitions” (P2, p. 8, 94)
lines 260-261). He clarified that he did not want to, “flood them with definitions,” and that these were on the board in order to aid students’ comprehension, not to be formally assessed at any point (P2, p. 8, line 263). As he continued to discuss why he used definitions as an instructional approach, he circled back to his own experiences:

I know that that has helped me, so I use that knowledge, so that’s from my past experience as a student. But, definitely, yes, through, school, through class, I mean, if someone doesn’t understand something, a definition on the board is usually something that a teacher uses. (P2, p. 9, line 268-273)

In this instance, the participant made reference to both his own experience as a learner, reflecting on what worked well for him, as well as to what he had observed teachers doing to support students’ comprehension skills.

More often than referring to both their own learning preferences and what they observed as students, participants referenced only themselves when explaining what the source of their knowledge or beliefs was. Participant 4 exclaimed, “I guess that’s just how I’ve always done it,” when asked why she would use certain strategies with her students (P4, p. 15, line 442). The strategies she suggested, such as highlighting and summarizing, had worked for her, so she implemented them when she moved from student to teacher. She also noted that she used her personal experience as an ESL student as a lens through which to approach literacy in her own classroom:

I guess my own experiences going through school. I was an ESL student at one point, and reading texts at one point was pretty daunting. Having someone there to help you go
through it, and just kind of providing that scaffold before you go off on your own, so you
don’t feel like you’re thrown into it all alone, it really helps. (P4, p. 9, lines 279-287)

Again, Participant 4 made note of the fact that she used her own experiences as a learner to
inform her teaching practices. She remembered what had worked for her, and assumed that it
would also benefit her students.

Participant 3 made this same assumption when discussing the factors that influenced her
thinking about teaching in the mathematics classroom. She said that she would, “base it off my
own learning of these subjects and what makes most sense to me. I’d be like, ‘Okay, if I were to
find this confusing, how could I explain it to myself?’ you know” (P3, p. 20, lines 656-658). Her
method was to reflect on what had worked well for her, while also anticipating what a student
would think: “You have to bring yourself down to their level, and be like, ‘Okay, I don’t really
get this,’ pretend this is all new to you, ‘Why is this confusing to me?’ And then go with it” (P3,
p. 20, lines 660-662). In a separate instance, she also mentioned what she had seen done by other
teachers as she progressed in school:

I guess from being in high school myself, a lot of teachers, they just give you the
equation and they’re like, “Here you go, have fun,” basically…Eventually I had some
good teachers who were like, “But does that answer make sense?” I think it was physics
mostly…so whenever I had physics in high school, I’d get an answer, I’d ask my teacher
and he’d be like, “Does that make sense with what the question is asking me?” And
you’re like, “Oh, no it doesn’t.” And he’s like, “Okay, so what did you do wrong?” And,
so, you have to go back to the concept and see, “Oh, right, I labeled this wrong or I
misunderstood this part or something,” so it’s very important to read the question very carefully. (P3, p. 6, lines 168-170, 173-174, and 177-181)

This skill was something that Participant 3 emphasized repeatedly when speaking to the role of literacy in mathematics, and connecting the numbers with the story to solve an equation. She attributed this emphasis in her own teaching to her experience as a learner, despite the teacher being in a different subject from that in which she was implementing the strategy.

As these examples demonstrate, participants, for the most part, immediately referred back to their own learning experiences when asked to attribute the source of their knowledge or beliefs. Whether it was something that had worked well for them as a student or something that they had seen implemented, participants remembered their student experience and drew on it to inform their literacy practices in their subject areas.

**Practicum experience.** Participants regarded their practicum in two ways: (a) they referenced it directly as an influence on why they chose to implement certain instructional strategies and approaches they preferred; or (b) they said that the practicum experience was eye-opening, and alerted them to the realities of students’ reading abilities at the high school level, without direct reference to its implications for their subject area literacy teaching.

Participant 3 had a unique opportunity in her Grade 10 Applied mathematics class, in that her associate teacher taught two sections of the course, so she could observe one and then implement her observations and reflections in the following section:

Because we had the two Grade 9 classes, my host teacher would teach one, and I would teach the other. So I’d see how he would address certain things first…I would watch
what he did and then I would try to copy his techniques and stuff, and they generally worked. (P3, p. 20, lines 651-654 and 655-656)

She highlighted this influence on her subject area literacy knowledge and beliefs when asked what had informed how she went about supporting students in graphing. The modelling by her associate teacher, an opportunity established by there being two sections, proved, in her opinion, to be beneficial for her learning.

Participant 5 also made reference to the influence of her practicum when responding to a prompt during the text-based activity portion of the interview. When I asked her what had made her choose the approaches she had in response to what she perceived to be the challenges the text might present to students, she replied:

I think it’s been the practicum experience and actually having to put myself in their shoes to be able to help them. I think when I first got into placements, it was a lot harder to kind of figure it out, like, “Why aren’t you getting it?” But then the different questions people have asked is kind of reminding myself that those are the kinds of things that people will ask questions about. (P5, p. 12, lines 353-358)

In her thinking, she spoke only of the role of her practicum, in this instance making no reference to her own preferences as a student. When I asked what practicum had the most impact on her understandings, as she was in the concurrent education stream, she felt that they had all equally contributed to her current way of framing her teaching.

Despite being aware of the fact that students, even at the high school level, would struggle with reading to some extent, participants said that before going into their practicum they had no idea just how prominent this issue would be, and how much time supporting students’
literacy skills would take. Despite suggesting that the practicum experience influenced their beliefs, they tended to comment on it more in general shock factor terms, rather than anything concrete about how they would change their practices. Participant 1 expressed that literacy was, “not something that I ever thought about, that there are kids out there that can’t read, until I got to a class and I was like, ‘Oh my gosh, half of my class can’t really read this, it’s going take them 20 minutes.’ Yes, it was kind of shocking” (P1, p. 7, lines 211-215). In regards to her teaching, she said, “It was amazing how many things I would think of and then I’d be like, ‘Okay, wait. How am I going to do that to include everyone?’” (P1, p. 5, lines 147-149). She said she had to, “learn very quickly,” but then made reference to avoiding text in favour of oral strategies that would convey the same information (P1, p. 8, line 238). Although she was altered to the importance of including literacy skills in her teaching, this was not reflected in her discussion of the strategies that she implemented in her practicum.

Bachelor of Education courses. The role of participants’ B.Ed. courses in the development of their knowledge and beliefs about subject area literacy was not as pronounced as either their own personal experiences as students nor their practicum experience. In fact, not all participants mentioned their B.Ed. courses. Those participants who did, mentioned them in terms of a single instructional approach, for example literature circles, or they compared what they had learned in their B.Ed. courses to the experiences they had during their practicum to say that they needed to focus on more basic literacy skills before their students could engage in the types of activities being suggested in their B.Ed. courses.

Participant 5, whose teachable subject was English, said that in her English curriculum class they had learned about literature circles, a strategy in which she was interested:
We’ve been learning a little bit about lit. circles right now, that I really, really like. A kind of peer support and peer groups so that you’re accountable to each other a little bit to do the reading and you’re picking up on things that are interesting to each other and more kind of grounded in your own experiences in school and that kind of thing. (P5, p. 106-114)

She explained this strategy to me when I asked her about motivating reluctant readers in the English classroom. Participant 5 had expressed that English requires a certain endurance and intrinsic motivation, as it is such a text-based and text-heavy course.

Participant 4 also drew on her coursework to inform her thinking about strategies she could use to support literacy skills within her subject area. Participant 4, whose teachable subject was history, mentioned that some students have trouble forming an internal voice when reading:

For longer pieces of text, I like to at least read the first part of it, because, I guess this is something I learned in teachers’ college, some kids have trouble forming a kind of voice in their head when they’re reading a text. So, giving them an example of the intonations, and the pacing for reading, I think, helps a little to get them started, and to read on their own later. (P4, p. 9, lines 264-270)

This particular strategy links back to the emphasis that participants placed on oral communication. In this instance, the participant made a direct reference to how she hoped this strategy would help her students read on their own later on.

Finally, participants also referenced their B.Ed. courses when reflecting on the feasibility of the strategies outlined in them versus what they believed could be reasonably implemented,
given the context of their practicum experiences. Participant 1 expressed this in reference to the historical thinking skills emphasized in the history curriculum:

We just talked about it in our history curriculum class, bringing in historical literacy, which is really important…We watched a video today on the Declaration of Independence, so it’s a good example. If you’ve got your students, if you wanted them to read that, it’s written very differently to how we write today, so that would be a pretty high level literacy skill, but if your students aren’t going to be able to read or understand that document at all there’s, like, there’s no point in even trying to get to the nuances.

(P1, p. 22, lines 716-717 and 725-729)

Participant 1 recognized that literacy was an important skill, but felt that there was a disconnect between what she had experienced in her practicum and what was being taught in her courses.

It is important to note that it was not that the participants spoke about their coursework in a negative manner, but that they did not reference it at all or to a lesser extent than other factors; most often they used their own experiences as a basis for their decision making.

**Outliers.** There were two notable outliers for this research question, which bare reporting due to their discrepancy from the other participants’ responses. These influences included upbringing and textbooks as factors that informed participants’ thinking about subject area literacy.

**Upbringing.** Participant 1 noted first that her upbringing had a significant influence on how she regarded literacy. This included her family’s attitudes towards reading, as well as the experiences she had in attending a good school and studying at an advanced academic level. She
said that because her teachers and peers valued literacy and excelled at it, she, too, came to see it as important:

My parents are very big readers and my family reads a lot, so it’s kind of engrained. I was fortunate enough to go to a really good school, and had a really good upbringing with education and everything, which I was really fortunate, so I guess it’s kind of been engrained…All of my friends were of the same kind of background, and we all knew how to read very well by the time we were in Grade 2, right, so it was something that was very engrained in our community. (P1, p. 7, lines 196-202 and 207-210)

Her repeated emphasis of “engrained” made this response stand out compared to those of her colleagues. It is evident that she placed a lot of weight on her upbringing as an influence on her literacy knowledge and beliefs.

**Textbooks.** Participant 3 had an interesting response when I asked her what made her think to frame the lesson in such a manner, when she responded to the text-based activity portion of the interview. She said that the textbook itself had made her think to do that:

Probably just from the text, even framing the lesson is basically based on how the textbook is set up, because the textbook has it clearly highlighted for, “These are the vertex, minimum, maximum, know these definitions,” and starting off easy, getting a little bit more difficult, giving an example, showing how it’s done, and then, obviously, in the next couple of pages they’ll have practice problems and whatnot. (P3, p. 10, lines 338-342)

Her lesson mimicked the format of the textbook, using its example of progression of topics and level of difficulty as a guide for her teaching. Furthermore, she expressed that, “a lot of our
learning is based on what we’ve learned in the past, which is from textbooks” (P3, p. 10, lines 342-343). Her pedagogical choices were based on what she knew, and this happened to be the textbook.

**Research Question 4: What are Pre-Service Secondary School Teachers’ Reactions to a Text Chosen by the Researcher, as well as to a Text they Self-Select?**

This research question dealt specifically with the text-based activity portion of the interview. During this activity, participants were asked to read two text selections that aligned with their particular subject area; one was a researcher-selected text, and the other was a participant-selected text that the participant had used at some point during his or her practicum. Participants then responded to a series of questions that addressed what they perceived to be the benefits and challenges the text might present to students, how they would frame a lesson using that text, and what made them react to the text in that manner. These questions also addressed the source of the text, and where the participant might typically turn to find text resources for his or her classroom. This research question was also supported by data gained through a content analysis of the texts, including the researcher-selected texts and the participant-selected texts. Information included the readability level, as well as comparing the text to Mayer’s multi-media principle (Mayer, 2009).

**Researcher-selected texts.** There were three researcher-selected text selections, one corresponding to each of the three subject areas represented by the participants (i.e., history, mathematics, and English). The following headings provide information on the readability levels of all three texts, as well as the application of Mayer’s multi-media principle to the history and
History text selection. Three participants interacted with the researcher-selected history text selection, which was *World Civilizations: A Comparative Study* by Robert J. Walker (1998), the text for “World History to the Sixteenth Century” (CHW3M). This text selection can be seen in Appendix F.

Readability of the text was measured using a Fry Graph, which found the text to be at approximately a Grade 10 reading level (see Figure 3). This means that the readability level was slightly below the grade level of the course for which the text was intended. However, the discrepancy was only approximately one grade level, and could be due to the particular samples I used to calculate the measure.
Figure 3. Fry Graph readability measure for the researcher-selected history text selection from *World Civilizations: A Comparative Study* by Robert J. Walker (1998). The Fry Graph indicated the text was at a Grade 10 level.

With respect to Mayer’s (2009) multi-media principle, the text appeared to fall in the middle ground of being an effective multi-media resource. It supported two of the six principles, as seen in Table 3. Although the text did use text and images, the images did not always link directly to what was said in the text or, as noted by participants, the images could have caused confusion, rather than having helped with meaning making. However, the text did support the
use of personalization and segmenting, so this text did offer some benefits to learners beyond a resource that only contains text.

Table 3

*Application of Multi-Media Principle to Researcher-Selected History Text Selection*

<table>
<thead>
<tr>
<th>Text Selection</th>
<th>Principle</th>
<th>High Applicability</th>
<th>Low Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations: A Comparative Study (Walker, 1998)</td>
<td>Coherence Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>World Civilizations: A Comparative Study (Walker, 1998)</td>
<td>Signaling Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>World Civilizations: A Comparative Study (Walker, 1998)</td>
<td>Spatial Contiguity Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>World Civilizations: A Comparative Study (Walker, 1998)</td>
<td>Segmenting Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mathematics text selection</td>
<td>Personalization Principle</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

*Mathematics text selection.* One participant interacted with the researcher-selected mathematics text selection, which was *Foundations of College Mathematics 11* by Erdman, Etienne, Petro et al. (2007), the text for “Foundations for College Mathematics” (MBF3C). This text selection can be seen in Appendix F.

Readability of the text was measured using a Fry Graph, which found the text to be at approximately a Grade 7 reading level (see Figure 4). This means that the readability level was well below the grade level of the course for which the text was intended, with a discrepancy of approximately four grade levels.
Figure 4. Fry Graph readability measure for the researcher-selected mathematics text selection from *Foundations of College Mathematics 11* by Erdman, Etienne, Petro et al. (2007). The Fry Graph indicated the text was at a Grade 7 level.

By analyzing the text against Mayer’s (2009) multi-media principle, it became apparent that this text represented a strong application of the principles guiding effective multi-media instruction. Of the six principles to which it was compared, the text supported four with a high degree of applicability (see Table 4). Because the text relied on mostly formal language in describing concepts and posing problems, and due to the fact that it had a strange picture and
scenario at the beginning that was not properly explained, the text failed to support the personalization and coherence principles. However, overall, it was a good example of a text that applied the multi-media principle to support student learning.

Table 4

*Application of Multi-Media Principle to Researcher-Selected Mathematics Text Selection*

<table>
<thead>
<tr>
<th>Text Selection</th>
<th>Principle</th>
<th>High Applicability</th>
<th>Low Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Foundations of College Mathematics 11.</em></td>
<td>Coherence Principle</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>(Erdman et al., 2007)</td>
<td>Signaling Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>pp. 168-170</td>
<td>Spatial Contiguity Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Segmenting Principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-Training Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personalization Principle</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**English text selection.** One participant interacted with the researcher-selected English text selection, which was *Lord of the Flies* by William Golding (1954), which could be used in the “Grade 11 English, College” (ENG3C) course.

Readability of the text selection from the novel was measured using a Fry Graph, which found the text to be at approximately a Grade 3 reading level (see Figure 5). This means that the readability level was well below the grade level of the course for which the text was intended, with a discrepancy of approximately eight grade levels. This discrepancy could be due to the fact that the Fry Graph uses sentence and syllable counts to calculate readability, which does not account for dialect differences nor literary nuances (Fry, 2002).
Reactions to researcher-selected text. In response to the researcher-selected text, participants tended to focus on two elements: vocabulary and readability. To a lesser extent, participants addressed the formatting of the text itself.

Emphasis on vocabulary. Throughout the interviews, it became apparent that vocabulary was one of the main points of focus for participants when it came to supporting literacy.
Vocabulary was the most prominent challenge to students that participants highlighted when asked to respond to a researcher-selected text.

Participant 2, whose teachable subject was history, said, “There are some terms in here that students may not comprehend,” right away when reading the text selection. He added depth to his response as he read the text:

Domesticate. Some students may not understand that term, so if they were reading it, they would see a word and they wouldn’t comprehend it, then they may just see dogs, cattle, pig, sheep, and goats. They may put two and two together, but they may not, and then they would lose, that’s a really important, that’s key information there that helped people get from hunters and gatherers to villages. (P2, p. 10, lines 323-333)

Participant 2 suggested that when students did not understand a word, it could impede their understanding of the whole passage, meaning that they would misinterpret the underlying message or concept. Not having a solid knowledge of vocabulary terms would jeopardize the subject area learning, according to the participants.

Participants said that they would focus on highlighting key words, which they hoped would allow students to access more fully the knowledge contained within the writing. When discussing the researcher-selected history text, Participant 4 suggested that, “highlighting is part of it, but that’s also part of the whole key words thing,” when I asked about how she would support students in accessing knowledge from text (P4, p. 9, 263). Highlighting was part of her strategy that involved using pre-reading discussions to highlight some of the key words that students might encounter and struggle with during reading.
Readability. Participants also discussed the readability of the document, suggesting that students might find the text inaccessible or too dense, depending on their reading abilities. Participant 2, for example, suggested the following criteria when he selected texts: “Picking sources that are easy enough to read, that have plain language, that aren’t using terms that the students may not have ever come across” (P2, p. 22, lines 717-718). Participants were cognizant, however, of the grade level that the text was designed for, and recognized that the text might work better for an academic or university class rather than an applied or college level class. To a certain degree, participants recognized that they needed to match the level of the text they used in their classroom to the reading abilities of their students. This was suggested in an abstract sense, in making sure that the vocabulary was accessible, that there was not an overwhelming amount of text nor information, and that there was some form of visuals to support the ideas contained in the text. For example, in regards to the researcher-selected history textbook, Participant 1 responded with, “I figured it was,” when I clarified that the textbook was not a Grade 10 textbook (her practicum classroom), but a Grade 11 college/university level text (P1, p. 9, 276). She expanded on her response, saying: “I was also in a Grade 12, I was observing it, I didn’t ever teach them, a Grade 12 university level class, and they could definitely, I would definitely use something like this with them” (P1, p. 9, 284-287). Participant 2 also noted that texts had to be screened for suitability for the grade level:

As for articles and things, try not to pick things that are super dense. For example, the Grade 12s were reading Rousseau, which is, he’s just a very, ah, there’s a lot in what he’s writing, and it is tough. Even I have a hard time comprehending some of the things he’s
talking about, so, I would definitely not use that at, say, the Grade 10 level. (P2, p. 22, lines 711-715)

Although neither participant mentioned readability in a formal way, both understood that text difficulty level was something about which they needed to be cognizant when selecting text for their classrooms.

Following this emphasis on readability, participants also emphasized that textbooks were not their preferred instructional approach when working with students in an applied or college level class, because students at this level might have less developed reading abilities and might find accessing knowledge through a textbook challenging. This is where the idea of using the textbook as a means of reinforcement for ideas presented in other manners came up repeatedly.

**Formatting.** Participants expressed that one of the benefits or challenges of a text was its formatting. For example, they liked when textbooks utilized a margin to present key ideas or terminology that would be discussed in the chapter. They said that they were more likely to use textbooks that bolded and explained key terms, and made it easy for students to find the definition, rather than having to turn to a dictionary or their phones to find the meaning. This was mentioned both by participants whose teachable subject was mathematics and those whose teachable subject was history. Participant 3, whose teachable subject was mathematics, said:

I definitely like how words are bolded and then they have the little definitions on the side so it’s easy to—it draws your eye in. The way that the questions are asked, in that they get more and more difficult as they go through, which is obviously a good idea to do. It has some pictures, which is always great because if it gets too wordy it becomes very overwhelming. It’s just very well organized, I guess, in that you have an example and

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then the other side it clearly says, “Here’s the solution, this is what you do.” (P3, p. 9-10, lines 303-309)

Participant 4, whose teachable subject was history, also commented on this element of formatting. She mentioned specifically that textbooks with in-text clarifications were nice, because it eliminated outside distractions:

I always like the textbooks with the little things on the side, that say, “In this chapter we’re going to learn about these key points,” or, an additional box every other page with a vocabulary box, just like, “These are the terms you may not know,” and then have the definition right there, so they can just quickly glance at it, instead of, bring out your phone or something, Googling that word. I think might be a smoother way to incorporate new vocabulary. (P4, p. 13, lines 379-389)

Again, as with their knowledge and beliefs, the participants focused on vocabulary and visuals as they discussed the benefits and challenges of the text.

Similarly, they also preferred textbooks with clear visuals that contributed to the meaning of the text:

With Grade 10s, I always think that the less words the better. I think in that case, I would prefer something with more visuals and more, at least different, ways of giving the information than just text and the occasional image. (P4, p. 25-26, lines 783-787)

This formatting preference was also an issue of accessibility, and matching the text level to the ability level of the students.

Another formatting issue that was raised by a single participant was the actual size and spacing of the font. Participant 2 stated:
Well just the text in general, I learned that, well, I made, a learning, I guess a learning experience. When I printed it [an online resource], the text itself was very small, so being mindful of the size of the wording, and literally just font size, so if it’s a tiny font size the students that may have trouble comprehending it are going to be at an even greater deficit right away, because there’s just so much on the page for them to interpret. (P2, p. 22, lines 700-708)

Being aware of the actual size and layout of the font mattered in supporting students in making sense of a text. This was particularly important when accessing online articles, as Participant 2 mentioned.

For participants whose teachable subject was history, a recurring theme amongst all three participants was the importance of clear maps. Not only did the map have to have clear legends and markings, they also wanted maps that situated the area of interest in its larger geographical context. They suggested, for example, that students might not have an adequate understanding of geography outside of Canada, so textbooks should include maps that situate the zoomed in map on the larger world scene. This would give students the appropriate context to understand the map in relation to their local context. This lack of context was one of the critiques Participant 4 had about the map that was included in the researcher-selected textbook for history:

What could be useful for someone who’s never seen a map of this area before, or where Jericho even is, would be a bigger concept map or a bigger context for the map, since it’s the introductory chapter. Maybe zooming out a bit just to see where it is in comparison to Europe and then the rest of the world. (P4, p. 12, 341-350)
This context piece was mentioned by all three participants whose teachable subject was history, highlighting their belief in its importance for supporting students’ understanding of history texts.

**Reactions to self-selected text.** Participants brought a variety of types of texts to their interviews, including a memoir, a scrapbook, a handout of a chart with a series of maps and information points, and a model of a newspaper article. Participant 3 brought a slide that she used in her mathematics classroom. However, the students did not interact with the slide, apart from her brief use of it to introduce the concept of slope, so this document has been excluded from the findings.

**Participant 1 text.** Participant 1, whose teachable subject was history, brought a memoir to our interview. She used the memoir *Night*, by Elie Wiesel (1960), with her Grade 10 Applied history class (an excerpt from this text can be seen in Appendix H).

She read aloud to students for about 15 to 20 minutes at the end of every class. Students did not have their own copy, and were only asked to listen along to the reading; there were no questions or tasks associated with the reading. Participant 1 used the text to provide her students with a better understanding of the lived experiences of the Holocaust, as there had been some insensitive remarks made about the subject material prior to engaging with this memoir.

The benefit of this activity, according to the participant, was that the students did not have to engage in reading the text themselves. Participant 1 told me, “I read it to them so that they could just sit and listen, and they didn’t have to worry about reading it or watching something, they could just sit” (P1, p. 15, lines 482-483). She had tried to find a video that the students could watch so that they could see how “devastating it actually was,” but she pointed out that many of the more impactful videos were “in different languages, and then they would
have to read subtitles, and that didn’t work” (P1, p. 15, lines 473 and 475-476). By reading aloud to the students, she suggested that they could concentrate on listening for understanding. They could still engage with the information and she could emphasize the point she wanted to make about the devastation caused by the Holocaust, but they were accessing the information in an alternative format that removed the barrier created by a lack of reading comprehension skills. Participant 1 expressed the opinion that implementing an oral communication approach worked well for this group of students, who were a high-needs group with respect to reading support.

Besides using Night (Wiesel, 1960) as a “shock factor” for her students’ understandings about the Holocaust, Participant 1 also used it as a point of reference in her future teachings about World War Two and the Holocaust. She explained:

And then, it was really just a point of reference that I could be like, “Do you remember when this happened in this book?” It was short, it was 15-20 minutes of reading, but they seemed to remember it pretty well. (P1, p. 16, 520-522)

She said she chose the book because the author, whose story the memoir recounted, was around the same age as the students at the time the events unfolded. This resonated with the students, who Participant 1 said were engaged with the story because of this connection, making it easy to use as a stepping stone for context in other related lessons.

Furthermore, Participant 1 also expanded on her considerations of the text, making reference to how she would use it in other courses. For example, Participant 1 said:

I would definitely use it either in an academic class as a book study that they could do on their own, because it’s a fairly short book. Or, in an applied class, reading it to them again worked really well. (P1, p. 16, lines 494-495 and 497-498)
This indicates that she recognized the need to adjust the way in which she used a text based on the reading abilities of her students. This, combined with her judgement call about using *Night* with her applied class as a read-aloud only, demonstrates that she had some understanding of readability and choosing text selections that are appropriate for her students.

When I conducted the readability measure on this text, the Fry Graph indicated that the text fell at a Grade 3 reading level (see Figure 6). This means that the readability level was well below the grade level of the course for which the text was intended, with a discrepancy of approximately seven grade levels. This discrepancy could be due to the fact that the Fry Graph’s method of calculating readability does not consider dialect differences (Fry, 2002). When prompted, Participant 1 spoke to the need to clarify some of the vocabulary found in the memoir: “The section that I chose was fairly okay. There were some Jewish terms, like Yamaka, that came up and they were like, ‘What’s that?’” (P1, p. 16, 503-504). The content of the book was also quite mature, meaning even if the readability was at a Grade 3 level, it would not have been appropriate for such young readers.

**Participant 2 text.** Participant 2, whose teachable subject was history, brought a scrapbook from the *Canadiana Scrapbook Series* to our interview. The scrapbook, *Canadiana Scrapbook, the Depression Years: Canada in the 1930s* (Mennill, 1978), covered the topic of Canada during the 1930s, and provided an overview of the lived experience of the Great Depression. Participant 2 used this textbook with his Grade 10 Academic history class (an excerpt from this text can be seen in Appendix I).
Figure 6. Fry Graph readability measure for Participant 1’s text selection from *Night* by Elie Wiesel (1960). The Fry Graph indicated the text was at a Grade 3 level.

Participant 2 used the scrapbook, paired with a question sheet activity, to give his students a brief overview of the 1930s in Canadian history. This activity was part of an introductory lesson to the Great Depression. Students were asked to go through the whole scrapbook in small groups, and had a handout with a series of questions to which they had to respond. One of the strategies that the participant used to support his students’ interactions with
the text was to provide page numbers that corresponded to the questions, so students were guided through their inquiry:

I had a set of questions, so each student got one [of the scrapbooks], luckily, and the students were arranged in small groups and they were given a set of questions. The questions pertained to each page and it’s a fairly large document, so each question had, at the end of it, where the answer was going to be on the page, so they knew which page to look at. (P2, p. 23, lines 730-736)

The participant expressed that, because the document was so large, he had provided page numbers to direct the students to the appropriate knowledge to focus their learning. Once the groups had finished the task, which Participant 2 emphasized that “they were encouraged and expected to help each other,” the class took up the answers as a whole group (P2, p. 23, line 745). Doing so allowed him to foster a discussion-based learning environment:

The questions were arranged in such a way that it would create a discussion about the text and about what was presented, and hopefully trying to get two rounds of discussion: a round of discussion in their groups finding the answers, and taking it up with the class. As a larger group, going through it and taking up the question, but each question would lead to the next, and create a discussion about what’s happening. This was used to frame the 1930s as a unit, as a set period of time. (P2, p. 24, lines 760-763 and 766-769)

Participant 2 stated that he structured the lesson this way so that students could discuss the answers, as some students might just find the answer and write it down, without stopping to think about the information. A discussion could be used to flush out details that might have been missed.
The participant expressed that he liked this resource and had brought it to the interview, because it combined both primary and secondary sources, and had a number of visuals that the students could use to help them make sense of the text: “I figured this would be good, because it had pictures and text in it as well, and graphs” (P2, p. 21, lines 668-669). He went on to expand on this point when, later in the interview, he was asked about what he considered when selecting a text for use in his lessons:

Images obviously help a lot. If a student can look at an image and then look at a text, and then go back and forth from that, that might help them comprehend it. That’s why this scrapbook is really good, because there are images on every page. Not only images, but there are also graphs and things later on as well, and not only images, but also these images, too [referring to the cartoon money drawn into the page layout]. So, they can see, “From Boom…to Bust,” and there’s money flowing down, so they understand that, “Okay, this is about money, and there are things here that we have to pay attention to,” stuff like that. (P2, p. 22, lines 719-727)

This indicates that the participant thought about the format of the text when he made a selection for his lessons. In this example, Participant 2 considered how the text and the images worked together to convey meaning to the reader, which aligns with the thinking behind Mayer’s (2009) multi-media principle. Although Participant 2 did not express this concept directly, his explanation of his thinking here indicates that he was aware of the connection.

The Fry Graph readability measure for this text selection indicated that it was at approximately a Grade 9 or 10 reading level (see Figure 7). This means that the readability level fell at approximately the level of the course for which the text was intended.
Figure 7. Fry Graph readability measure for Participant 2’s text selection from *Canadiana Scrapbook, the Depression Years: Canada in the 1930s* by Paul Mennill (1978). The Fry Graph indicated the text was at a Grade 9 or 10 level.

A comparison to Mayer’s (2009) multi-media principle demonstrated that this text fell in the middle ground between an effective and ineffective multi-media resource (see Table 5). While the scrapbook did contain both text and images in abundance, its lack of organization meant it did not apply the signaling principle, which made following the flow of information a time and energy consuming task. However, the text did a good job of pairing photos with relevant text in close proximity, which made making connections between the two elements.
easy. There was room for improvement in the layout and design of the text to conform to Mayer’s (2009) multi-media principle.

Table 5

<table>
<thead>
<tr>
<th>Text Selection</th>
<th>Principle</th>
<th>High Applicability</th>
<th>Low Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Canadiana scrapbook, the depression years: Canada in the 1930s.</em> (Mennill, 1978)</td>
<td>Coherence Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signaling Principle</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Spatial Contiguity Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Segmenting Principle</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>pp. 2-3</td>
<td>Pre-Training Principle</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Personalization Principle</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Participant 4 text.** Participant 4, whose teachable subject was history, brought to our interview a handout package that she used with her Grade 10 Applied history class. The handout included a chart that she asked her students to fill in, along with the series of maps and information points that were used to help fill in the chart’s questions. The students were also encouraged to use their textbook and their own electronic devices to find any information that was not readily available in the maps and information points. She created the chart herself, and used the maps and information points from her associate teacher’s files (these handouts can be seen in Appendix J).

She used this source because it gave students an overview of the information they had covered in previous lessons, and allowed students to cover a breadth of information without
being overly demanding in terms of reading and interacting with text. Participant 4 noted that, “this was as information heavy of a text that I would give them” (P4, p. 20, line 605). She chose this format to cover this information because her students needed a lot of support to comprehend text, and, she pointed out:

I picked this one because the information was pretty heavy and, again, it’s not purely text. I wanted to incorporate the visual of the map labelling with it, so I thought it would be a good, I guess interactive learning experience with connecting the events of the history, and kind of putting it into a mind map. (P4, p. 22, lines 660-665)

She used these handouts as part of a larger lesson that explored how Hitler had gained territory in World War Two. This particular resource was chosen because its visuals could support students’ understandings of this information.

Alongside these handouts, she also had the students use the information they learned to help fill in the one-page map handout that accompanied the package, but they did this as a whole class using a SMART Board application. She asked students to identify and colour in each country, but provided context by covering the geography of the region:

Other than this map here [the one-page map from the handout package], I also had a bigger zoomed up map of Europe and the world, and the students in the class were like, “What is this, geography class?” I was like, “Well, you need to know where it is, and to give some context.” So, for any area-specific lessons that I had, I like to start with a world map, circle where we’re going to zoom in, have a more specific map of that area and then zoom in again, to the specific country that we’re looking at. (P4, p. 24, lines 746-754)
She further emphasized this point when asked about why she decided to use maps in this way, stating:

    They liked visuals, and I think that this is probably a little bit more comprehensive than if they were just to read, like, a list of events that happened. Having visuals along with the words, I think is a good way to help them visualize what happened. (P4, p. 25, lines 759-765)

In these examples, Participant 4 touched upon two strategies she used to support students’ understanding of text. She emphasized the importance of providing visual aids to students, rather than text-only resources. She alluded to Mayer’s (2009) multi-media principle when she said having visuals with the text would help the students visualize the events better. The other strategy she used to support her students’ literacy skills was that of context. Specifically, when she discussed the maps, she ensured that students could relate the region back to their own contexts by situating the countries they were discussing on a larger world map. This related to the students’ prior knowledge, and allowed Participant 4 to support them in making sense of the handout package information.

Completing a Fry Graph readability measure of this text indicated that the text was at a Grade 9 level (see Figure 8). This means that the readability level was roughly one grade level below the course for which the text was intended. This discrepancy could be due to the samples I used to calculate the measure. In regards to readability, Participant 4 stated that her practicum:

    Helped me see that everyone reads at a different level, and you should never assume that students can read at a certain level. A good rule of thumb to go by is get to know your students first and have some kind of diagnostic survey or something to see where they
stand, that’d be easier if you had your own class, but knowing where they are in their reading level. (P4, p. 26, lines 806-813)

This demonstrated that Participant 4 had some understanding of readability, even if she did not state this explicitly. This example, in particular, demonstrates that she understood that although a student might be in a certain grade, it does not necessarily mean that the student can read at that grade level.

![Fry Graph for estimating Reading Ages (grade level)](image)

Average # of syllables per 100 words: 150  
Average # of sentences per 100 words: 6.4

X = 150  
Y = 6.4  
G = Grade level (the number in the white circle between the dark blue parallel lines is the grade level)

**Figure 8.** Fry Graph readability measure for Participant 4’s text selection from her handout package. The Fry Graph indicated the text was at a Grade 9 level.
In comparing Participant 4’s handout package to Mayer’s (2009) multi-media principle, it was apparent that the handouts did a good job of supporting the principles. The handouts supported four of the six principles (see Table 6). Although the chart was not on the same page as the information that was required to complete it, the information points page was strong in its application of the four principles the package did support.

Table 6

*Application of Multi-Media Principle to Participant-Selected Text Selection, Participant 4*

<table>
<thead>
<tr>
<th>Text Selection</th>
<th>Principle</th>
<th>High Applicability</th>
<th>Low Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handout package of maps, chart, and information points</td>
<td>Coherence Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signaling Principle</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spatial Contiguity Principle</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Segmenting Principle</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Pre-Training Principle</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Personalization Principle</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Participant 5 text.** Participant 5, the lone participant with a teachable subject in English, brought a newspaper article model handout that she used with her Grade 9 Academic English students (this handout can be seen in Appendix K).

This handout was used by the participant during a lesson where she introduced her students to writing newspaper articles. Participant 5 said that this activity was also being used to prepare students for the Ontario Secondary School Literacy Test, despite this being only their first semester in high school. The model was used throughout the unit, rather than being used as
a one-time resource. Students were asked to read the model, which had a paragraph by paragraph breakdown of the elements of a good newspaper article, and used that as a guide to write their own articles. Participant 5 said that she brought this text to the interview because:

This one was one that kept popping up and it was something that was really easy to refer back to, so it was kind of like your through line text, no matter what kind of stories you were dealing with. (P5, p. 21, lines 648-652)

Using the text repeatedly provided continuity when developing the skill of reading and writing a newspaper article, and was something that she believed supported students’ learning.

When asked why she had chosen this resource for her lesson, she mentioned several factors. First, her associate teacher had advised her to do so, as it had been a text used by the department for years, with positive responses from students. However, Participant 5 also expressed that she thought the text had other benefits, such as its clear layout, accessible language, and that it was considered interesting and engaging by the students. For example, she expressed that, “I think this particular article is pretty accessible for length, and it doesn’t look very dense either, so it’s accessible that way” (P5, p. 25, lines 792-795). She went on to explain that newspapers, as a genre, are probably one of the more accessible forms of text with which students interact in the classroom. When I explored this statement and asked her to explain her thinking, she said:

Because it’s real stuff. It’s something that they’ve probably seen pictures of before or they’ve heard about by the time that they actually read about it, so they understand that context. It’s usually relatively recent. We don’t throw the primary sources from the history at them right away, so they’ve got that background knowledge. It’s condensed so
it’s not that same endurance race, and if you don’t understand the article, you’ve got the headline to fall back on. (P5, pp. 25-26, lines 823-835)

What is interesting about this point, is that she emphasized context and connections to students’ prior knowledge, as well as the fact that their reading could be supported by first seeing or hearing about the event. This links to visuals and oral communication as means to support reading comprehension. However, she also pointed out that if students did not understand it, they could fall back on the headline. This highlights the importance of understanding text format to access the information contained in the text.

Participant 5 also said that, while students did not have difficulty reading the article, they did have trouble incorporating the more formal language used in the article into their own writing when putting together a newspaper article:

It didn’t seem like they had a big issue with it when they were reading it, that they could grasp that content and the basics of plot and all that, but when they went to go write their own of the same type, the language didn’t quite transfer. (P5, p. 26, lines 800-805)

While this is not the concern of the present study, as my research focused on reading comprehension, this is an interesting point to note and could be something to explore in future research.

The Fry Graph readability measure indicated that Participant 5’s newspaper article model was at a Grade 9 level (see Figure 9). This matched with the grade level for which it was used. Participant 5 mentioned briefly in her discussion of this text selection that the text seemed to be an accessible length and not too dense, making it an accessible text for students. While her
comments were vague, she did consider the general readability of the text, and recognized its match to her students’ readability level.

Figure 9. Fry Graph readability measure for Participant 5’s text selection from her newspaper article model handout. The Fry Graph indicated the text was at a Grade 9 level.

Source of the participants’ resources. Each of the participants outlined in this section (Participant 1, Participant 2, Participant 4, and Participant 5) brought to his or her interview a resource that had been recommended by his or her associate teacher. Each participant expressed that his or her associate teacher had some experience with the source, and that students in the
past had responded well to the resource. Based on this experience, the associate teachers had recommended to the participant that he or she use it again.

For example, one of the reasons that Participant 5 used the newspaper article model in her lesson on how to write a newspaper article was because her associate had used it in the past. Participant 5 explained:

It was one of those things that it was tried out last year, and probably for the last couple years, and it’s been working. When she gave it to me she said it was a great tool that had worked and is really memorable and is still working, so that’s why we used it. (P5, p. 24, lines 757-761)

Participants relied on the informed knowledge of their associate teachers to make decisions about what texts to incorporate into their lessons when working in the context of their practicum.

Sources of knowledge for these reactions.

Framing the researcher-selected text within a lesson. When framing the researcher-selected text within a lesson, participants were able to express not only their beliefs about the text, but also their beliefs about teaching within their content area. Although each participant received a selection of text from a textbook or novel that was commonplace within their subject area, the format of the text could have limited their reactions as to how they would use the text in the classroom.

A comparison of reactions to the text across participants was not possible for participants whose teachable subject was either mathematics or English, but I was able to compare reactions between participants whose teachable subject was history. In doing so, I found that the format of the text did not appear to limit participants’ reactions as to how they would use it in their
classrooms. Despite the fact that each participant whose teachable subject was history was provided with the same selection of text, their reactions as to how to frame that text in a lesson were telling about their approach to teaching in that subject area, and resulted in different approaches across all three participants.

For example, Participant 2 said that he would use the text selection (see Appendix F) as an introduction piece to the Neolithic Revolution. He would begin the lesson by having students “either read aloud, read in groups, read silently. First, I would put some of those definitions on the board,” he continued, “once you get to a point such as that timeline, like, 8000 BCE, you could stop, draw the timeline, and start explaining this” (P2, p. 12, lines 369-370 and 379-380). He suggested that the text selection could be used to set up an activity for the students:

In terms of what I would use it for, I might set this up before an activity. Maybe have the students break into small hunter and gatherer groups and get them to elect a chief. An interactive game like that, because that might help the students understand the difference between working alone, working as a group, and those different social and cognitive differences that defined those two things…Then you could do a trading game, make something fun. One group’s really good at this, one group’s really good at this, have them work out, and come to trade agreements, and then view the importance and the effects and the significance of what that would mean for human culture and even human behaviour. (P2, pp. 12-13, lines 383-392 and 396-402)

While Participant 2 expressed a very experiential activity to accompany the text selection, Participant 4 expressed a very traditional view on how she would use the text in her classroom:
I’d probably take some of the key points, and either read it to them or put it on an information sheet for them, or teach them how to highlight and pick out the information for themselves. I think just giving them so and so pages, and saying, “Read it,” might be a little bit overwhelming. (P4, p. 12, lines 368-373)

Although both participants received the same text and their interviews were framed the same way in the lead up to their interactions with the text selection, their conceptions about the pedagogical approaches they would use with the text demonstrated variety in their thinking.

With respect to the reasons participants provided to explain why they chose to frame the lesson in the ways they did, participants once more referenced their own experiences as students. Again, they said they turned to what they had known as students and what they had observed other teachers doing, whether that was when they were a student or when they were in practicum or other teaching-related experiences. Participant 5, for example, immediately referred to her past experience with the novel *Lord of the Flies* by William Golding (1954) when asked how she would frame the text in a lesson, stating, “The way I know it has been used, to draw on experiences, is looking at the symbolism, because there’s a lot of really obvious symbols in the book, so that’s what I would work toward” (P5, p. 8, lines 237-241). Expanding on this, she said that she would use a read-aloud approach to teaching the text, at least initially, which was something that she had seen done in her most recent practicum.

*Framing the participant-selected text within a lesson.* When framing the lesson, participants noted that they had to work within the established routines of their associate teachers, so they often presented materials in the manner that their associate would have done so. Participant 2 expressed this several times when explaining what he did in his practicum.
classrooms. He said that he often used read-alouds in his classroom, and made reference to established routines when he provided his rationale for doing so:

    This was six weeks in and their teacher, my associate, had done that for the six weeks, so they were really used to that. I continued that, not wanting to deviate a lot from what they were comfortable with, because she knew they were comfortable with that. (P2, p. 7, lines 200-206)

He mentioned this again when I asked how he grouped students for an activity related to the text selection he brought to the interview. He explained that he had grouped the students, and then went on to say, “Well, the groups were, there was the seating plan, which the associate had placed, which was done in that kind of fashion [a mixed-abilities fashion]. Again not, trying not to vary too much from what they were used to” (P2, pp. 23-24, lines 751-757). In a similar fashion, Participant 5 also mentioned that she had to work within the established routines of her associate teacher when teaching during her practicum. In regards to the newspaper article model that she brought to the interview, Participant 5 explained the lesson as, “I got to introduce it within the frame of a lesson that she had laid out. It was really interesting, she was missing for a couple of days, so I was like their supply teacher” (P5, p. 24, lines 743-748).

    These instances are representative of the other participants’ responses. All participants noted that, to some degree, they had to work within the existing routines of their associate teacher’s classroom. They were limited in what they could try due to the expectations of their associate teachers. It was not that they were not supported in trying new things and approaches that their associates did not use, but rather that the participants did not want to disrupt the
existing routines and expectations that students expected of the class and potentially negatively affect their students’ learning.

Additionally, participants said that their practicum experience was limited, so they did not necessarily have go-to approaches. This was in response to interview questions that asked them about their pedagogical approach to teaching in their subject area, which included prompts about what instructional strategies they used and what skills or ideas they would emphasize. Participant 2 highlighted this right away when I asked him these questions, stating, “Well, I mean it’s been somewhat limited, right, I’ve only had one practicum” (P2, p. 4, line 111). Participants expressed that they had ideas, but that their thinking was still developing, due to them being at an early stage in their teacher training.

**Summary of Chapter and Looking to the Next Chapter**

In this chapter, I outlined, by research question, the key findings of my research. I provided both interview and content analysis data to create a picture of the story the data had to tell. The findings indicate that this group of pre-service secondary school teachers believed literacy was important to their subject area, but had a limited or underdeveloped sense of how to integrate literacy skills instruction into their teaching. Moving forward, Chapter 5 addresses my findings in relation to the existing literature, and discusses the limitations of the current study, as well as avenues for future research and implications for education.
Chapter 5

Discussion

This study sought to describe the subject area literacy knowledge and beliefs of pre-service secondary school teachers, with a particular focus on exploring the factors that participants expressed as having contributed to the development of said knowledge and beliefs. Chapter 4 outlined the findings according to research question. The findings indicate that participants from each subject area (history, mathematics, and English) recognized that literacy is an important aspect of subject area teaching. What pre-service teachers believed literacy looked like in their subject area varied slightly (e.g., in mathematics the “words” were formulas and graphs, while in history and English literacy was viewed in the tradition sense of reading a written text), however the instructional approaches the participants suggested they would use to support the development of their students’ subject area literacy skills were common across subjects. While participants expressed that they felt the need to address literacy in their teaching, the data indicate that this belief was not integrated into their practice; the underlying emphasis throughout the data was on how literacy supported the delivery of subject area knowledge, and not on the development of literacy skills themselves. In regards to the influences on participants’ knowledge and beliefs about subject area literacy, it was apparent that participants were largely informed by their own experiences as students, and what they had seen their own teachers do. To a lesser extent, participants also expressed that the practicum experience was “eye-opening,” and made them think differently about how they presented material in their subject area, as did some of their experiences in the B.Ed. program (e.g., P1, p 7, line 206).
In this final chapter, I discuss the findings as they relate to the study’s research questions, and to the relevant literature. I make connections between the study’s data and the relevant literature, highlighting similarities and differences between the two. I first discuss the participants’ knowledge of and beliefs about the role of literacy within their subject areas, and their conceptualizations of how to integrate literacy into their subject area, which corresponds with research questions 1 and 2. I then turn to considering the factors to which participants’ attributed the development of their subject area literacy knowledge and beliefs, which corresponds with research question 3. Research question 4 considered participants’ reactions to both a researcher-selected and a self-selected text, including how they would frame the text in a lesson, the benefits and challenges it might present to students, and the source of their knowledge for their responses to the text. These findings are considered in relation to the above noted groupings, as they correspond to the appropriate topic. Following a discussion of the data as it connects to the literature, I touch on the limitations of the study, avenues for future research, and the study’s implications for the field, before concluding with some final thoughts.

Connections to the Literature

Knowledge, beliefs, and conceptualizations about literacy within subject areas.
While the participants in this study expressed that they believed subject area literacy was important, their ideas about how to support the development of this skill or how to integrate it into their subject area teaching were vague. T. Shanahan and Shanahan (2008) conducted a study that looked at subject area experts’ (university professors), teacher educators’, and secondary school teachers’ reading habits in their respective subject areas, including the comprehension strategies they used, and then asked them how they would teach those strategies to students.
Their study found that experts in each subject area (they looked at mathematics, chemistry, and history) read texts differently, and used different strategies to support their comprehension. This is unlike the data of the current study, which show the group of pre-service teachers spoke about subject area literacy in vague and general terms, and were unable to provide specifics with respect to strategies they would use to support subject area reading comprehension. The text-based portion of the interviews (in both the current study, and in the T. Shanahan and Shanahan, 2008 study) provide a prime example to highlight these differences: when presented with a secondary school level text specific to their subject area, the participants in T. Shanahan and Shanahan’s (2008) study suggested detailed strategies they used to comprehend the text, as well as specific sets of challenges that students would experience if they were to interact with the same text; in my study, participants provided vague information on strategies they used to comprehend the text, and suggested that students would face similar challenges, such as vocabulary, despite their subject area differences. Although the current study cannot make cross-subject comparisons due to its limited sample size, a comparison of its participants whose teachable subject was history to those participants in the T. Shanahan and Shanahan study (2008) whose subject area expertise was in history demonstrates obvious differences in the ways in which participants spoke about subject area literacy skills. These differences might be attributed to the fact that T. Shanahan and Shanahan (2008) interviewed subject area experts, as well as in-service secondary school teachers, who might have more experience working with texts and anticipating the challenges students face than the pre-service teacher participants of the current study.
Another comparison that can be made between these studies was the embracing of strategies to support students in reading advanced subject area texts. In my study, participants were enthusiastic about using strategies to support their students’ literacy skills, but expressed that they lacked the knowledge of how to go about doing so. They also implied that the importance of those literacy strategies would be to support students’ engagement with subject area knowledge. In the study conducted by T. Shanahan and Shanahan (2008), participants were hesitant to embrace the idea of strategy instruction in regards to literacy. Their primary concern was linking any strategy instruction back to their subject area, making sure that the emphasis was on the content knowledge needed for the particular subject. In this regard, the findings of T. Shanahan and Shanahan’s (2008) study parallel this study’s findings, as both groups of participants implied that the subject area knowledge was their main concern, and literacy instruction was a means of supporting that knowledge.

Vocabulary. Participants often raised the issue of vocabulary as a literacy skill that they tried to support in their instruction, and referred to it when asked about aspects of a text that might challenge students. To revisit McKeown and Beck’s (2011) tiered classification of words, which was described in Chapter 2, participants discussed vocabulary in a more general sense, focusing on what McKeown and Beck (2011) referred to as Tier 2 vocabulary, rather than on subject-specific, or Tier 3, vocabulary. The difference between these two tiers is their emphasis on domain-specific vocabulary, which was missing in the participants’ discussion of vocabulary as a means to support literacy skills. McKeown and Beck (2011) distinguished Tier 2 vocabulary as: (a) words that have a high utility for literate language users; (b) are more complicated than Tier 1 words, while not being limited to a single subject area; and (c) words that appear more
often in text than are heard in conversation. Examples of Tier 2 words that the participants highlighted from researcher-selected texts included “domesticate” (P2, p. 10, line 323) and “advent” (P4, p. 11, line 328). Tier 3, however, narrows the utility of the word, and refers to words that are generally subject-specific and do not contribute to one’s general vocabulary (McKeown & Beck, 2011). For example, Participant 3 highlighted “parabola” when discussing the researcher-selected text (P3, p. 10, 332). This distinction is important when considering comprehension and accessing knowledge contained in a text. If vocabulary is tied both to background knowledge and to context, and a student reads a word and either does not understand it or reads it out of context (e.g., “harbour,” which in a geography context most likely refers to a coastal area where ships can dock, but which could also refer to keeping something secret in one’s mind or finding shelter in a safe place), then that student cannot access the knowledge contained in the text and fails to develop higher level subject area skills (McKeown & Beck, 2011). Both Tier 2 and Tier 3 vocabulary are important to support students’ success in academics at large, and in subject area classrooms.

The data suggest that participants in the current study had a lack of awareness of the need to teach Tier 3 vocabulary. While they did note the need to support vocabulary development, participants did not make explicit mention of terms that were specific to their subject area; rather, they referred to words that could generally be seen as challenging to students. Although Tier 3 vocabulary might seem more relevant to the current study, it should not be overlooked that Tier 2 vocabulary is important in learning, and that it does have a place in the subject area classroom with respect to literacy instruction. This finding is promising in that the data suggest participants will support Tier 2 vocabulary development in their teaching. Interestingly, the
participants’ emphasis of Tier 2 vocabulary and their lack of awareness of the need to teach Tier 3 vocabulary does not align with what is reported in the literature. Typically, the literature suggests that teachers spend too much time on Tier 3 instruction, to the determent of students, who need support in Tier 2 vocabulary (Baumann & Graves, 2010; Flanigan, Templeton, & Hayes, 2012; McKeown and Beck, 2011; Nagy & Townsend, 2012). Tier 2 vocabulary contains higher-frequency words that are applicable to more situations than the technical language of Tier 3 words. This makes learning these words more beneficial to students, who will use them in contexts beyond the subject area classroom (Baumann & Graves, 2010). This finding is interesting because it contradicts the finding of previous research on teachers’ approaches to vocabulary instruction. The discrepancy could be due to the fact that the participants were not yet practicing teachers, but pre-service teachers early on in their B.Ed. year.

**Visuals.** With respect to Participant 5’s mention of the inclusion of images in novels (i.e., when she discussed *The Absolutely True Diary of a Part-Time Indian*; Alexie, 2007), it should be noted that although most novels do not include visuals, there has been an increase recently in the inclusion of images in young adult novels. This can be attributed, in part, to the popularity of manga, and how it has crept into what Brienza (2009) called the “book field.” She argued that manga, once a separate genre from both comics and books, has become “just another category of books, like cookbooks, science fiction, or biographies” (p.115). Publishers, in an attempt to capitalize on the popularity of manga, may have incorporated visuals into novels as a means of replicating the visual element of manga. Another possible explanation for the rise of images in novels could be the rise of digital texts. In their paper on the importance of including visual literacy when defining the skills that make an individual “literate,” Moore-Russo and Shanahan
(2014) suggested that due to the increasingly digital world, the format of texts is changing and texts now include more visual representations than ever before.

**Influences on the development of subject area literacy knowledge and beliefs.**

*Apprenticeship of observation.* Participants were more likely to cite their own personal experiences as students to explain the development of their knowledge and beliefs about subject area literacy than any other influence. This corresponds to what has been described as “apprenticeship of observation” learning (Borg, 2004; Furlong, 2013; Rinke, Mawhinney, & Park, 2014; Stuart & Thurlow, 2000; Westrick & Morris, 2016). Pre-service teachers arrive in teacher education programs having already spent years of their lives embedded in the education system, observing teachers, and forming ideas about what it means to teach. They are socialized to believe that teaching is done a certain way, based on what they have observed and experienced over the course of many years (Furlong, 2013; Westrick & Morris, 2016). An oft cited phrase to explain the apprenticeship of observation is that “teachers teach the way they were taught” (Mewborn & Tyminski, 2006). This phrase describes what the data demonstrate about the source of participants’ knowledge. Each of the five participants expressed that they attributed their thinking and pedagogical choices, possibly amongst other factors but to a large degree, to what they had seen done while they were a student. This could have been a strategy that they connected particularly well with as a student or one to which they did not respond well, and therefore would avoid using in their current practice.

*Models of teacher change and practicum experience.* Guskey’s (1986, 2002) and V. Richardson’s (1990, 1998) models of teacher growth posited that practice will have a major influence on teacher development and the practices and instructional approaches that one
implements. This was not exactly the case with the participant group for the present study. Although many participants attributed a change in their beliefs to the practicum, they did not focus primarily on the role of practice (i.e., practicum) when asked about the source of their knowledge for various questions pertaining to the integration of literacy into their subject area. Instead, the most prevalent response was their own experiences as students, including what did or did not work well for them, and their observations of various teachers (which included observations during their time as a student, during volunteer work, or during their practicum blocks). The discrepancy between what the participants expressed and the models of teacher change posited by Guskey (1986, 2002) and V. Richardson (1990, 1998) could be the result of the limited practicum experience the participants had at the point at which the interviews occurred. Because the practicum experiences occurred after their first extended, six-week practicum block, the participants might not have had sufficient practice at that point in the B.Ed. program to make the practicum experience a significant contributor to their understandings of subject area literacy. Although the pre-service teacher participants in the concurrent stream had more practicum experience overall, the six-week practicum block during the fall semester of the B.Ed. program would have been the longest practicum block they had completed in their teacher training to that point (information found on the website of the teacher education program that participants attended).

This finding is also in contrast to the results of a study by Conley, Kerner, and Reynolds (2005), which found that practical experience, in the form of tutoring, played a significant role in developing pre-service teachers’ understandings of adolescent literacy. In their study, Conley et al. (2005) redesigned an adolescent literacy course to reflect the research on secondary school
teachers’ resistance to being reading teachers. This research suggested that in-service teachers are resistant to incorporating literacy strategies into their teaching because the strategies have been presented in ways devoid of the complex environments in which they will be implemented. Too often, the research is conducted in well-controlled settings that do not align with the contexts within which teachers would implement the strategies (O’Brien, Stewart, & Moje, 1995). Furthermore, O’Brien, Stewart, and Moje (1995) expressed that, for the most part, the efforts of in-service training and pre-service teacher education courses to support the development of adolescent literacy knowledge and practices in educators has failed, with little transfer of the learning into practice due to the transmission style of the training. The distilled finding of this research, then, is that both the research, and the manner in which the research is shared with teachers, are inauthentic to the contexts in which teachers would support adolescent literacy (O’Brien et al., 1995).

In response to this finding, Conley et al. (2005) redesigned their adolescent literacy course, which occurred early in a pre-service teacher education program, to incorporate more authentic learning contexts. This included more informed course content, as well as a tutoring component. For example, poverty was a significant issue in the schools in which the pre-service teachers taught, so they addressed it in their course in the context of adolescent literacy (Conley, Kerner, & Reynolds, 2005). The most important component of the redesign was the inclusion of a tutoring component designed so that pre-service teachers engaged with adolescent literacy in context, rather than in an abstract manner (prior to the redesign, the pre-service teachers had participated in a general practicum, not one geared to their course learnings). Following a six-week block of in-class study, the pre-service teachers tutored students at an urban middle school.
in one-on-one sessions for one hour per week, for a seven- to eight-week block (Conley et al., 2005). The study relied on electronic discussion data gathered from two groups of 125 pre-service teachers (those who were enrolled in the course before it was redesigned, and those who were enrolled in the new course). Conley et al. (2005) conducted ethnographic analyses on these discussions, and found that the redesigned course that accounted for context, and which included a tutoring placement with specific emphasis on adolescent literacy, resulted in pre-service teachers expressing more complex understandings of adolescent literacy and their role in implementing adolescent literacy strategies in their teaching.

The findings of Conley et al.’s (2005) study do not reflect the findings of my own research. The effects of and participants’ reactions to a practicum experience, including its influence on how they thought about literacy, were more pronounced in Conley et al.’s (2010) study than those voiced by the participants of the current study. While the participants in the current study suggested the practicum did inform their thinking about literacy, it was often in terms of shock that students at the high school level might not have the necessary skills to carry out the reading demands of the subject area, rather than being about strategies they might now use to support and address subject-specific literacy skills. Conley et al.’s (2005) study, in comparison, suggested that the tutoring experience played a more significant role in developing pre-service teachers’ understandings and thinking about adolescent literacy, particularly about diversity of learners and culturally responsive teaching.

Although the data for both studies were collected early on in the teacher education program, the differences in the pre-service teachers’ reactions toward the role of a practicum component might be the result of the differences in the structure of the practicum. In Conley et
al.’s (2005) study, the pre-service teachers tutored in one-on-one situations that were designed to have them engage in adolescent literacy teaching; in comparison, the participants in the current study completed a practicum block where they engaged in general teaching duties in subject area contexts. The discrepancy might also be due to the fact that data for the current study was collected at one point in time, while data for the Conley et al. (2005) study was collected throughout their courses (pre- and post-redesign) at multiple points in time, as pre-service teachers used the discussion board.

Limitations of the Study

As a qualitative study with a small sample size, the results cannot be generalized to other, broader contexts. This study is contextual in nature, and represents the views of a small group of pre-service secondary school teachers from one university; the results cannot provide insight into all Ontario pre-service secondary school teachers’ experiences. It is, however, a starting point for looking at how subject-specific literacy is viewed by those involved in secondary education.

Additionally, this study relied on interview data that the participant self-reported, and that included discussion of artifacts—textbooks or text selections—and their benefits and challenges for students, including, when applicable, discussion of visual elements. This means that the data represent what the participant was willing to share with me, as the researcher, and might not mirror what they do when in front of a class. The participants might also have been telling me what they believed I wanted to hear, given that, as the researcher, I chose the topic, directed the conversation, and had more power in the relationship. Such responses would represent the phenomenon of social desirability response bias, where participants respond in a manner in
which they believe the researcher is looking for or will value (Collins, Shattell, & Thomas, 2005).

It should also be noted that the study is limited in its ability to make comparisons between subject areas. Given that each subject area had either a single or three participants, the study is limited in its ability to make claims about similarities or differences that occur between the expressed beliefs of participants in history, mathematics or English. Due to the limited sample size, and even further limited sample per each subject area, the study cannot draw any conclusions about similarities or differences between pre-service secondary school teachers’ knowledge and beliefs about subject area literacy for those with qualifications in the arts versus those with qualifications in STEM subjects.

**Directions for Future Research**

Modifying the methodology of this study is one possible avenue for future research on the topic of pre-service teachers’ understandings of subject area literacy. A mixed-methods approach using both qualitative and quantitative methods could be used in future studies to expand upon the results of this study. For example, quantitative approaches, such as a questionnaire, could be used to measure the participants’ knowledge of literacy and instructional approaches for literacy within their subject area; such an approach would provide more background information about the participant and his or her knowledge base and could measure the changes in that knowledge base should the questionnaire be conducted at two points in time. It would also allow for a broader set of data to address the topic. Similarly, the role of the practicum experience could be addressed more specifically in future research by implementing a pre- and post-practicum interview design.
Future research could also conduct a thorough scan of adolescent and subject area literacy documents, as well as efforts that aim to support secondary school teachers’ instruction of subject-specific literacy strategies and concepts. Research could explore the types of supports teachers currently access, and ones that teachers express they want, and work to design or better disseminate such research-based resources.

**Implications for Education**

**Pre-service teacher education programs.** The study’s results could be of interest to instructors within pre-service teacher education programs. While the study is not a program evaluation, and the results cannot make statements about participants’ readiness to support their future students’ literacy needs, the results do offer insight into a small group of pre-service secondary school teachers’ knowledge and beliefs about subject area literacy. Instructors could use this information to inform their course content, particularly in areas where the data suggest participants seemed confused or that participants neglected to consider when interacting with the text. For example, the data from the study suggest that the importance of integrating subject area literacy instruction into their lessons does seem to be connecting with participants. It might be helpful for pre-service teachers if a greater emphasis was placed upon subject-specific literacy strategies to help them recognize the need for this within their content area instruction.

Revisiting a statement made by Participant 1 during her interview evidences this need. Participant 1 expressed explicitly that she did not know how to go about supporting students at the secondary school level with reading comprehension strategies, when the students are already familiar with the content, but lack the necessary literacy skills to engage with texts to take their learning to a more advanced level. She further stated that, as a subject area teacher at the
secondary school level, she had not been trained in how to support literacy skills, especially at a basic level. Enhancing such instruction and content in teacher education program curriculum courses that focus on a sole subject could mediate this issue.

One way to do this might be to add targeted reflection alongside practice components to these curriculum courses. In their study, Stuart and Thurlow (2000) acknowledged the influence of apprenticeship of observation, as well as Guskey’s (1986; 2002) model of teacher change, on the formation of pre-service teachers’ beliefs and instructional practices. Apprenticeship of observation refers to the pre-conceived ideas and notions about teaching with which pre-service teachers arrive in their teacher education programs. Noteworthy is the fact that these ideas and notions have developed over such a long period of time that they are resistant to change, despite the theories to which they are introduced in teacher education programs (Furlong, 2013; Rinke et al., 2014; Stuart & Thurlow, 2000; Westrick & Morris, 2016). Important, then, are models of teacher change that can offer insight into how to address these pre-conceived ideas and notions that might not support effective teaching practices. Guskey’s (1986; 2002) model of teacher change posits that teachers’ beliefs drive their instructional choices, and that a change in beliefs comes only after a change in behaviour or instructional choice. Beliefs change once the teacher realizes that a practice may be beneficial or detrimental to his or her students.

In their study, Stuart and Thurlow (2000) worked with pre-service teachers in their “Mathematics and Science Integrated Methods” class to address pre-conceived notions about mathematics through a series of reflective activities and practicum experiences designed to promote reflection and examination of students’ autobiographical experiences. Pre-service teachers were informed about the role that beliefs play in influencing practice, and interacted
with prompts, journals, and autobiographical activities to critically examine their thinking and long held beliefs about teaching and learning (Stuart & Thurlow, 2000). Following this critical examination, the pre-service teachers entered the classroom and were more cognizant of their pedagogical choices, and chose to teach in ways that they might not have considered before. Participants in the study expressed during interviews that having done that critical reflection, when they entered the classroom they were less likely to teach in a way they had been taught during their own experiences as students without first examining why they were drawn to that instructional approach (Stuart & Thurlow, 2000). The practicum component in this study helped pre-service teachers identify that teaching in a way that they themselves had not been taught might be beneficial to students, which solidified their beliefs that teachers should always examine their instructional choices before implementing an approach. This links back to Guskey’s (1986, 2002) teacher change model. By combining the reflective piece with practice, pre-service teachers came to see how their pre-conceived ideas and notions about teaching might be detrimental and need re-examining, allowing them to change those long held beliefs. I believe this holds promise for addressing literacy instruction at the secondary school level in pre-service teacher education programs.

**Development of educational resources.** These findings provide insight into a small group of pre-service secondary school teachers’ thinking about subject area literacy in regards to three subject areas. The findings could help inform the development of resources and professional development opportunities for pre-service and in-service teachers, as well as teacher-educators. Although more data would be required to determine the format and content of such resources and professional development, this study’s findings could act as a starting point.
For example, the data suggest that participants lack practical knowledge of how to integrate literacy skills into their subject area teaching, despite expressing a keenness to do so. Apart from the OME’s “Think Literacy” (2003) document, which provides specific examples of how to integrate literacy skills into each subject area, the visibility of resources to support the development of this pedagogical skill is limited. Despite there being numerous resources available, the data suggest a lack of awareness about such support resources. An example of such a resource is the joint position paper released by the Science Co-ordinators’ and Consultant’s Association of Ontario, and the Science Teachers’ Association of Ontario (2005) that outlines the place of literacy within the Kindergarten to Grade 12 science classroom. This would be a useful document to guide science teachers’ conceptualizations of literacy within their subject area, and to provide information on what teaching these skills might look like. Other resources include textbooks on subject area literacy that are research-based. For example, *Content Area Reading: Literacy and Learning Across the Curriculum* by Vacca, Vacca, and Mraz (2014), and *Literacy Instruction in the Content Areas* by Anders and Guzzetti (2005). These are classic textbooks that have been used to support the development of teachers’ instructional approaches to subject area literacy. However, the participants in this study did not know, or at least they did not mention, that these resources existed. This means that although they expressed a need to develop these pedagogical skills, they lacked an awareness of the available resources and means to develop such skills. More attention to disseminating such resources would be beneficial. Another avenue for the development of resources would be such resources as lesson and unit plans that have literacy skill development relevant to the subject area already built. This would provide examples of what the integration of literacy skills into subject areas might look like, and
support less knowledgeable educators (e.g., pre-service or beginning teachers) in the aim of improving their literacy instruction.

**A cultural shift.** Trainor and Graue (2014) noted that the culture of a given field influences the decisions that are made, including where value is placed and what practices are implemented (p. 267). Presenting these data that contain rich detail of pre-service secondary school teachers’ understandings of subject area literacy represents one small component of promoting change in the culture of the field of education, so that literacy instruction at the secondary school level is recognized as the role of teacher. Compared to its elementary level counterpart, research on literacy at the secondary school level is far less developed and much remains to be explored and refined (Edmonds et al., 2009). In this study, my aim was to place an emphasis on the human experience of literacy instruction at the secondary school level, which I hope will demonstrate the importance of developing programming that meets the expressed needs of pre-service secondary school teachers.

**Concluding Thoughts**

This study was borne of my own curiosity about other pre-service secondary school teachers’ experiences with supporting students in developing subject area literacy skills, and nurtured by my experiences in the Master of Education program. As an Ontario Certified Teacher who values literacy, it seemed natural to me that this was an important pedagogical skill for all teachers, and that this was a topic of importance. Trying to explain myself to others, especially those outside of academia or teaching, proved that although this seemed more than evident to me, others might not feel the same way or to the same extent that I do. Ultimately, I hope that this study has impressed upon its readers the importance of subject area literacy,
especially as it relates to secondary school instruction. In their 1999 position statement on adolescent literacy, Moore, Bean, Birdyshaw, and Rycik state: “The need to guide adolescents to advanced stages of literacy is not the result of any teaching or learning failure in the preschool or primary years; it is a necessary part of normal reading development” (p. 101). This statement holds true 18 years later. I hope that this study has contributed to this position, and demonstrated that every teacher, at every grade level, and in every subject area, needs to be a language teacher.
References


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Thompson, R. (2002). Reporting the results of computer-assisted analysis of qualitative research data. *Forum: Qualitative Sozialforschung*/*Forum: Qualitative Social Research* [Online


Appendix A

Queen’s University General Research Ethics Board Approval

August 31, 2015

Ms. Britney Lester
Master’s Student
Faculty of Education
Queen’s University
Duncan McArthur Hall
511 Union Street
Kingston, ON, K7M 5R7

GREB Ref #: GEDUC-783-15; Romeo # 6016270
Title: "GEDUC-783-15 Pre-Service Secondary School Teachers’ Views of Literacy: Exploring the Role of Practicum on Content Area Literacy Beliefs"

Dear Ms. Lester:

The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled “GEDUC-783-15 Pre-Service Secondary School Teachers’ Views of Literacy: Exploring the Role of Practicum on Content Area Literacy Beliefs” for ethical compliance with the Tri-Council Guidelines (TCPS) and Queen’s ethics policies. In accordance with the Tri-Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been cleared for one year. At the end of each year, the GREB will ask if your project has been completed and if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB, of any adverse event(s) that occur during this one year period (access this form at https://servicess.queensu.ca/romeo_researcher/ and click Events - GREB Adverse Event Report). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s). You are also advised that all adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be cleared by the GREB. For example you must report changes to the level of risk, applicant characteristics, and implementation of new procedures. To make an amendment, access the application at https://servicess.queensu.ca/romeo_researcher/ and click Events - GREB Amendment to Approved Study Form. These changes will automatically be sent to the Ethics Coordinator, Gall Irving, at the Office of Research Services or irvingg@queensu.ca for further review and clearance by the GREB or GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Yours sincerely,

Joan Stevenson, Ph.D.
Chair
General Research Ethics Board

c: Dr. Elizabeth Lee, Faculty Supervisor
Dr. Lijing Cheng, Chair, Unit REB
Ms. Erin Wickham, c/o Graduate Studies and Bureau of Research
October 15, 2015

Ms. Britney Lester
Master’s Student
Faculty of Education
Queen’s University
Duncan McArthur Hall
511 Union Street West
Kingston, ON, K7M 5R7

Dear Ms. Lester:

RE: Amendment for your study entitled: GEDUC-783-15 Pre-Service Secondary School Teachers’ Views of Literacy: Exploring the Role of Practicum on Content Area Literacy Beliefs; ROMEO# 6016270

Thank you for submitting your amendment requesting the following changes:

1) To collapse the two interviews previously proposed into one interview (approximately 90 minutes in length);

2) To increase the number of participants to 8-10;

3) To include compensation for each participant in the form of a gift card to Starbucks in the amount of $10.00;

4) To include one new question: “Now that you have discussed both texts, do you feel more inclined to use one text over the other? Which text would you prefer to use and work with in your classrooms? Prompt: What features of the text make it the more appealing text?”

5) Revised Letter of Information and Consent Form (v. 2015/10/15).

By this letter you have ethics clearance for these changes.

Good luck with your research.

Sincerely,

[Signature]

Joan Stevenson, Ph.D.
Chair
General Research Ethics Board

c.: Dr. Elizabeth Lee, Supervisor
December 08, 2015

Ms. Britney Lester
Master’s Student
Faculty of Education
Queen's University
Duncan McArthur Hall
511 Union Street West
Kingston, ON, K7M 5R7

Dear Ms. Lester:

RE: Amendment for your study entitled: GEDUC-783-15 Pre-Service Secondary School Teachers’ Views of Literacy: Exploring the Role of Practicum on Content Area Literacy Beliefs; ROMEO# 6016270

Thank you for submitting your amendment requesting the following changes:

1) To broaden the teachable subjects explored in the study to include all subjects taught at the secondary school level in Ontario, i.e. the subject areas of English or Chemistry. In the interview, participants will be provided with a selection of text drawn from those used in Ontario, and will also be asked to bring one that they used in their practicum;

2) Revised Letter of Information / Consent Form (v. 2015/12/07).

By this letter you have ethics clearance for these changes.

Good luck with your research.

Sincerely,

Joan Stevenson, Ph.D.
Chair
General Research Ethics Board

c.: Dr. Elizabeth Lee, Supervisor
Appendix B

Letter of Information

LETTER OF INFORMATION

"PRE-SERVICE SECONDARY SCHOOL TEACHERS' VIEWS OF LITERACY:
EXPLORING THE ROLE OF PRACTICUM ON CONTENT AREA LITERACY BELIEFS"

This research is being conducted by Britney Lester (Master of Education, Candidate) under the supervision of Dr. Elizabeth Lee, in the Faculty of Education at Queen’s University in Kingston, Ontario. This study has been granted clearance according to the recommended principles of Canadian ethics guidelines and Queen’s University policies.

What is this study about? The purpose of this research is to describe the content area literacy (i.e., reading comprehension) knowledge and beliefs of pre-service secondary school teachers in the Queen’s Bachelor of Education program. It will explore how their knowledge and beliefs are influenced by their practicum experience. The goal of the study is not to assess, but rather understand pre-service secondary school teachers’ knowledge and beliefs about content area literacy.

What is involved in participating in this study? The study will require participants to complete one interview of approximately 60 minutes. The interview will focus on gathering participants’ content area literacy knowledge and beliefs, and will include two think aloud activities about two different selections of text. For the first think aloud activity, participants will be provided with a selection of text taken from a text approved by the Ministry of Education. For the second think aloud activity, participants will be required to bring a sample of text that they encountered in their practicum. Participants will be asked to reflect on the influence of their practicum experiences on their content area literacy knowledge and beliefs. It is hoped that by interacting with two selections of text, participants will be able to reflect on their practicum experience and use that experience to comment on which selection of text they would prefer to use and work with in their own classroom, and why this is the case.

The interview will be conducted at Duncan McArthur Hall, and will take place in early to mid-December. In total, participating in this study will require 2 hours maximum (including time for communications to set up interviews). Contributions will be recorded via digital audio files. There are no known physical, psychological, economic, or social risks associated with this study.

Is participation voluntary? Yes. You should not feel obliged to answer any questions that you find objectionable or that make you feel uncomfortable. You may choose to withdraw from the study at any time with no effect on your standing in the Bachelor of Education program. If you wish to withdraw, contact Britney Lester at 98hl1@queensu.ca. If you withdraw, you may request removal of all or part of your data from the study.

What will happen to your responses? Your responses will be kept confidential. Only Britney Lester and Dr. Elizabeth Lee will have access to this information. The interview recording will be transcribed and then the recording will be destroyed. Pseudonyms will be used in place of names. Your confidentiality will be maintained to the extent possible. Results from this study may be published in professional journals or presented at scientific conferences, but any such presentations will maintain individual confidentiality. All electronic files will be password protected. Paper and audio data will be secured in a locked cabinet. In accordance with the Faculty of Education’s policy, data will be retained for a minimum of five years. You are entitled to a copy of the findings, if you are interested. If you would like a copy of the findings, please contact Britney Lester at 98hl1@queensu.ca. Findings will be provided after the thesis has been defended, potentially being provided in September, 2016. This will be an executive summary of the findings. Access to the complete thesis will be available through QShare.

Will you be compensated for your participation? Yes. You will receive compensation in the form of a $10.00 gift card to Starbucks.

What if you have concerns? Any questions about study participation may be directed to Britney Lester at 98hl1@queensu.ca or Dr. Elizabeth Lee at 613-533-6000 ext. 77409 or elizabeth.lee@queensu.ca. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Thank you for your interest in participating in this research study.

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Appendix C

Consent Form

CONSENT FORM

"PRE-SERVICE SECONDARY SCHOOL TEACHERS’ VIEWS OF LITERACY:
EXPLORING THE ROLE OF PRACTICUM ON CONTENT AREA LITERACY BELIEFS”

Name (please print clearly): ____________________________

1. I have read the Letter of Information and have had any questions answered to my satisfaction.

2. I understand that I will be participating in the study called “Pre-service Secondary School Teachers’ Views of Literacy: Exploring the Role of Practicum on Content Area Literacy Beliefs”. I understand that this means that I will be asked to participate in one interview focused on gathering my content area literacy knowledge and beliefs, and that this will include two think aloud activities about two different selections of text. I understand that I will be asked to reflect on the influence of my practicum experience on my content area literacy knowledge and beliefs. I understand that, as part of the interview, I will also be asked to bring in a sample of text I encountered in my practicum and will be asked to complete a think aloud about the text. I understand that the interview will be digitally recorded. I understand that I will receive compensation in the form of a gift card to Starbucks in the amount of $10.00.

3. I understand that my participation in this study is voluntary and I may withdraw at any time. I understand that every effort will be made to maintain the confidentiality of the data now and in the future. Only researchers affiliated with this study will have access to my data. The data may also be published in professional journals or presented at scientific conferences, but any such presentations will be of general findings and will never breach individual confidentiality. I understand that, in accordance with the Faculty of Education’s policy, data will be retained for a minimum of five years. I understand that I am entitled to a copy of the findings, if I am interested.

4. I am aware that if I have any questions, concerns, or complaints, I may contact Britney Lester at bnh11@queensu.ca or Dr. Elizabeth Lee at 613-533-6000 ext. 77409 or elizabeth.lee@queensu.ca. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair: GREB@queensu.ca or 613-533-6061.

Please sign one copy of this Consent Form and return to Britney Lester. Retain the second copy for your records.

I have read the above statements and freely consent to participate in this research:

Signature: ____________________________ Date: ____________________________
Appendix D
Interview Questions

Demographic questions and background:
1. How old are you? You can give a range.
2. What is your gender?
3. Where did you complete your undergraduate degree?
4. What did you study in your undergraduate degree? What is your major and, if you have one, your minor?

Teaching background:
5. What are your teachable subjects?
6. How much experience do you have teaching? Please describe your experiences.
   - Prompt: Do you have any experience in a classroom setting, for example as a co-op student or volunteer? Have you acted as a tutor? Do you have any experience teaching overseas in a classroom or in ESL instruction?

Content area teaching:
7. Considering your content area as a whole, what special knowledge or skills are needed to succeed in your content area?
   - Prompt: For example, are there certain habits or underlying concepts that an individual or someone studying the content area must have an understanding of in order to be successful?
8. Describe your teaching practices and pedagogical approach to teaching your content area.
   - Prompt: Do you place emphasis on a particular topic or skill?
9. What instructional approaches and strategies would you use most?
   - Prompt: For example, do you try to implement a student-centred or a teacher-centred approach? Do you take an inquiry-based approach?

Text comprehension in content area teaching:
10. Describe your beliefs or philosophy about teaching reading. How is it important to your content area teaching approach?
11. What is your approach to teaching comprehension?
   - Prompt: For example, do you include explicit instruction in how to understand the selections of text you include in your lessons?
12. Where did these beliefs come from? What past experiences influenced your beliefs?
   - Prompt: Did you come to believe this from your own experience as a student or from seeing a teacher act this way?

Content area text scenario:
13. Consider the provided text. How might you use this in your classroom?
14. Describe the challenges this text might present to a student.
   - Prompt: Do the images and graphics appear to be elements that would present a challenge to students?
15. What content area skills does a student need to successfully understand and engage with this text?
16. In the context of your content area, what features of the text are important for the student to understand?
   - Prompt: For example, do they need to understand the graphics or the titles? Are there any other aspects you think it would be important to draw students’ attention to?
17. If you were to use this text in a lesson, what elements might you include in the lesson to support students’ content area literacy development?
18. What is the source of your knowledge? What made you think to do that?

Practicum experience and context:
19. Think about your practicum. Describe the school in which you completed it.
   - Prompt: Was it an urban or rural school? If it was urban, was it an inner-city school or a school in the suburbs? Did it have special programs? How many students attended the school? What was the general culture of the school? How did the students behave?
20. In what courses did you complete your practicum?
21. In what subject area were they?
22. At what grade level were these courses?
23. At what academic level were these courses?
24. When thinking about your classes, did you notice any students struggling to make sense of the texts used in the lessons?
25. Describe an instance in which you saw reading comprehension being addressed in the classroom. What instructional approaches were used?

Second content area text scenario.
26. Consider the text you brought with you. In what course was it used?
   - Prompt: In what subject area was this course? At what grade level was the course? At what academic level was the course?
27. Approximately how many students were in this course?
28. What made you choose to bring this text?
   - Prompt: Is this a type of text that you would typically use in your lessons?
29. Where did this resource come from? What source did you use to find it?
   - Prompt: Did you find it on a specific website or in a textbook? Where would you generally look to find text resources to use in your lessons?
30. Was this a text you used or one that was used by your associate teacher?
   - Prompt: Did you choose this text or was it recommended by your associate teacher? What considerations did you make when selecting this for your lesson? For example, did you consider readability or curriculum expectations?
31. How did you use this in your classroom?
   - Prompt: Describe the lesson in which you used this text.
32. Describe any challenges the text presented to students.
33. What content area skills does a student need to successfully understand and engage with this text?
34. In the context of your content area, what features of the text are important for the student to understand?
• Prompt: For example, do they need to understand the graphics or the titles? Are there any other aspects you think it would be important to draw students’ attention to?
35. What elements did you include in your lesson to support students’ understanding of this text?
36. What is the source of your knowledge? What made you think to do that?

Reactions to content area text scenarios:
37. Now that you have discussed both texts, do you feel more inclined to use one text over the other? Which text would you prefer to use and work with in your classroom?
• Prompt: What features of the text make it the more appealing text?
38. How have your ideas about reading comprehension in your content area changed as the result of your practicum?
### Appendix E

**Mapping of Interview Questions onto Research Questions**

<table>
<thead>
<tr>
<th>Research Question 1</th>
<th>Research Question 2</th>
<th>Research Question 3</th>
<th>Research Question 4</th>
<th>Interview Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
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<td>7. Considering your content area as a whole, what special knowledge or skills are needed to succeed in your content area?</td>
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<td>X</td>
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<td>8. Describe your teaching practices and pedagogical approach to teaching your content area.</td>
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<tr>
<td>X</td>
<td>X</td>
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<td></td>
<td>9. What instructional approaches and strategies would you use most?</td>
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<tr>
<td>X</td>
<td>X</td>
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<td>10. Describe your beliefs or philosophy about teaching reading. How is it important to your content area teaching approach?</td>
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<tr>
<td>X</td>
<td>X</td>
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<td></td>
<td>11. What is your approach to teaching comprehension?</td>
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<td></td>
<td>X</td>
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<td>12. Where did these beliefs come from? What past experiences influenced your beliefs?</td>
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<td></td>
<td>X</td>
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<td></td>
<td>13. Consider the provided text. How might you use this in your classroom?</td>
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<td></td>
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<td>14. Describe the challenges this text might present to a student.</td>
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<td>X</td>
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<td>15. and 33. What content area skills does a student need to successfully understand and engage with this text?</td>
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<td>X</td>
<td>16. and 34. In the context of your content area, what features of the text are important for the student to understand?</td>
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<tr>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>17. If you were to use this text in a lesson, what elements might you include in the lesson to support students’ content area literacy development?</td>
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<tr>
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<td></td>
<td>X</td>
<td>18. and 36. What is the source of your knowledge? What made you think to do that?</td>
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<td>24. When thinking about your classes, did you notice any students struggling to make sense of the texts used in the lessons?</td>
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<td>25. Describe an instance in which you saw reading comprehension being addressed in the classroom. What instructional approaches were used?</td>
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<td>X</td>
<td>X</td>
<td>28. What made you choose to bring this text?</td>
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<td>X</td>
<td>X</td>
<td>31. How did you use this in your classroom?</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>32. Describe any challenges the text presented to students.</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>33. What elements did you include in your lesson to support students’ understanding of this text?</td>
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<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>37. Now that you have discussed both texts, do you feel more inclined to use one text over the other? Which text would you prefer to use and work with in your classroom?</td>
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<td></td>
<td></td>
<td>X</td>
<td></td>
<td>38. How have your ideas about reading comprehension in your content area changed as the result of your practicum?</td>
</tr>
</tbody>
</table>
| 17 | 17 | 4 | 12 | **Total Interview Questions per Research Question**

173
Appendix F

Researcher-Selected Text Selections

History Text Selection


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**REFLECT AND ANALYZE**

1. Why was socialization or interdependence important to Stone Age humans?

2. Based on the information that you have read in this chapter, write a description of a day in the life of a Neanderthal or Cro-Magnon man or woman.

3. Unquestionably, the ability to make and use fire is the most significant technological development in early human history before the development of agriculture. Support or refute this statement.

4. What truly distinguishes us as humans from other animals? Is it language, the ability to make tools, the capacity for abstract thinking, or something else? What do you think? Support your point of view.

---

**THE NEOLITHIC REVOLUTION**

**The Nature of the Revolution**

During the Neolithic Age, people changed from being hunters and gatherers to being food producers. We call this transformation the Neolithic revolution. Most scholars believe that Middle Eastern people were the first to discover that they could plant the seed from wild grain. How did they make such a discovery? One possible reason is that they discovered that the same grains of rice that they harvested contained seeds that could be planted. In this way, they learned that they could grow rice the next year from the seeds they had harvested. This discovery led to the establishment of agriculture, which eventually led to the development of cities and the rise of civilizations.

---

**The Effects of the Revolution**

The advent of agriculture and the domestication of animals allowed people to farm and produce food on a larger scale. This resulted in a more settled way of life, which eventually led to the development of towns and cities. The Neolithic revolution also led to the development of new technologies, such as pottery and tools, which helped to improve the quality of life for people.

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![The excavated walls of Jericho, the earliest known village](image)

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174
The "fertile crescent" in the Middle East, containing the earliest known agricultural sites, was how to make pottery. They made it from a mixture of clay, straw, and dung (cattle waste). The straw kept the pottery from cracking when heated, and the dung gave the vessels extra strength. To build up a pot, people would roll the clay mixture into a circle and smoothed the sides. They then placed the pot in a trench, covered it with branches and straw and set the kindling on fire. This early version of a kiln baked the pottery at a high temperature.

People of the Neolithic Age also learned how to make baskets, and how to weave cloth on a loom, an important invention of the age. They fashioned jewellery, eating utensils, weapons, and other goods from metal. Lumps of copper, lead, silver, and gold, found lying on the ground, they hammered into various shapes. These activities gave rise to a new group of craftsmen or artisans such as potters, jewellers, metal workers, carpenters, and weavers. In turn, these artisans helped to promote the development of trade as they became interested in exchanging their wares for food supplies. Trade led to new methods of transportation as Neolithic people began to think about better ways to transport their wares.

Settled communities also brought about the beginnings of government. Usually a single chief or leader was responsible for maintaining order in the village and ensuring that the property of all of the residents was secure. Most historians believe that the early chiefs filled a religious role as well as a political one, serving as priests as well as rulers. Their main religious responsibility was probably to offer up prayers on behalf of the entire village, asking the gods to protect the harvest and the community.

**REFLECT AND ANALYZE**

1. What was the Neolithic revolution and what were its most significant effects?
2. Why is trade an especially important development?
3. Compare life in a Neolithic village to the life of Neanderthals or early Cro-Magnon people.

**CIVILIZATION**

The word "civilization" comes from the Latin word civis, which means "citizen" or someone who lives in a city. By 5000 BCE, the effects of the Neolithic revolution had led to what we can describe as the earliest civilizations. People lived in permanent towns and cities. In the highly organized societies that began to develop, the people...
Quadratic relations can be used to represent the shape of a suspension bridge or the path of water from a fountain. The ancient Babylonians (3000 B.C.E.) studied quadratic relations in the context of farming. Quadratic relations were the subject of a debate in the House of Commons in London, England, in 2003. Why do you think the British Parliament would discuss quadratic relations?

**Develop a Mathematical Model**

Several farmers have square fields of different sizes. They want to know how much fertilizer to buy given that six bags of fertilizer cover one hectare (ha).

1. Copy and complete the table.

<table>
<thead>
<tr>
<th>Side Length of Square Farm (m)</th>
<th>Area of Farm (ha)</th>
<th>Bags of Fertilizer Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
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<td>300</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Draw a graph comparing the bags of fertilizer needed to the area of the fields. Describe the shape of the graph.

3. a) Draw a graph comparing the bags of fertilizer needed to the side length of the fields. Describe the shape of the graph.
   b) How many bags of fertilizer are needed for a square field with a side length of 1200 m?
   c) Describe how you could find the number of bags of fertilizer needed for a field with side length n.

4. Reflect Refer to the table and your graphs from questions 1 to 3. How can you use the table to determine if the relation is linear or non-linear?

In the Investigate, you used a mathematical model to represent the relationship between the side length of the field and the number of bags of fertilizer needed. On a graph, this model is represented by half of a parabola. Since negative side lengths for fields do not make sense, the graph does not show the other half of the parabola, on the left side of the vertical axis.

**Example 1**

Use a Graph to Identify a Quadratic Relation

The table shows a soccer ball's height above the ground over time after it was kicked in the air.

<table>
<thead>
<tr>
<th>Time (s)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.10</td>
</tr>
<tr>
<td>0.5</td>
<td>7.80</td>
</tr>
<tr>
<td>1.0</td>
<td>12.00</td>
</tr>
<tr>
<td>1.5</td>
<td>13.80</td>
</tr>
<tr>
<td>2.0</td>
<td>13.00</td>
</tr>
<tr>
<td>2.5</td>
<td>9.75</td>
</tr>
<tr>
<td>3.0</td>
<td>4.00</td>
</tr>
</tbody>
</table>

a) Graph the data. Draw a smooth curve through the points.

b) Describe the shape of the graph.

c) What was the ball's maximum height?

d) For about how many seconds was the ball in the air?
Solution

a) Time is the independent variable, so plot it on the horizontal axis.

The graph is a parabola that opens downward.

c) The ball reached a maximum height of about 13.80 m.

d) The ball was in the air for about 3 s.

The **vertex** of a parabola is the highest point if the parabola opens downward. The vertex is the lowest point if the parabola opens upward. In general, it is the point at which the graph changes from decreasing to increasing or from increasing to decreasing. A parabola always has a **minimum** or a **maximum**.
The boy with fair hair lowered himself down to the last few feet of rock and began to pick his way towards the lagoon. Though he had taken off his school sweater and trailed it now from one hand, his grey shirt stuck to him and his hair was plastered to his forehead. A long, frayed handkerchief wound round his neck. The bark of the tree cut in some places the tips of the creepers and broken trunks were clean with a shrill, shrill, shrill cry was echoed by another. "Hil!" it said. "Wait a minute!" The undergrowth at the edge of the stream was shaken and a root of some sort snapped, "Get up!" the voice said. "Wait a minute!" The fair boy stopped and jerked his shoulders with an automatic gesture made by the jungle. He looked back. The voice spoke again. "We can't hardly move with all these creepers things."

The rocks were so slippery that he couldn't take his eyes off the undergrowth, at the very edge of the stream. The roots were tangled, and he didn't want to hoe grass with his hands. But the trees were covered with lianas.
carefully, and turned round. He was shorter than the fair boy and very fat. He came forward, searching out safe lodgments for his feet, and then looked up through thick spectacles.

"Where's the man with the megaphone?"

The fat boy shook his head.

"This is an island. At least I think it's an island. That's a reef out in the sea. Perhaps there aren't any grownups anywhere."

The fat boy looked startled.

"There was that pilot. But he wasn't in the passenger cabin, he was up in front."

The fair boy was peering at the reef through screwed-up eyes.

"All them other kids," the fat boy went on. "Some of them must have got out. They must have, mustn't they?"

The fair boy began to pick his way as casually as possible toward the water. He tried to be offhand and not too obviously uninterested, but the fat boy hurried after him.

"Aren't there any grownups at all?"

"I don't think so."

The fair boy said this solemnly; but then the delight of a realized ambition overcame him. In the middle of the scar he stood on his head and grinned at the reversed fat boy.

"No grownups!"

The fat boy thought for a moment.

"That pilot."

The fair boy allowed his feet to come down and sat on the steamy earth.

"He must have flown off after he dropped us. He couldn't land here. Not in a plane with wheels."
touch of pride. "And I've been wearing specs since I was three."
He took off his glasses and held them out to Ralph, blinking and smiling, and then started to wipe them against his grubby wind-breaker. An expression of pain and inward concentration altered the pale contours of his face. He smeared the sweat from his cheeks and quickly adjusted the spectacles on his nose.
"Them fruit..."
He glanced round the scar.
"Them fruit," he said, "I expect—"
He put on his glasses, waded away from Ralph, and crouched down among the tangled foliage.
"I'll be out again in just a minute—"
Ralph disentangled himself cautiously and stole away through the branches. In a few seconds the fat boy's grunts were behind him and he was hurrying toward the screen that still lay between him and the lagoon. He climbed over a broken trunk and was out of the jungle.
Appendix G
Sample Excerpt from Participant Transcript

RESEARCHER: Okay, so I’m going to move into content area teaching, and ask you to consider that as a whole. We’re going to go with history, since you’ve decided to do that. Are there any special skills or special knowledge that you need to succeed in your content area?

PARTICIPANT: For history, so, content as in the history you’re teaching or as in practical, like, classroom management?

RESEARCHER: When you think of it as a whole, say you’re studying the topic, if you’re the student sitting in the class, what skills do they need to succeed? Are there certain habits of mind? Certain ways that you look at the topic…

PARTICIPANT: Oh, for students.

RESEARCHER: …that you need to understand? Whether you’re studying it at a high school level or a more advance level, are there underlying concepts that will help you better engage with the material?

PARTICIPANT: Well I guess, yes, I could think of a few. There’s a literacy concept that a student would have to understand and, well, it helps if they can read and understand what’s being presented to them. Also, history, if you’re, through history you can teach critical thinking and stuff, but if a student has that ability already they can read history and perceive what’s being presented to them with that critical analysis, so some students have this, some don’t, but…

RESEARCHER: Mhm.

PARTICIPANT: …that’s something that you want to help them get to through history.

RESEARCHER: What sort of—when you say critical thinking about it, what, in what ways?

PARTICIPANT: So, questioning perhaps who wrote the document, if you’re looking at a primary source, who wrote the document, why they wrote it, who were they writing it for.

RESEARCHER: Okay.

PARTICIPANT: Perhaps who was paying them to write it. These types of things, because in history, no matter what, you’re looking at, whether it be a primary source or a secondary source, it’s always being presented subjectively, so there’s a bias within that and if a student can recognize that bias they can critically analyze it.

RESEARCHER: Okay. Leading off of that, can you describe your teaching practices or your pedagogical approach to teaching history? So, do you place emphasis on a particular topic or a particular skill?

PARTICIPANT: Well, yes, I mean it’s been somewhat limited, right, I’ve only had one prac., but, yes, I would say emphasis on, helping students realize that there isn’t only one way of looking at a certain topic. So, in my practicum when I first got there, my associate teacher was just ending World War One, and at the end of World War One the Treaty of Versailles is a big
concept that the students were looking at, so I helped them through that. There’s a lot of different ways to look at the Treaty of Versailles, because there’s a huge, it had a huge impact…

RESEARCHER: Mhm.

PARTICIPANT: …on society today. Before we started looking it, a lot of the students would have seen the Treaty of Versailles as something good, because what came out of it was the Allies won, the good guys…

RESEARCHER: Right.

PARTICIPANT: …basically, in their sense, the good guys won. Canada won. We got what we wanted.

RESEARCHER: Mhm.

PARTICIPANT: But there’s another flip side to that where the losing sides were penalized for it, so helping them understand that something like that, like the signing of a treaty, has both good and bad consequences, and letting them know essentially that, because this treaty was signed, because, France -wanted revenge, per se, on Germany, it caused a lot of hardship for certain people, especially in Germany.

RESEARCHER: Right.

PARTICIPANT: We did talk about, also, the Treaty of Versailles cutting up basically countries, like the Austro-Hungarian Empire or the Ottoman Empire and basically just dividing these new countries and drawing the borders haphazardly and not necessarily taking cultural or ethnic considerations into these borders, into these new countries, which had set up conflicts…

RESEARCHER: Yes.

PARTICIPANT: …around the world that we see today that are still really, still going on. So, talking about that, you know, just opening those ideas and scenarios up to the students really helps them understand, like, wow, okay, this isn’t a simple document, this is something that has reverberating effects throughout history that are literally still happening today.

RESEARCHER: Okay. And in order to get to that emphasis, are there particular instructional approaches or strategies that you favour and that you would like to use, so you don’t necessarily have to have used them in your prac., but that you could see as being of benefit to students?

PARTICIPANT: Yes, it depends, I guess, on the class, right…

RESEARCHER: Mhm.

PARTICIPANT: …and the students. Some students may just prefer to read about it and answer questions, which is fine, others may prefer to interact with each other, and perhaps play different sides and have a mock scenario where one side has to come, make a treaty, and the other side has to approve or disapprove the treaty almost like a debate, or you could do something, perhaps, like a research project or something like that, but I think all of these, and that’s I didn’t—we didn’t—get to that with the treaty, because that was maybe my first week there…

RESEARCHER: Okay.
PARTICIPANT: …so I didn’t do anything…

RESEARCHER: Yes.

PARTICIPANT: …for that, but doing something like that, I think, would be beneficial, making sure that there are different ways to approach that, so that all the students can become engaged in it…

RESEARCHER: Mhm.

PARTICIPANT: …because, honestly, not every student is just going to want to write…

RESEARCHER: Right.

PARTICIPANT: …and answer questions, and if they had the opportunity to play a game a lot of them might be engaged a little bit more than.

RESEARCHER: Okay, thanks. So, within your content area, can you describe your beliefs or philosophy about teaching reading comprehension and whether or not you think it’s important or how important to teaching history?

PARTICIPANT: Definitely it’s important for history, the comprehension of what the students are engaging with, I mean a lot of the time it’s going to be through text, that’s the way most history’s presented.

RESEARCHER: Mhm.

PARTICIPANT: Obviously there’s oral history, and I mean students can engage with it through, say, a video, perhaps, or maybe even a video game, but a lot of the time there’s going to be text there or they’re going to be listening to what’s happening, so their comprehension is essential to what is being presented to them. If they don’t understand the context or if they don’t understand some of the vocabulary or the grammar in it, it’s going to affect the way they perceive the history…

RESEARCHER: Mhm.

PARTICIPANT: …and then, in turn, how they can critically analyze what’s being presented.

RESEARCHER: Okay, that makes sense. Considering that, do you have certain approaches, what is your approach to teaching comprehension? For example, do you include explicit instruction, is it a component of your lessons, is it something that you take time for?

PARTICIPANT: Yes, when we do start to go over a text, I would, before, not every time, but for the class that I was in, they really liked to read aloud, and they were…

RESEARCHER: Okay.

PARTICIPANT: …all okay with it. This was six weeks in and their teacher, my associate, had done that for the six weeks so they were really used to that…

RESEARCHER: Right.

PARTICIPANT: …so I just continued that, not wanting to deviate a lot from what they were…
RESEARCHER: Right.

PARTICIPANT: …comfortable with. So, that reading aloud, even if you’re reading a primary document or reading from a textbook, if one student was reading they would be engaged and listening more so than perhaps they would be if they were just reading silently.

RESEARCHER: Okay.

PARTICIPANT: Which was interesting, I didn’t that would be the case. So, when it’s being presented in that class, anyways, reading aloud helped, but for other things, obviously being open and available to answering questions after they’ve read it or while they’re reading it if there are words in there that they haven’t seen before or some of them haven’t seen before, make sure to, and I did this, write, definitions on the board.

RESEARCHER: Okay.

PARTICIPANT: Obviously I’m going to read through the text before they do…

RESEARCHER: Right.

PARTICIPANT: …and I’m going to pick out these, either important words or words that they may not be familiar with, and write the definitions out so when they come to those words and they reading them, we take a brief moment and go over what that word means, so then the rest of the class can be like, ‘Okay, we understand what that is,’ and then move on from there. And then again, if they didn’t quite get that, if they have to go back that word is still going to be there so they can, engage with the text after it’s been read, because sometimes, if you’re just reading that text and they don’t get it, they don’t understand a word in it, they may not ask and then if they’re wondering for a question they won’t be able to comprehend it, so that helps. And then, also, feedback, so hearing what the students thought about the text, how they comprehended it. Asking them questions, could be an exit slip, could be questions in class, and then that’s up to you as the teacher to judge if they’re grasping it.

RESEARCHER: And where did these beliefs come from? Were they influenced by past experience, was it something that happened when you were a student or that you’ve seen used in classrooms?

PARTICIPANT: Yes, it’s probably a mix of a lot of things. I remember when I was a student we did a lot of definitions and, I mean, if you do too much of one thing I think it’s probably not the best, but we did do a lot of definitions, so I try not to flood them with definitions.

RESEARCHER: Mhm.

PARTICIPANT: And it’s not necessarily a definition that I’m going to formally assess them on, but it’s a definition to help them just understand what we’re reading right then or what they’re trying to comprehend, so from that experience I know that that has helped me, so I use that knowledge, so that’s from my past experience as a student. But definitely, yes, through school, through class, if a someone doesn’t understand something, a definition on the board is usually something that a teacher uses.
Appendix H

Participant 1 Text Selection

Behind me, an old man fell to the ground. Nearby, an SS man replaced his revolver in its holster. My hand tightened its grip on my father. All I could think of was not to lose him. Not to remain alone.

The SS officers gave the order.

"Form ranks of fives!"

There was a tumult. It was imperative to stay together.

"Hey, kid, how old are you?"

The man interrogating me was an inmate. I could not see his face, but his voice was weary and warm.

"Fifteen."

"No. You're eighteen."

"But I'm not," I said. "I'm fifteen."

"Fool. Listen to what I say," he said.

Then he asked my father, who answered:

"I'm fifty."


He disappeared into the darkness. Another inmate appeared, unleashing a stream of invectives:

"Sons of bitches, why have you come here? Tell me, why?"

Someone dared to reply:

"What do you think! That we came here of our own free will? That we asked to come here?"

The other seemed ready to kill him:

"Shut up, you moron, or I'll tear you to pieces! You should have hanged yourselves rather than come here. Did you know what was in store for you here in Auschwitz? You didn't know? In 1944?"

True. We didn't know. Nobody had told us. He couldn't believe his ears. His tone became even harsher:

"Over there. Do you see the chimney over there? Do you see it? And the flames, do you see them?" (Yes, we saw the flames.) "Over there, that's where they will take you. Over there will be your grave. You still don't understand? You sons of bitches. Don't you understand anything? You will be burned! Burned to a cinder! Turned into ashes!"

His anger changed into fury. We stood stunned, petrified. Could this be just a nightmare? An unimaginable nightmare?

I heard whispers around me:

"We must do something. We can't let them kill us like that, like cattle in the slaughterhouse.

There were, among us, a few tough young men. They actually had knives and were urging us to attack the armed guards. One of them was muttering:

"Let the world learn about the existence of Auschwitz. Let everybody find out about it while they still have a chance to escape . . . ."

But the older men begged their sons not to be foolish:

"We mustn't give up hope, even now as the sword hangs over our heads. So taught our sages . . . ."

The wind of revolt died down. We continued to walk until we came to a crossroads. Standing in the middle of it was, though I didn't know it then, Dr. Mengele, the notorious Dr. Mengele. He looked like the typical SS officer: a cruel, though not unintelligent, face, complete with monocle. He was holding a conductor's baton and was surrounded by officers. The baton was moving constantly, sometimes to the right, sometimes to the left.

In no time, I stood before him.

"Your age?" he asked, perhaps trying to sound paternal.

"I'm eighteen." My voice was trembling.

"In good health?"

"Yes."

"Your profession?"
Tell him that I was a student!

“Farmer,” I heard myself saying.

This conversation lasted no more than a few seconds. It seemed like an eternity.

The barge pointed to the left. I took half a step forward. I first wanted to see where they would send my father. Were he to have gone to the right, I would have run after him.

The barge, once more, moved to the left. A weight lifted from my heart.

We did not know, as yet, which was the better side, right or left, which road led to the prison and which to the crematoria. Still, I was happy. I was near my father. Our procession continued slowly to move forward.

Another inmate came over to us:

“Satisfied?”

“Yes,” someone answered.

“Poor devils, you are heading for the crematorium.”

He seemed to be telling the truth. Not far from us, flames, huge flames, were rising from a ditch. Something was being burned there. A truck drew close and unloaded its hold: small children. Babies! Yes, I did see this, with my own eyes . . . children thrown into the flames. (Is it any wonder that ever since then, sleep tends to elude me?)

So that was where we were going. A little farther on, there was another, larger pit for adults.

I pinched myself: Was I still alive? Was I awake? How was it possible that men, women, and children were being burned and that the world kept silent? No. All this could not be real. A nightmare perhaps . . . Soon I would wake up with a start, my heart pounding, and find that I was back in the room of my childhood, with my books . . .

My father’s voice tore me from my daydreams:

“Night

“What a shame, a shame that you did not go with your mother . . . . I saw many children your age go with their mothers . . . .”

His voice was terribly sad. I understood that he did not wish to see what they would do to him. He did not wish to see his only son go up in flames.

My forehead was covered with cold sweat. Still, I told him that I could not believe that human beings were being burned in our times; the world would never tolerate such crimes . . .

“The world? The world is not interested in us. Today, everything is possible, even the crematoria . . . .” His voice broke.

“Father,” I said. “If that is true, then I don’t want to wait. I’ll run into the electrified barbed wire. That would be easier than a slow death in the flames.”

He didn’t answer. He was weeping. His body was shaking. Everybody around us was weeping. Someone began to recite Kaddish, the prayer for the dead. I don’t know whether, during the history of the Jewish people, men have ever before recited Kaddish for themselves.

“Yigdol, veyne asian, shelny rater . . . . May His name be celebrated and sanctified . . . .” whispered my father.

For the first time, I felt anger rising within me. Why should I sanctify His name? The Almighty, the eternal and terrible Master of the Universe, chose to be silent. What was there to thank Him for?

We continued our march. We were coming closer and closer to the pit, from which an infernal heat was rising. Twenty more steps. If I was going to kill myself, this was the time. Our column had only some fifteen steps to go. I bit my lips so that my father would not hear my teeth chattering. Ten more steps. Eight. Seven. We were walking slowly, as one follows a hearse, our own funeral procession. Only four more steps. Three. There it was now, very close to us, the pit and its flames. I gathered all that re-
mained of my strength in order to break rank and throw myself onto the barbed wire. Deep down, I was saying good-bye to my father, to the whole universe, and, against my will, I found myself whispering the words: “Yisgurdat, yisgurdat, shome ruha . . . May His name be exalted and sanctified . . .” My heart was about to burst. There, I was face-to-face with the Angel of Death . . .

No, Two steps from the pit, we were ordered to turn left and headed into barracks.

I squeezed my father’s hand. He said: “Do you remember Mrs. Schächter, in the train?”

NEVER SHALL I FORGET that night, the first night in camp, that turned my life into one long night seven times sealed.

Never shall I forget that smoke.

Never shall I forget the small faces of the children whose bodies I saw transformed into smoke under a silent sky.

Never shall I forget those flames that consumed my faith forever.

Never shall I forget the nocturnal silence that deprived me for all eternity of the desire to live.

Never shall I forget those moments that murdered my God and my soul and turned my dreams to ashes.

Never shall I forget those things, even were I condemned to live as long as God Himself.

Never.
Appendix I

Participant 2 Text Selection


In my younger days crops were good, prices of farm produce reasonably satisfactory, and an air of prosperity and general well-being pervaded the whole province. My father bought a new car, a new tractor, a new grain separator, a new washing machine and a new radio on the installment plan. We were located in the last bit of Canada that was outside the Great Depression!

Then came the terrible stock market crash in 1929 and with it a fall in grain prices, which was significant even for unreasonably low levels. Unfortunately, for the farmers who worked for the banks to pay their interest, the prices in 1930 were nowhere near high enough to pay off the debts. The farmers who had borrowed money were being forced to sell for pennies on the dollar. The farmers who had been prosperous a few years before were now in deep trouble.

The bank that had lent the farmers money went into receivership, and the banks that were owned by the farmers went into receivership as well. The farmers who were left were left with nothing but their debts.

Many unemployed men become desperate for work.
The winter of 1932 was grim and tough. Eggs were five cents a dozen, large potatoes were a cent each, and bread was nine cents a loaf. Many women were unable to purchase enough food for their families. The situation was desperate in 1933, but measures to help prevent poverty began to show improvements. The government and the community worked together to ensure that everyone had access to food. The country was recovering, and the future looked brighter.

FOOD PRICES IN 1932 IN WINNIPEG

<table>
<thead>
<tr>
<th>Item</th>
<th>Per Dozen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>1.50</td>
</tr>
<tr>
<td>Eggs</td>
<td>5</td>
</tr>
<tr>
<td>Ham</td>
<td>0.50</td>
</tr>
<tr>
<td>Milk</td>
<td>0.50</td>
</tr>
<tr>
<td>Potatoes</td>
<td>0.05</td>
</tr>
<tr>
<td>Fruit</td>
<td>0.50</td>
</tr>
<tr>
<td>Bread</td>
<td>0.25</td>
</tr>
<tr>
<td>Vegetables</td>
<td>0.25</td>
</tr>
</tbody>
</table>

INCOMES IN 1931

<table>
<thead>
<tr>
<th>Size of Income</th>
<th>Number of Persons</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $500</td>
<td>1,000,000</td>
<td>29.2</td>
</tr>
<tr>
<td>$500-$1,000</td>
<td>1,000,000</td>
<td>23.3</td>
</tr>
<tr>
<td>$1,000-$1,500</td>
<td>1,000,000</td>
<td>15.2</td>
</tr>
<tr>
<td>$1,500-$2,000</td>
<td>1,000,000</td>
<td>12.3</td>
</tr>
<tr>
<td>$2,000 and over</td>
<td>1,000,000</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>1,000,000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A MOTHER WRITES TO PRIME MINISTER BENNETT FOR HELP, 1935.

Toronto, Oct.

I am writing to you because I am in desperate need of help. I am the mother of a large family and I work very hard to support my children. I cannot afford to buy food for them. I have been trying to keep them fed, but it has been very difficult. I have been told by the mortgage company that I owe them $5,000 and I do not have the money to pay it. What can I do?

Mr. Bennett, I believe that it is in the best interest of the country to help those in need. I am appealing to you to help save my home. Please consider my case and take action to prevent foreclosure.

Mr. Bennett, could you help me by a loan of $500? I know that you are a very busy man, but if you could help me, it would be a great relief.

Please help me as I have no other option.

Winnipeg, Nov.

NOT EVERYONE SUFFERED...

Home Ownership, March 1935, p. 98.

A mother writes to Prime Minister Bennett for Help, 1935.

Winnipeg, Nov.

The winter of 1932 was very hard. Many families found it difficult to make ends meet. However, not everyone suffered equally. Some were able to cope better than others. The government took action to help those in need. It is important to recognize that there were different experiences during the Depression.
Appendix J

Participant 4 Text Selection
Use the information on pages 198-201 in your text to complete the following chart.

<table>
<thead>
<tr>
<th>Hitler's Action</th>
<th>Hitler's Reason</th>
<th>World Leader's Reactions</th>
<th>Your Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Marched into the Rhineland and militarized the area. (1936)</td>
<td>Shade and label on your map: 1. The Rhineland; 2. Germany.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. German army marched into Austria and took it over. (1938)</td>
<td>Shade and label Austria.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Demanded and was given Sudetenland area of Czechoslovakia. (1938)</td>
<td>Shade and label the Sudetenland area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Took over the rest of Czechoslovakia. (1938)</td>
<td>Shade and label Czechoslovakia.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Demanded parts of Poland. (1939)</td>
<td>Shade and label Poland.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Signed non-aggression pact with the Soviet Union. (1939)</td>
<td>Shade and label the Soviet Union.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Steps to War 1936-39

One by one Hitler broke the terms of the Treaty of Versailles. In 1935 he reintroduced conscription (young people had to join the armed forces by law). Many people in Britain regarded the Treaty as being unfair to Germany, and when Hitler marched troops into the Rhineland (1936) they did not object, since it was his own country.

But by 1938 it was clear that Hitler's Germany was becoming more and more of a threat to peace in Europe. Hitler demanded Lebensraum (living space) for the German people. This was his excuse for invading other countries. In particular, he wanted the boundaries of Germany to expand to include all those territories where the majority of the people were Germans or German-speaking.

This is why he forced Austria to agree to the Anschluss (union of the two German-speaking countries). He could later point to a plebiscite of the Austrian people to justify his actions, since 97% of people in every 400 were said to have voted for Anschluss in April 1938. Many people in Europe were satisfied that this was what the Austrians really wanted, even if it did mean the persecution of Austria's Jews.

This policy of agreeing to Hitler's demands (in the vain hope that he would soon be satisfied) was called appeasement. It reached its climax with the Munich Peace Agreement on 29 September 1938. The desire for peace, not war, was uppermost in people's minds. They still recalled with horror the senseless killing of the First World War. Britain, in particular, was not ready for war; they needed to rearm.

March 1936
Hitler marches troops into the Rhineland – forbidden by the Treaty of Versailles. Britain and France do nothing to stop him.

March 1938
Hitler forces Austria into joining Germany in a union of the two countries (Anschluss) – forbidden by the Treaty of Versailles. German troops enter Austria. Britain and France do nothing to stop him.

October 1938
Hitler threatens to invade the German-speaking borderlands of Czechoslovakia (the Sudetenland) – a country formed by the Paris Peace Treaties in 1919. In September Britain and France prepare for war but eventually agree to let Germany have the Sudetenland in return for a promise of peace (The Munich Peace Agreement of 29 September, 1938).
March 1939
Hitler annexes (takes) Bohemia – Moravia in Czechoslovakia – contrary to his promises at Munich. He also annexes Memel (part of Lithuania) – a German-speaking region which Germany lost at the Treaty of Versailles. At long last Britain and France realise no country in Europe is safe from Hitler's demands.

September 1939
Hitler invades Poland, having signed a pact with Russia not to attack one another. Britain and France declare war on Germany. The USSR invades Poland from the east and Germany and Russia divide Poland between them. The Second World War has begun.

Hitler's conquests in 18 months

How the German Armed Forces Grew

1933

1938

The Army

7 DIVISIONS
Number of fully trained divisions ready for war

52 DIVISIONS

The Luftwaffe

Not allowed by the Treaty of Versailles

over 4000 planes

The Navy

Warships over 10,000 tonnes already launched

Not allowed by the Treaty of Versailles

4

Submarines

Not allowed by the Treaty of Versailles

54

1. At what point do you think Britain and France should have insisted that Germany keep to the terms agreed at the Treaty of Versailles?
2. Explain what was meant by appeasement.
Appendix K

Participant 5 Text Selection

The Fool-Proof News Report Writing Template

News reports can be easy to write if you follow the following format.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PARAGRAPH 1—THE LEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man killed when hair catches on roller coaster</td>
<td>gives the 5 W’s: Who, What, When, Where, and Why</td>
</tr>
<tr>
<td>By ASSOCIATED PRESS</td>
<td>Why is the reason for What Happened</td>
</tr>
<tr>
<td>An amusement park operator was killed Saturday in Langley, Washington when his hair got caught on a roller coaster car.</td>
<td>do not go into a lot of detail, 1-2 sentences long</td>
</tr>
<tr>
<td>Doug McKay, 40, was spraying lubricant on the tracks of the Super Loop 2, a ride at the Island County Fair on Whidbey Island, when his long hair got caught on a car full of fairgoers.</td>
<td>PUT INFORMATION IN THIS ORDER:</td>
</tr>
<tr>
<td>“It basically scalped him, and he fell and landed on the fence,” said sheriff’s spokeswoman Jan Smith. McKay, co-owner of Paradise Amusements, based in Post Falls, Idaho, was pulled as high as 12 metres into the air, before he fell, back-first, onto a fence. Paramedics raced to the scene but they could not revive McKay. He was pronounced dead at 8:30 pm.</td>
<td>WHO, WHAT, WHEN, WHERE (after) WHY, (because) (when)</td>
</tr>
<tr>
<td>Smith said grief counsellors were on hand but that the fair continued after the incident. Paradise Amusements had set up rides at the Island County Fair, located about 50 kilometres northwest of Seattle, for the past three years.</td>
<td></td>
</tr>
</tbody>
</table>

| PARAGRAPH 2—HOW IT STARTS |
| briefly tell how the event started to happen |
| remember that how a story happens is telling the step-by-step series of events, but in this paragraph you just briefly tell how the event started. |
| don’t confuse how with why. Why means you are giving reasons for things happening. How tells the step-by-step process or series of events |

| PARAGRAPH 3—DIRECT QUOTE |
| insert a quotation from an eyewitness or a person involved in the story |
| usually the quote is a reaction or it is the speaker adding more How information |

| PARAGRAPHS 4, 5, 6, 7, etc—WHAT HAPPENED NEXT |
| (Give detailed details information) |
| in Paragraph 4, tell what happened next after what you wrote in paragraph 2. |
| in Paragraphs 5, 6, 7, etc., continue to explain what happened, step-by-step, in the order it happened. |
| you can give some background information on the incident being reported on in the story |
| you can give more quotations from witnesses and people involved but don’t fill the report with quotes |

| LAST PARAGRAPHS |
| LEAST IMPORTANT INFORMATION |
| the least important information goes near the bottom |