Developing Critical Thinking Skills

in the High School English Classroom

by

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Abstract

The ability to think critically is an essential life skill; current literature reveals that explicit instruction in, and practice of, critical thinking strategies in the high school classroom can improve student academic performance. Adoption of critical thinking strategies can also prepare students for the rigors of college, as well as helping them develop the skills necessary to compete economically in a global environment.

Research on the impact of critical thinking strategy instruction in the high school English classroom supports the findings of current literature; students who receive instruction in a critical thinking strategy were better able to demonstrate critical thinking in a post-strategy instruction assessment than those students who had received no strategy instruction.

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Chapter One: Introduction

The ability to think critically is an essential life skill in American society today; as the world changes at an ever-faster pace and economies become global, young adults are entering an expanding, diverse job market. To help young Americans compete for jobs that did not even exist a few years ago, it is necessary now more than ever before to ensure that young adults possess the thinking power to flexibly and creatively adapt to new job markets. According to Mendelman (2007), "the majority of U.S. schools fail to teach critical thinking and, as a result, the majority of our populace does not practice it" (p. 300). Hayes and Devitt (2008) stated "generally, critical thinking strategies are not extensively developed or practiced during primary and secondary education" (p. 65). School systems need to amend curriculum to ensure that high school graduates have developed a solid foundation of critical thinking skills, enabling young adults to be more successful in their pursuits after high school.

Since the enactment of the No Child Left Behind Act of 2001, pressure has been on school districts to demonstrate student progress and competency via standardized test scores. "In today's accountability climate…critical thinking activities can take a back seat to test preparation" (Pescatore, 2007, p. 330). Rather than embarking on frustrating attempts to cram students full of simple recall facts in the weeks prior to a round of standardized tests, it may be more beneficial long-term for students to be able to utilize factual information as a framework for critical exploration of broader concepts. While it may be tempting to teach to a test, however, students don't live in a multiple choice/true or false world. Paul and Elder (2008) insisted that "multiple-choice tests are rarely useful in assessing life situations" and instead teachers should develop "the kinds of intellectual tasks students will perform when they apply the subject matter to professional and personal issues in the various domains of their lives" (p. 34). Teachers are obligated to help students develop the skills necessary to synthesize the nuances of a modern, complex society.

Beyond the personal benefits experienced by adults adept at critical thinking—more opportunities, better jobs, higher income—society also benefits when the general populace can think creatively and insightfully. According to Pescatore (2007), "for social change to occur, citizens must not only think critically about what they read and view, but they must also react to transform the world" (p. 330). Rather than accepting information at face value, educated critical thinkers can thoughtfully explore the broader perspectives of an issue. The National Association for Media Literacy Education (2010) advocated explicit teaching of critical inquiry, encouraging students in "active inquiry and critical thinking about the messages that we receive and create" (cited in Thein, Oldakowski, & Sloan, p. 23). The ability of students to explore issues thoughtfully "offers a way to speak out against injustice and unfairness (Pescatore, 2007, p. 330). Critical thinking skills do not occur randomly or without effort; it takes structured, deliberate, and repetitive exposure and practice for students to develop insightful thinking.

Developing the ability to think critically is an essential life skill; it is also clear that practicing critical thinking strategies should be a daily occurrence in classrooms across the United States. The high school English classroom is a logical environment in which to explicitly teach, and practice, critical thinking with the goal of developing life long habits of mind. As Mendelmen (2007) pointed out, "If reading the world can be paralleled to reading text, then literature offers an ideal vehicle for teaching the critical skills necessary in analysis" (p. 300). The intent of this research is to comprehensively explore current research and strategies for incorporating critical thinking into high school English curricula.

Statement of the Problem

In order for high school students to be prepared to compete for employment in a global economy, all students must be able to think critically and strategically; unfortunately, a problem exists because critical thinking strategies are not consistently taught in American high schools, translating to

a populace that is ill-equipped to easily adapt to a rapidly changing world. Mendelman (2007) claimed that "in a day and age in which more and more children grow up engaged with primarily passive activities…teaching critical reading is one of the most important, and most difficult burdens of the classroom" (p. 300). If students are not exposed to, and do not master, the ability to think insightfully and critically, they will be unable to compete in a modern, global economy. In order to better prepare our students for the challenges they will face, high school teachers need to explicitly teach critical thinking strategies, equipping young people with twenty-first century skills. The high school English classroom presents a natural setting to practice critical thinking, as it is customary for English instructors to work with students on analyzing all types of text for word choice, point of view, tone, and structure to develop the skills of critical thinking "that can have clear relevance to students' lives" (Pescatore, 2007, pp. 336-337). A rigorous English curriculum, focused on an explicit, scaffolded approach to teaching critical thinking skills, will better prepare high school students for college and employment.

Purpose of the Study

The objective of this study is to analyze current literature and examine strategies for developing critical thinking skills in high school-aged students. The purpose of conducting this study is to assist this researcher in implementing a structured approach to teaching critical thinking in the high school English classroom. This research has universal implications for all subject areas, and therefore will be applicable to the general high school setting, not only the high school classroom. Mendelman (2007) asserted that "critical thinking should be taught in virtually every course in the humanities" (p. 300).

Assumptions of the Study

Systematic implementation and practice of critical thinking strategies will help high school students develop habits of mind that allow them to view the world through a critical scope. Repeated

student exposure to critical thinking practices will assist students in all academic disciplines, as well as translate to life beyond high school.

Definition of Terms

Critical Thinking: a mental process of analyzing or evaluating information, particularly statements or propositions that are offered as true Critical thinking can be described as a "gradual progression from the superficial to the increasingly complex" (Mendelman, 2007, p. 300).

High-Stakes Testing: any test for which the results have serious consequences for the test taker and teacher. An example of high-stakes testing would be the Wisconsin Knowledge and Concepts Exam (WKCE); in some Wisconsin school districts, test results are being used to evaluate teacher performance.

Metacognition: the mental process of thinking about one's own thinking; the ability to assess and evaluate one's thinking. Developmentally, metacognition typically begins with the onset of adolescence.

Limitations of the Study

Potential limits to this study include the knowledge and skill of this researcher in comprehensively finding all possible research on this topic. While every effort will be made to explore this topic as thoroughly as possible, it's probable that the researcher will not examine every single bit of research on the topic. Another potential limitation is the fact that subjects may not answer questions to the best of their ability. Some parents were unwilling or unable to return the permission slip requiring their signature, which would have allowed their child to participate in this study.

Methodology

Critical thinking is an essential life skill. This paper will explore current literature on critical thinking, including critical thinking instruction and teaching strategies. To determine the usefulness of employing critical thinking strategy instruction in the classroom, research will be conducted to

determine if explicit critical thinking strategy instruction results in improved performance in the high school English classroom. Research will be conducted using sophomore English students in two classes which share the same instructor. One class will serve as the control group and will receive no strategy instruction; the target class will receive explicit instruction and practice in an inferencing critical thinking strategy. A post-reading assessment quiz will be administered in an effort to determine if there is a difference in student performance.

Chapter 2: Literature Review

I. Introduction: Why Critical Thinking?

It is absolutely imperative that as young adults earn high school diplomas and move onto the collegiate world, or the world of work, they are equipped with the critical thinking skills that are essential to navigating a global society. Secondary-level educators are an essential part of critical thinking development. High schools need to be "a place that involves students in rich, authentic, collaborative work; that takes responsibility for building 21st century skills; and that uses a diverse program of assessment to document students' growth in such skills" (Coughlin, 2010, p. 52). Schools are faced with the challenge of redesign in an effort to create an environment where students build skill sets that ensure success in a competitive world. Without redesign, high schools run the risk of becoming irrelevant. Basic factual knowledge is readily available through the Internet, and this information is packaged for technology-based systems that not only mimic traditional classroom delivery, but at times, surpass traditional classroom formats (p. 48). For schools to remain relevant to student growth and skill development, they have no choice but to teach skills that children need to be successful in a modern, global economy. These skills include "broad concepts such as creativity, innovation, problem solving, communication, collaboration, teamwork, and critical thinking, as well as media and technology literacy, financial literacy, health literacy, and global literacy" (Senechal, 2010, p. 5).

The ability to analyze and creatively adapt to new situations is at the heart of critical thinking. Paul and Elder (2008a) asserted that critical thinking "provides a vehicle for educating the mind" (p. 88). Within the four short years of a high school education, it is impossible to explore and analyze, in a classroom setting, every eventuality students might encounter in life; in other words, we can't teach students *what* to think. We can, however, teach them *how* to think. In fact, it's clear that high school

students best equipped for college performance have developed the discipline to think critically and thoughtfully about a variety of topics (p. 91).

The high school English classroom provides a unique environment conducive to learning and practicing critical thinking strategies. After all, it is in the English classroom that students practice "learning how to read rhetorically, to think critically, and to write authoritatively, possess a serendipitous value, one well beyond the academic world" (Bernasconi, 2008, p. 19). Exploration of literature provides a format for discussing life's most confounding and intriguing themes; students are able to discuss and debate moral and ethical dilemmas, learning from and with each other. Mendelman (2007) claimed that "if reading the world can be paralleled to reading text, then literature offers an ideal vehicle for teaching the critical skills necessary in analysis" (p. 300). In fact, to be productive members of society, young people need to demonstrate the ability to think critically when they read and as they communicate, both in written format and orally. What better place exists to develop the habits of mind that result in deep, insightful critical thinking than the English classroom.

A. Problem: Current Situation in High Schools

The problem, and sad reality, is that few secondary schools, and secondary educators, are adapting curricula to help high school students develop and exercise critical thinking skills. Too many high schools are awarding diplomas without equipping students to handle the rigorous thinking college coursework demands; "whether students will attend college immediately after high school or enter the work world without college, they are not prepared" (Bernasconi, 2008, p. 17). According to Pittman (2010), "only three in ten seniors, at best, are college-ready," meaning they have established the educational foundation to successfully earn college credit (p. 13). National statistics suggest that almost a quarter of all freshmen college students choose not to return to college their sophomore year (p. 13). The reasons for dropping out of college are varied, however, lack of college success due to inadequate academic preparation is a factor. Paul and Elder (2008a), claimed that while educators have

taught students to "see subjects and disciplines as atomic facts, bits, and pieces of meaning to store in their minds for a test, and then to forget to make room for another test," we have neglected to teach our high school students to see how these bits form a composite, broad view (p. 88). Instead of teaching students to merely memorize facts easily found on the internet, we should instead "teach them how to think: clearly, accurately, precisely, relevantly, deeply, broadly, logically, significantly, fairly. Enter critical thinking" (Paul & Elder, 2008a, p. 88).

    Too many students perceive education to consist of "cramming" the night before a test, instead of inquisitively examining a concept and attempting to synthesize it into their own lives. Cramming and critical thinking are vastly different skills. "In a class that consists mainly of lectures with periodic quizzes and examinations, students can often get a passing grade by 'cramming' the night before quizzes and tests" (Paul & Elder, 2008b, p. 35). The results of these assessments may be misleading; a student who crams for an exam may be able to pass a test, implying that the student is demonstrating proficient content mastery. However, the problem is that most cramming feeds only the short-term memory; there's little assurance that students have put forth the effort, and utilized habits of critical thinking, to synthesize content into long-term memory. Mere memorization does not equate to thoughtful, insightful learning.

    Because of the tendency of students to equate learning with short-term proficiency of fact recall, many students "read in superficial and impressionistic ways, vaguely, often erroneously, creating misleading facsimiles of what they read. They cannot be trusted to accurately capture the meaning of the texts they read" (Paul & Elder, 2009a, p. 288). Most students fail to recognize that they are not learning the skills that equate to college and life success. "Many, if not most, students tend to be unaware of the components of the thinking skills in which they need to be more proficient. Yet, it is the knowledge of these skill components and proficiency in applying them that lead to skillful thinking" (Beyer, 2008, p. 197). The role of educators is all-important in recognizing that the lack of

college-readiness is in part due to the fact that too few teachers are explicitly teaching the skill-sets students require. Many high school courses are designed so students can pass without ever being required to think deeply, and too many high school instructors design courses in which they work harder than their students (Paul & Elder, 2008b, p. 35). The traditional textbook approach—read a chapter and test—is no longer conducive to a rapidly evolving global context. Focus on traditional texts is inadequate as "they do not allow for a full consideration of how texts and their readers are shaped by socially and culturally constructed practices related to beliefs, attitudes, and norms" (Thein, Oldakowski, & Sloan, 2010, p. 23). Before students can function in a global economy, they must establish a global perspective—they need an understanding of how the world operates outside the confines of their own city, their own state, and especially their own country. Critical thinking skills are necessary to this process.

The college readiness gap for high school graduates is directly due to the fact that "the majority of U.S. schools fail to teach critical thinking and, as a result, the majority of our populace does not practice it" (Mendelman, 2007, p. 300). High-school graduates "will not be ready for the new roles they undertake [in college] given they didn't even have the words to describe the skills they should have been honing throughout their middle and high school years. This is a serious readiness gap—the gap between being fully credentialed and fully prepared" (Pittman, 2010, p. 11). Secondary-level high schools are not the only educational institutions slow to change; critical thinking needs to be included in district-wide curricula...critical thinking practice needs to begin as soon as young students first enter school. Beyer (2008) encouraged schools to consistently expose students of all ages to thinking strategies. He asserted that "what our students learn, produce, and achieve in class depends considerably on how well and how consistently they apply these skills" (p. 196). According to Coughlin (2010), a few "cutting-edge" schools in the U.S. are developing curricula that focus on how to learn, habits of mind, and "life and workplace skills students will need to be successful in a

competitive, shrinking world" (p. 51). To better prepare students for the future they will face, entire school districts need to adopt similar cutting-edge approaches.

B. Description of Current Student Clientele

Most students today live dual lives; they go about the business of their actual life while at the same time creating "virtual lives" via the internet and social-networking websites. Students have ready and immediate access to electronic gadgets and mediums that divert their attention from everyday routines, including school. "Children grow up surrounded by digital media. They can communicate with peers around the world; they can find obscure information in seconds. Yet they are unprepared for the jobs of today" (Senechal, 2010, p. 5). Mendelman (2007) warned, "In a day and age in which more and more children grow up engaged with primarily passive activities like television, video games, and the internet, teaching critical reading is one of the most important, and most difficult, burdens of the classroom" (p. 300). In school, students are struggling to demonstrate the stamina necessary to think profoundly about ideas. "Unlike popular video games, in which what you see is what you get and you need only engage in the here and now in order to succeed, success in the complexity of the real world demands an ability to step back from a complete absorption in the limited parameters of the superficial moment" (Mendelman, 2007, p. 300). In a world of staccato tweets and texts where students can, in rapid-fire manner, move from one social encounter to the next, they lack the thinking, discipline, and practice to consider a single topic deeply. Many high school students, even those identified as college-bound or college-prep scholars, resort to online summary sources such as Sparknotes.com; they read only bits and pieces of text, enough to write an essay, but are not putting forth the critical thinking necessary to "wrestle" with a text and think profoundly about what it offers (Bernasconi, 2008, p. 17). Rather than satisfying themselves with parroting the thoughts of other individuals, our students need to be confidant in their ability to create their own insights…a repertoire of critical thinking skills can help students achieve their own thinking.

Traditional educational structures need to adapt or risk becoming irrelevant to 21st century learners; schools also need to helps students expand their attention spans. "Digital media and technology are now diminishing the influence of the traditional gatekeepers by pushing information out to the public, enabling self-directed learners to become more and more independent" (Coughlin, 2010, p. 48). Senechal (2010) reminded educators that "technology figures large in the 21st-century skills movement…technology should be a tool at our disposal; it should serve rather than hinder us" (p. 5). Because our students live in a digital age, educators need to meet students "where they're at" and use mediums students are already familiar with to develop and practice critical thinking skills.

C. Standardized Testing Environment

With the adoption of the federally-mandated No Child Left Behind Act of 2001, educators feel increasing pressure for students to demonstrate proficient academic skills upon entry into classrooms. As teacher job security and compensation become linked to student performance, educators may be tempted to leave development of abstract cognitive skills, such as critical thinking and application of critical thinking to make cross-curricular connections, behind in favor of test preparation (Pescatore, 2007, p. 330). Many states mandate high school graduation tests; in the state of New York, high school English teachers have expressed concerns about the balancing act they are called upon to manage. English teachers are expected to cover a mandated amount of "great" literature while simultaneously reviewing standardized testing basics (Conner, Bickens, & Bittman, 2009, p. 3). Mendelman (2007) lamented the current regulatory environment which advocates that "students simply replicate the right answer for the multiple-choice test, or recycle plot summaries from Pink Monkey, SparkNotes, or other online resources and hope that when all else fails, the teacher does the bulk of the mental work" (p.302). Teachers face the challenge of creating a delicate balance between test preparation and the need for students to develop the ability to think creatively and critically. Merely selecting "a, b, or c" on a test is hardly evidence of insightful critical thinking. Paul and Elder (2008b) explained that

multiple-choice tests may be able to assess superficial understanding of material, but are rarely useful in determining student readiness for real life situation (p. 34). It's especially difficult to teach using an inquiry-based approach honoring genuine student interest in a standardized testing environment. In fact, the high-stakes testing environment is shifting classroom influence from inquiry mode to test prep mode (Ketelhut, Nelson, Clark, & Dede, 2010, pp. 56-57).

D. Why Critical Thinking

For high school students to be successful in a continuously changing environment, learning core subject matter is not enough; instead, core skills subject taught within a 21st century skill set is the key to student success. Students must know how to learn, how to innovate, and how to use media and technology in a career context (Pittman, 2010, p. 12). The ability to think critically is not exclusive to the academic arena; rational, reasoned thinking is an essential life skill. "Critical thinking is that mode of thinking—about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it" (Paul & Elder, 2008a, p. 88). Hayes and Devitt (2008) reported that the ability to demonstrate critical thinking has become so essential in today's society that it is a core competency in earning undergraduate degrees; employers of recent college graduates support this assertion, ranking strategic thinking as key factor in job success (p. 65).

For critical thinking skills to develop, teachers need to teach critical thinking while students take responsibility for their own learning. Students need 21st century skills that allow them to own their learning; students need to be able to locate, analyze, and evaluate new information while at the same time organize and plan what to do with that new information (Coughlin, 2010, p. 50). Critical thinking "involves ways of thinking about the written and spoken word that go beyond the surface meaning in order to discern the deeper meaning, ideology, and bias expressed therein" (Pescatore, 2007, p. 330). Thinking in a disciplined, critical manner does not automatically evolve on its own; educators are

critical to helping students take command, and self-assess, their learning and thinking (Paul & Elder, 2008b, p. 34). In this regard, Coughlin (2010) concluded that research on 21st century skills reveals that student success is more related to critical thinking than traditional core subject matter (p. 50).

E. Benefits of Critical Thinking--Improved Classroom Performance

A classroom environment centered on a critical thinking philosophy will better prepare students for the adult world of change and uncertainty. Paul and Elder (2009a) maintained that without concerted intervention and evaluation, human thinking tends to be biased, unclear and flawed. However, "when we recognize this problem, this obstacle to quality in our lives, we use our thinking to improve our thinking. We use our capacity to think at a higher level to work on and improve our thinking. Flawed thinking is then minimized" (p. 287). Educators using a critical thinking approach to instruction can discipline their students to continually assess the validity of their reasoning and rationale; this rigorous self-assessment best prepares students for future success. Coughlin (2010) asserted that 21st century skills are essential qualities and will have a direct impact on student futures, including educational, professional, and life success (p. 51). Ketelhut, Nelson, Clark, and Dede (2010) concluded that "curricula centered on both inquiry and coverage of state and national content standards would help teachers achieve both objectives" (p. 57).

Unfortunately, "most students think of learning as disconnected sentences from a textbook or lecture. By the time they reach college level, they have successfully *mislearned* what it means to learn" (Paul & Elder, 2008a, p. 88). In other words, students have not developed the discipline, or the innate curiosity, to make connections between diverse disciplines. Elder and Paul (2008) are convinced that critical thinking is the key to enabling students "to see the interconnected logic of any subject or specialty and to think with discipline and skill within that logic (p. 88). According to Bernasconi (2008), high school educators adopting a critical thinking approach in their classrooms clearly appreciate the eventual demands that colleges will place on students to read and write, and most

importantly, be able to think about what they read and what they write (p. 19). The irony is that some educators dismiss the teaching of critical thinking to instead focus solely on standardized test preparation, especially in this era of high-stakes testing and pay-for-performance teaching salaries. Pescatore (2007) disagreed with this choice as critical thinking skills "are useful in passing state-mandated test" (p. 326). Pittman (2010) supported this, explaining that the College Board has released "detailed standards that align with expectations for entrance into core college-level courses…in addition to core subject content, however, their standards include practical skills such as critical thinking, collaboration, problem solving and technology literacy" which are key to student success in any discipline (p. 11). Clearly, a critical thinking approach will help students prepare for life after high school and standardized tests.

F. Benefits of Critical Thinking--Better Understanding of Self and Society

Adopting a critical thinking approach in the classroom will yield benefits well beyond academic success, especially when students are prompted to analyze their decision-making in an ethical light. Pescatore (2007) advocated critical thinking instruction because it "has the added benefit of fostering engagement in the public interest rather than just self-interest, enabling young people to become significant forces for change" (p. 339). Without guidance and intervention, however, human beings tend to maintain narrow, self-interested perspectives (Paul & Elder, 2009b, p. 37). Elder and Paul (2009) feared that students receive critical thinking instruction without being challenged to clearly understand and asses their decisions in an ethical framework. "These students develop intellectual skills which enable them to get what they want without being bothered with how their behavior might affect others. By teaching critical thinking without ethics, one runs the risk of inadvertently fostering sophisticated rather than fair-minded critical thinking" (p. 36). Critical thinking can be a powerful tool in helping individuals "avoid relinquishing the power each of us has to investigate and examine an issue from multiple perspectives so as not to be manipulated by any one" (Pescatore, 2007, p. 330).

In the broadest sense, if the goal of education is the "formation of citizens empowered and emboldened to act as a result of their conscious enlightenment," critical thinking most be taught in an ethical framework (Pescatore, 2007, p. 330). Paul and Elder (2009b) supported this, stating that "it is impossible to develop as ethical persons without facing the fact that every one of us is prone to egotism, prejudice, self-justification, and self-deception and that these flows in human thinking are the cause of much human suffering. Only the systematic cultivation of fairmindedness, integrity, self-knowledge, and deep concern for the welfare of others can provide foundations for sound ethical reasoning" (p. 37). Albergaria Almeida (2010) maintained that "one of the main aims of secondary teaching is the development of critical, reflexive and creative thinking, in order to provide students with the necessary tools to become active and autonomous citizens, as well as lifelong learners" (p. 590). By teaching critical thinking with an ethical perspective, teachers contribute to creating "educated persons [who] are able to enter viewpoints alien to them and think within those viewpoints clearly and accurately in good faith" (Paul & Elder, 2008a, p. 91). If the aim of education is not only to make students employable, but also guide them to be cognizant of the world and an understanding of the plight of individuals around them, critical thinking can be a powerful tool in accomplishing this aim. Bernasconi (2008) agrees that critical thinking cannot be taught in isolation; "it is important to acknowledge to students that the necessity for reading, writing, and thinking proficiently extends to other facets of society" (p. 19). "For social change to occur, citizens must not only think critically about what they read and view, but they must act and react to transform the world" (Pescatore, 2007, p. 330).

II. Introduction: Critical Thinking Instruction

The goal of secondary education is to prepare students for the future—to equip students with skills for professional and personal success while at the same time developing their awareness of diverse human conditions. Explicit instruction in rigorous critical thinking is a key component to future success. "Important 21st century skills, such as critical thinking, innovative thinking, and self-

directed behavior can be explicitly taught, applied and assessed" (Coughlin, 2010, p. 51). Senechal (2010) warned that "perhaps critical thinking—thinking on the edge of things—is the trickiest of all the 21st century skills" (p. 15). For educators, revising curriculum and adopting a critical thinking focus requires consistent, methodical effort. It is clear that "critical thinking skills depend heavily on formal learning," meaning that secondary educators must take the lead and dedicate themselves to explicit thinking instruction (McCollister & Sayler, 2010, p. 42). "To exercise critical thinking" means that students "make sense of choices, clamor, and confusion" (Senechal, 2010, p. 8). Because critical thinking does not come naturally and since it does not develop in conjunction with maturation or mere aging, it's essential for students to be taught, and practice, critical thinking, just like they're taught, and practice, any other skill. "An emphasis on 21st century skills [is necessary] in all of education, from elementary school through college" (Senchal, 2010, p. 4). The logical time frame for the most intense critical thinking practice is high school; it is at the secondary level that students are ready to begin putting aside their own assumptions and prejudices, and instead think about issues from a different perspective (Senechal, 2010, p. 11).

Cognitively, the ability to think critically--to identify and analyze a problem while thoughtfully evaluating potential solutions--is a sophisticated process. Skilled critical thinkers will employ metacognition, essentially the ability to think about and assess one's own thinking, to select the most appropriate strategy for a learning task (Bruning, Schraw, Norby, & Ronning, 2004, p. 117). An essential aspect of critical thinking is developing the ability to assess decisions (Bruning et.al., 2004, p. 183). Without utilizing metacognition to self-analyze, students cannot determine the effectiveness of their decision-making processes. In essence, metacognition serves as the "control center" of cognitive skills, helping students decide which learning strategy to employ, and assess whether the selected strategy was effective. Metacognition is also an essential aspect of critical thinking because it is the tool that allows us to assess the credibility of the information we use to formulate opinions and make

decisions (Bruning et.al., 2004, p. 183). In terms of cognitive processing, students will be unable to analyze and evaluate in an effort to formulate judgments and opinions, without employing powers of metacognition. According to Mendelman (2007), "recent studies conducted by the National Institute of Mental Health (2001) suggested that the frontal lobe, the area of the brain most responsible for the reasoning skills that enable critical thinking, undergoes a large wave of development just prior to puberty" (p. 301). When considering the most appropriate time to prompt students to use metacognition to self-assess their thinking routines, it makes the most sense to begin explicit critical thinking instruction early in school and continue to scaffold and practice thinking strategies throughout high school. Lombard (2008) cautioned that critical thinking is not a product of simple growth and maturation; instead, critical thinking skills must be explicitly taught and consistently practiced (p. 1030). Critical thinking instruction needs to be systematic and continuous and must occur throughout educational hierarchies.

While the ability to think about one's thinking developmentally comes to fruition during adolescence, similar to the development of any other skill, metacognition requires routine practice to be utilized to its full potential. In the high school classroom, for example, when confronted with a challenging text, metacognition allows young thinkers to efficiently and accurately assess their repertoire of strategies, and select the best strategy for that occasion (Bruning et.al., 2004, p. 117). Additionally, metacognition allows "a critical thinker [to] be able to monitor and evaluate a problem-solving process, make conclusions, react effectively to new task and situations and process information effectively" (Lombard, 2008, p. 1031). Students not yet ready to use metacognition will fumble in their "strategy toolbox," randomly searching for a tool to help them; skilled thinkers use metacognition to select an appropriate tool…if the tool proves ineffective, they will quickly and efficiently select another one. To help students develop the acumen to think critically, a scaffolded instructional approach is critical; new thinking strategies are building on the critical thinking foundation established

by former thinking strategies. Critical thinking requires explicit, scaffolded instruction and instructor support (Coughlin, 2010, p. 50). The high school English classroom provides an ideal environment for explicit strategy instruction and scaffolded practice. Despite facing a diversity of students, most English teachers "recognize that, as students move from adolescence into young adulthood, literature gives them a greater sense of history, provides them with increased knowledge of the world, and allows them an opportunity to reflect upon their places in it" (Conner, Bickens, & Bittman, 2009, p. 3).

A. Critical Thinking Instruction: Scaffolded Approach

Prior to running, we must learn to walk; prior to walking, we crawl…as any parent can attest, as a child acquires new skills and becomes proficient in those skills, the child continues to push for new horizons. Developing proficiency in any skill requires a scaffolded approach; critical thinking is no different. As Senechal (2010) pointed out, "mastery of basic skills is the beginning of an education, not its end (p. 7)." Beyer (2008) advised that "if we are serious about improving the quality of our students' thinking and learning, we can—and should—actually teach them directly and explicitly how to better apply the thinking skills they need to use well in our classes but now cannot or do not" (p. 196). The question in education has been how to best help "students to acquire higher-order skills like creativity and critical thinking. Cognitive scientists have already provided much of the answer: thinking, problem solving, and other higher-order skills are only possible when one has relevant knowledge" (Senechal, 2010, p. 7). In other words, the ability to think critically encompasses a hierarchy of skills, and to reach the upper echelons of critical thought, students must first develop basic thinking skills.

According to Beyer (2008), "an important type of skill-related knowledge is called conditional knowledge—knowing when or under what conditions it is appropriate to use a specific skill" (p. 197). Essential to navigating the echelon of critical thinking is development of the ability to select the appropriate critical thinking approach. Niedermeyer (2008) advocated self-discovery as a means to

developing conditional knowledge; "by allowing students to discover concepts on their won, we enable them to scaffold the ideas with observation" enhancing the likelihood of individual ownership of skills development (p. 24).

Elder and Paul (2009a) advocated a "systematic use of critical thinking concepts interconnected with reading and writing strategies in the design of instruction" (p. 287). Mendelmen (2007) agreed, explaining that the best critical thinking instruction "involves a gradual progression from the superficial to the increasingly complex" (p. 300). Scaffolding "ensures that something taught in 5th grade, revisited in 7th grade, and further elucidated in 10th grade will be easily recalled. And it provides the opportunity for students to develop their own singular questions based on perceived anomalies in what they observe. These can lead to investigation and experimentation" (Neidermeyer, 2008, p. 25). Senechal (2010) added that "to learn something well, we need focused study and practice" (p. 8).

Mendelmen (2007) applied scaffolding of critical thinking skills to the English discipline; at the elementary level, students read literature at a superficial level, building basic reading comprehension. As students reach middle school, the critical thinking focus builds to include application of literary terms. Mendelmen advised that "literary terms must be introduced on a scale of increasing complexity, progressing from plot and setting to point of view and figurative language. This terminology is the basis for literary analysis" (p. 301). Literary analysis and evaluation are higher order critical thinking skills practiced throughout (and beyond) high school English. Paul and Elder (2009a) supported this scaffolded approach to developing critical thinking in the English classroom, stating that "to read a text well, students must learn to read a paragraph well. To read a paragraph well, students must learn to read a sentence well. To read a sentence well, students must learn how to construct and elaborate its meaning accurate in their mind. If students cannot accurately state, elaborate, exemplify, and illustrate what is said in a text, they do not understand what is meant by what is said" (p. 288). Knowing that critical thinking requires "a high level of scaffolding and support," it's essential that educators "give all

learners frequent opportunities to apply that knowledge and those skills in meaningful contexts" (Coughlin, 2010, p. 50 & p. 51). And that frequent practice is almost entirely dependent on the willingness of teachers to teach within a critical thinking context.

B. Critical Thinking Instruction: Role of Educators

Teachers, on all levels from preschool through graduate studies, need to progressively push students to develop higher levels of critical thinking. Hayes and Devitt (2008) purported that "to ensure development of critical thinking strategies, implementation of instructional activities that provide an opportunity for discussion related to topics, concept, and intellectual skills are necessary" (p. 66). Paul and Elder (2008b) insisted that educators must structure lessons to enable increasing levels of challenge; it is important to teach "so that students learn to think their way into and through content. We stress the need for well-designed daily structures and tactics for fostering deep learning" (p. 34). Mendelman (2007) recommended that "educators must scaffold thinking skills so that students are more likely and more prepared to make this final jump [to critical thinking]" (p. 301). Pescatore (2007) agreed, explaining that "when students think critically, they interact with the text skillfully analyzing the message, comparing that message with their previous knowledge, considering alternate positions, and synthesizing the information gained into a richer knowledge base" (p. 326).

As part of developing a rigorous critical thinking program, teachers should "have the freedom to choose the literature that will help students develop as critical thinkers" (Pescatore, 2007, p. 336). In other words, educators need to find engaging text, even if that means moving beyond the traditional textbook. Pescatore (2007) cautioned that traditional "textbooks try to cover too many topics and fail to acquaint students with controversies and historical arguments effectively…texts supply information that is irrelevant, wrong, or boring" (p. 336). Selection of engaging material can be a conduit to more traditional literature. In this multimedia age, "visual and auditory media are supplementing text

resources to make the presentation of information more engaging" (Coughlin, 2010, p. 50). If students are engaged, it is more likely that the work of building critical thinking skills can occur.

III. Introduction: Specific Critical Thinking Strategies

It's clear that rigorous teaching of critical thinking plays an essential role in helping individuals develop habits of ethical self-analysis and self-assessment, enabling students to broaden their perspectives. "To cultivate the intellect requires developing intellectual skills, tools of mind that enable the thinker to reason well through any question or issue, to think through complexities and confusions, to empathize with competing viewpoints and world views. It requires, in short, the tools of critical thinking" (Paul & Elder, 2009a, p. 286). The question for educators, then, is how to go about incorporating tools of critical thinking in secondary curriculum. "Four useful ways to integrate critical thinking into the curriculum are the inclusion of problem solving, asking questions that require critical analysis, evaluating sources and decision making" (Hayes & Devitt, 2008, p. 66). Bernasconi (2008) challenged students to see reading as a process; he encourages students to read text more than once and as they do so, to question "the text to determine the author's argument and the text's stylistic choices and structure. Students also learn annotating, summarizing, and descriptive outlining, skills crucial to making meaning from a text" (p. 17). Mendelmen (2007) suggested an image-concept approach in an attempt to transition from the tangible to intangible; while reading text, Mendelmen asked her students to identify all images and concepts present, and after this is mastered, she challenges her students to move from verbal analysis, to written analysis communicating tangibles and intangibles present in the work (p. 301). Thein, Oldakowski, and Sloan (2010) advocated a "model of inquiry-based English instruction…designed to help students understand the constructed nature of lived and text worlds and to critique the messages they forward" (p. 24). The intent is to make students more aware of who they are, how they live, and their impact on the world. Beyer (2008) advised that one of the most effective ways to teach critical thinking is to "make these components explicit—obvious, specific, clear and

precise. When we make as explicit as possible how and why, step by step, to carry out a skill efficiently and effectively, we enable our students to become more conscious of how and why they…actually 'do' that skill" (p. 197). Regardless of the specific approach being used, "when students engaged in critical evaluation of problems via classroom discussion, their critical thinking strategies improve" (Hayes & Devitt, 2008, p. 66).

A. Critical Thinking Strategies

It's clear that teachers, especially at the secondary-level, need to embed a critical-thinking approach within their domains and curricula. Bruning et.al. (2004) pointed out that the most effective educators teach critical thinking skills in a sequential, orderly fashion (p. 187). Bruning went on to state that routine critical thinking practice benefits all students; in fact, research supports the fact the explicit instruction and extended practice are more influential than mere aptitude (p. 177). McCollister and Sayler (2010) encouraged "appropriately challenging problem-solving opportunities" to give students the change to "apply critical thinking within any content area" (p. 42). The adage that practice makes perfect is applicable to disciplined critical thinking, as research shows that less skilled students can reach higher levels of achievement than more intelligent peers based on continual, guided critical thinking practice (Bruning et.al, 2004, p. 177). Implementation of any critical thinking program at the high school level must be designed with an end-goal of students developing the ability to assess, analyze, and evaluate a problem independently and with confidence in the accuracy of their thinking.

In the high school English classroom, research supports the need to explicitly teach critical thinking and reading strategies; a generation of research supports this approach as the best means to help students develop higher order thinking and comprehension skills (Bruning et.al., 2004, p. 288). Teachers are obligated to help students develop the skills necessary to synthesize the nuances of a modern, complex society.

Daily, routine critical thinking practice must become the norm in the high school classroom. In English classrooms, Paul and Elder (2009a) advocated a critical thinking curriculum rich with reading and writing strategies (p. 287). And because all high school disciplines rely on the basics of reading and writing, critical thinking skills are applicable across disciplines. Mendelman (2007) stated that a strong critical thinking program should be designed to gradually progress from the basic to the complex (p. 300). Teachers need to scaffold specific thinking strategy instruction, beginning with basic questioning strategies, then build to develop the ability to inference, as well as analyzing, synthesizing, and evaluating skills. "To ensure development of critical thinking strategies, implementation of instructional activities that provide an opportunity for discussion related to topics, concepts and intellectual skills are necessary" (Hayes & Devitt, 2008, p. 66). With the incredibly rich diversity of "texts" available to English teachers—novels, narratives, nonfiction, film, music, videos, websites, and perhaps even video games—it is fairly painless for both students and instructors to practice critical thinking. Teachers could consider beginning critical thinking instruction with the mediums their students prefer, and use student-selected texts as the bridge to teacher-selected text. Pescatore (2007) claimed that before our students are equipped to make social change happen, they must be able to thinking critically about the media and messages they confront daily, and then they can progress to making real social change (p. 330). As educators, how gratifying to contemplate the idea that critical thinking instruction will not only make our students employable, but may also prompt them to become better citizens of the world.

IV. Conclusion

As current literature suggests, all students at all academic levels will clearly benefit from curricula steeped in critical thinking strategies and practice. Students who master the ability to think critically and insightfully will perform better academically in their current high school setting, and will also be better prepared for the rigors and enhanced academic expectations in college. As the dynamics

of a global economy continue to evolve and change, to compete with their peers around the world for jobs and resources, American students need to be able to creatively think and problem solve. Solving any problem creatively, offering unique insights for potential solutions, demands the ability to be able to think critically; it also requires that students have confidence in their ability to do so. Students need frequent and repeated exposure to critical thinking practices.

Chapter 3: Methodology

Introduction

This third chapter will summarize the methodology used for conducting research related to critical thinking strategies in the English classroom. The intention of this research was test the hypothesis that adopting explicit instruction of a critical thinking strategy will result in improved student thinking. The research subjects consisted of two sections of sophomore-level high school English students. In conjunction with the reading of a novel, one section of students was explicitly taught a critical thinking strategy to be used with four chapters of reading, while the other section was asked to navigate the novel on their own. It was hoped that the students receiving explicit critical thinking instruction would demonstrate more insightful thinking and understanding. This chapter is divided into the following focuses: selection and description of subjects, instrumentation, data collection, analysis of data, and study limitations.

Selection and Description of Subjects

The sophomore students enrolled in my English 10 courses served as subjects for the purposes of this critical thinking strategy research. These sophomores are members of a larger student body constituting approximately 600 students in grades nine through twelve. Of these students, approximately 43% qualify for free and reduced hot lunch. The local community has suffered from an economic downturn that has struck hard for the last decade; as families have struggled to make ends meet, the poverty rate has increased.

I have decided to target sophomore English students because at this level, students are still developing critical thinking skills and are generally in need of critical thinking practice and instruction. I have also selected English 10 for this study as I have two classes of similar size; I intend to use one class as the control group and the other as the target group for my research.

The target class that received the explicit critical thinking instruction consisted of 19 sophomore students—all but one of the students is taking English 10 for the first time; the other student is a junior who failed English 10 in the past. The make up of this class includes 5 girls and 14 boys; 14 of the students are considered regular education students while the other 5 carry a learning disability label. Of the 19 students, 15 are Caucasian, 2 are Hmong, 1 is African-American, and another is Hispanic.

The control class which did not receive the explicit strategy instruction consisted of 15 sophomore students, all taking English 10 for the first time. The make up of this class includes 7 girls and 8 boys and all are considered regular education students. Of these 15 students, 12 are Caucasian and 2 are Hmong, and 1 is African-American.

Instrumentation

The instrumentation for measuring critical thinking ability and progress was an assessment after reading a section of the novel *Snow Falling on Cedars* (chapters 5 through 8) in class. One section of English 10 served as the control group and did not receive any specific critical thinking instruction or practice. The other section served as the target class; I explicitly taught an inferencing critical thinking strategy to this class. The inferencing strategy was a tiered-thinking technique, meant to assist students in thinking about a passage insightfully and with depth (the strategy is commonly referred to as Text Says – I Think – And So I Can Guess…). As part of strategy instruction, I conducted a think aloud in an effort to model and reveal how I think critically about a passage from the text. As a whole class group, I asked the class to practice inferencing with several passages from the novel. I then asked the class to reconvene in their discussion groups; each discussion group consisted of 4 to 5 students—past experience has taught me that this group size works well. Groups will be large enough to allow for a variety of contributions and perspectives, but small enough that all students need to engage. Because of the small group size, it was obvious if any student was "hiding" and avoiding

making contributions, allowing myself and the group to invite the individual to contribute. In these small discussion groups, I then asked students to continue inference practice with passages they have identified as important in the text. Students are accustomed to using sticky notes placed directly in the text to "mark" important passages. On the sticky notes placed in the text and in preparation for small group discussion, students are asked to explain the meaning of the quote. An average of 50 pages is due for every small group discussion; students are expected to have "marked" 10 passages for every small group discussion. These small discussion groups provided the flexibility for me to meet with small groups and allow me to target those students who were struggling with understanding and applying the inferencing critical thinking strategy.

To ensure that all groups made note of important passages within the assigned reading, those passages that are integral to understand plot development, reveal themes, or show character growth, at the end of small group discussion I reconvened the class and using my SmartBoard, I revealed the passages that I had marked as important. This large class discussion allowed me to engage with all students, making sure they had all been exposed to essential passages. Because I had been listening to small group discussion, I was also able to target those students who had already developed strong inferences; I was also able to gently prompt those students who were having difficulties reading between the lines.

Finally, as a formal assessment of strategy instruction, I asked each student to individually complete the passage inferencing instrument (Appendix A). This instrument is tiered, or leveled and prompted students to formulate progressively deeper inferences. On the assessment I have listed the six most important passages from the assigned reading. For every passage, students were first asked to share their initial thinking in the "I think" column; this first response was immediate, and did not require too much depth of thought. After completing the "I think" column, students were prompted to think more insightfully, draw a deeper inference, in the "And So I Can Guess that…" column. For

example, if I included a passage about a character having "the darkness of war in him," in the "I think" column, I expected students to draw the obvious inference—of course this character has a darkness about him, he just returned from fighting in a war. In the "And So I can Guess that…" column, I expected students to explore this passage in greater depth, making connections to previous events and information. A strong response explained that this war veteran was having trouble adjusting to civilian life and therefore, had trouble interacting socially with his friends. The key to this instrument (Appendix A) was to scaffold levels of thinking; most sophomores can readily complete the initial level of thinking, the "I think" column. The "And So I can Guess that…" column required more time and deeper thought, prompting students to more critical analysis.

For the control group, I allowed students to navigate the piece of literature on their own without the assistance of an explicit thinking strategy. Post-reading, I assessed both classes, using the same post-reading assessment quiz (Appendix B). This assessment instrument asked students to identify a specific connection, question, inference, and point of analysis they made from the reading; in both freshmen and sophomore English classes, all students have been taught to understand literature while making connections. To connect means to identify a component of the story that reminds the student of their own life, the world, or something else they have studied. Students have also been taught to question the text they read to enhance understanding—why is the author writing this? Why is a character acting a certain way? Students have received little explicit strategy instruction in inferencing and analysis.

This instrument (Appendix B) purposefully scaffolds levels of critical thinking with connections being lower levels of critical thinking and analysis being more rigorous critical thinking. Each level of critical thinking builds on the previous level; while a connection and question can be formulated with relative ease, to make an inference and to analyze requires more insightful critical thinking. As this instrument (Appendix B) is specifically designed to assess student critical thinking

specific to the novel within the English 10 curriculum, no measures of reliability or validity are available.

Data Collection Procedures

Data was collected from the students targeted for critical thinking strategy instruction using the inferencing instrument (Appendix A) after students were done reading the chapters 5 through 8. Specifically, student narrative answers were assessed to determine if students were able to use the initial "I think" passage response as a springboard to create an insightful "And So I can Guess that…" passage response. As assessment of critical thinking is somewhat subjective (certainly not as a clear as a yes/no or true/false answer), I used a critical thinking scale to assess the level of thinking depth presented by each student; the same scale was used to assess both the inferencing instrument (Appendix A) and the quiz (Appendix B). Answers displaying critical thinking showed evidence of broad and insightful references to theme, plot, and character development.

The critical thinking scale was applied to student answers and consisted of two points. Student answers demonstrating mere basic comprehension, meaning the student had a literal understanding of the text but had not developed an insightful understanding, were awarded one point. Student answers demonstrating critical thinking, meaning the student demonstrated insightful, abstract understanding of the text as demonstrated by references beyond the literal, were awarded two points. As an example, if a student was asked to analyze a passage stating that a character has the darkness of war in him, a basic (one point) student answer was that this character is a war veteran. A student answer demonstrating critical thinking (two points) made reference to this veteran's war experience hampering his reintegration into society.

The open-ended questions that were assessed on the post-reading quiz (Appendix B) will include:

1) Supporting your answer with evidence from the story, record and explain at least one (feel free to include more than one) connection you made while reading (be clear – remember the "how is this story my story" focus). Consider text to text, text to self, and text to world connections.

2) Supporting your answer with evidence from the story, record and explain a "fat question" you asked yourself while reading (recall the difference between fat and skinny questions).

3) Supporting your answer with evidence from the story, record and explain an inference you made while reading; be certain that the inference you choose provided depth and additional insight for you as you read, versus a superficial type of inference.

4) Supporting your answer with evidence from the story, identify and analyze the motivation of the protagonist…be certain to consider his dynamic evolution over the course of the story (yes, there is more than one potential protagonist).

Data Analysis

I analyzed student answers on the post-reading quiz (Appendix B) based on demonstration of critical thinking; an answer demonstrating critical thinking (2 points) presented insightful points and clear evidence of deep, profound thinking. A critically-thought out answer made inferences and assumptions about the text, connections between characters and plot, and insights into theme. Basic answers were factual and grounded within the story only, with little evidence of profound, personal reflection and thinking.

I had both the control group and the critical thinking target group complete the same post reading assessment quiz (Appendix B). The quiz was comprised of four questions with each question designed to prompt the student to thinking critically while providing textual evidence for their thinking. I modified the critical thinking scale to a range to account for the multiple questions—a total of 4 questions with each question being scored a 1 (basic thinking) or 2 (critical thinking). So a student

could potentially score in a range of 0 to 8; a score of 0 to 4 indicates basic thinking while a score from 5 to 8 indicates critical thinking.

Overall, the control group of students who did not receive explicit instruction in a critical thinking strategy showed less critical thinking on the post reading assessment quiz (Appendix B). The target group who received explicit instruction in the inferencing critical thinking strategy (Appendix A) performed better, with a higher percentage of students demonstrating critical thinking skills.

Considering demographics, the control group's results broke down as follows: of the 15 total students who participated, 10 demonstrated critical thinking while 5 demonstrated basic thinking. Of the 5 who scored in the basic thinking category, 4 were male and 1 was female. The single female in the basic category was Caucasian; all 4 males scoring in the basic category were Caucasian. The demographics of the 10 control group students demonstrating critical thinking broke down as follows: 7 were female and 4 were male. Of the 7 girls demonstrating critical thinking, 6 were Caucasian and 1 was African American. Of the 4 boys demonstrating critical thinking, 2 were Caucasian and 2 were Hmong. All students in the control group are considered regular education students.

The results of the target group who received the inferencing critical thinking instruction (Appendix A) broke down as follows: of the 19 students who participated, 15 demonstrated critical thinking while 4 demonstrated basic thinking. Of the 4 who scored in the basic thinking category, all 4 were male; 3 were Caucasian and 1 was Hispanic. Of these 4 students, 3 carry a learning disabled special education label. Considering the 15 students who demonstrated critical thinking, 5 were female and 10 were male. Of the 5 girls demonstrating critical thinking, 4 were Caucasian and 1 was Hmong. Of the 10 boys demonstrating critical thinking, 7 were Caucasian, 1 was Hmong, and 1 African-American; two of the Caucasian young men carry a learning disabled special education label.

Limitations

Experts continue to disagree on "best practice" approaches to critical thinking instruction. Therefore, a limitation of this study is the fact that this is only a single strategy among many that could be employed. Other limitations include the clientele being studied and their personal motivation to participate in the activities. Both the control group and the target group have several more students than I was able to include in this research, as their parents did not sign the permission slip to participate in research. Another potential limitation is the assessment tool being used for data collection; since the questions students answer are open-ended, there is room for subjectivity on the part of the assessor. That said, I opted for an open-ended tool versus a multiple-choice/right vs. wrong assessment because these tools create the impression that when thinking critically about literature, answers are either right or wrong without grey area. The beauty of reading and discussing literature is the opportunity to explore "grey" areas and analyze the novel subjectively as we apply the novel to life in general. Another limitation to this study is the relatively small sample size of students, as well as the lack of measures of reliability or validity.

Chapter IV: Results

The objective of this research is to determine the potential impact of critical thinking instruction in my high school English classroom; the hypothesis is that adopting routine and consistent explicit instruction in critical thinking strategies will result in improved student thinking. Specifically, the research subjects consisted of two sections of sophomore English; one class served as the control group and received no critical thinking strategy instruction. The other class served as the target class, and received explicit instruction in, and practice with, an inferencing critical thinking strategy. Both classes were asked to complete the same post reading assessment quiz (Appendix B). The quiz was comprised of four questions with each question designed to prompt the student to thinking critically while providing textual evidence for their thinking.

To collate results, I categorized student answers on the post-reading quiz (Appendix B) based on demonstration of critical thinking; an answer demonstrating critical thinking (2 points) presented insightful points and clear evidence of deep, profound thinking. A critically-thought out answer made inferences and assumptions about the text, connections between characters and plot, and insights into theme. Basic answers were factual and were grounded within the story only, with little evidence of profound, personal reflection and thinking; basic answers demonstrated only superficial comprehension.

Both the control group and the critical thinking target group completed the same post reading assessment quiz (Appendix B). The quiz was comprised of four questions with each question designed to prompt the student to thinking critically while providing textual evidence for their thinking. I modified the critical thinking scale to a range to account for the multiple questions—a total of 4 questions with each question being scored a 1 (basic thinking) or 2 (critical thinking). So a student could potentially score in a range of 0 to 8; a score of 0 to 4 indicates basic thinking while a score from 5 to 8 indicates critical thinking.

Item Analysis

The results of the research are as follows: the control group, which received no critical thinking strategy instruction, had 66% of students show evidence of critical thinking on the post-reading quiz (Appendix B). The target group, which received explicit instruction and practice in an inferencing critical thinking strategy, had 79% of students show evidence of critical thinking on the post-reading quiz (Appendix B).

Demographically in the control group, considering female students, 86% demonstrated critical thinking while 14% showed basic thinking. Considering male students, 50% demonstrated critical thinking while an equal 50% showed basic thinking. Analyzing test scores by race reveals that 100% of Hmong students demonstrated evidence of critical thinking; the lone African-American student also demonstrated evidence of critical thinking. Of the Caucasian students, 58% of students demonstrated evidence of critical thinking while 42% showed basic thinking.

Demographically in the target group which received explicit strategy instruction and practice, considering the female students, 100% demonstrated critical thinking. Considering male students, 71% demonstrated critical thinking while an equal 29% showed basic thinking. Analyzing test scores by race reveals that 100% of Hmong students demonstrated evidence of critical thinking; the lone African-American student also demonstrated evidence of critical thinking. The single Hispanic student showed basic thinking, therefore 0% of the Hispanic class population demonstrated critical thinking. Of the Caucasian students, 79% of students demonstrated evidence of critical thinking while 21% showed basic thinking. Of the five students carrying a learning disabled label, 40% demonstrated critical thinking while 60% showed basic thinking.

Chapter V: Discussion

A review of current literature reveals that high school students today are struggling to develop the critical thinking skills they need to become successful college students, and ultimately, successful employees and citizens. The common denominator for this lack of critical thinking skills is surprisingly simple—in many high schools, strategies are not taught. Yet there is a body of current literature asserting how essential critical thinking strategy instruction truly is.

The ability to think critically does not "happen" as a result of growth or maturation. Current literature reveals that as students approach adolescence, they develop the ability to use metacognition, or the ability to think about their own thinking; it's logical at this point to focus on developing critical thinking skills. High school classes provide an ideal opportunity for students to learn and practice critical thinking skills.

Experts in the critical thinking field recommend explicit instruction in, and frequent practice with, critical thinking strategies. Essentially, high school students need a "toolbox" of critical thinking skills from which they can choose a strategy to apply to a particular quandary or question. For example, if a student is trying to ascertain why a character in a novel is acting a certain way, an inferencing strategy that assists students in drawing conclusions and reading between the lines might be the most appropriate tool to apply. If a student is being asked to evaluate and defend the worthiness of a novel, the student will necessarily have to apply a variety of critical thinking strategies to this task—a student will have to examine their own thinking, return to the novel for evidence that supports their thinking, and utilize an appropriate format (written, oral) to communicate their thinking.

Because of the hierarchical nature of critical thinking skills, experts agree that a scaffolded, recursive process is the best approach to strategy instruction. Students can easily ask questions of a text or author; for example, why does a character act a certain way, or why might an author establish a certain setting. Sequentially, it also makes sense to advance from questioning to inferencing strategy

instruction, teaching students how to draw conclusions and read between the lines; these strategies build on each other. At the same time that new strategy instruction is taking place, however, previous strategies should also continue to be practiced. Even though analyzing a text, breaking it down to figure out how and why it is constructed, is higher on the critical thinking echelon, a less rigorous strategy like questioning can recursively play a role in helping a student analyze. While scaffolding is the best approach, it is also necessary to continuously revisit previous strategies.

The research conducted to test the hypothesis that current literature proposes—students will be better able to demonstrate critical thinking after having received specific critical thinking instruction—was affirmed through analysis of student performance. In a high school English setting, a control group of sophomores, who did not receive explicit instruction in a critical thinking strategy, did not perform as well in a post reading assessment quiz (Appendix B); those students who received instruction and practice in an inferencing critical thinking strategy outperformed those who did not. Therefore, research and current literature support the need for explicit instruction in, and practice of, critical thinking strategies in the high school setting.

Limitations

Experts continue to disagree on "best practice" approaches to critical thinking instruction. Therefore, a limitation of this study is the fact that this is only a single strategy among many that could be employed. Other limitations include the clientele being studied and their personal motivation to participate in the activities. Both the control group and the target group have several more students than I was able to include in this research, as their parents did not sign the permission slip to participate in research. Another potential limitation is the assessment tool being used for data collection; since the questions students answer are open-ended, there is room for subjectivity on the part of the assessor. That said, I opted for an open-ended tool versus a multiple-choice/right vs. wrong assessment because these tools create the impression that when thinking critically about literature, answers are either right

or wrong without grey area. The beauty of reading and discussing literature is the opportunity to explore "grey" areas and analyze the novel subjectively as we apply the novel to life in general. Another limitation to this study is the relatively small sample size of students, as well as the lack of measures of reliability or validity.

Conclusions

High school students will clearly benefit from curricula steeped in critical thinking strategies and practice. As current literature suggests, students who master the ability to think critically and insightfully will perform better academically in their current high school setting, and will also be better prepared for the rigors and enhanced academic expectations in college. For the most part, students don't live in a multiple choice/true-false world. As the dynamics of a global economy continue to evolve and change, to compete with their peers around the world for jobs and resources, American students need to be able to creatively think and problem solve. Solving any problem creatively, offering unique insights for potential solutions, demands the ability to be able to think critically; it also requires that students have confidence in their ability to do so. Therefore, high school students need frequent and repeated exposure to critical thinking practices.

Recommendations

The exploration of current literature and the results of my research have prompted immediate changes in how I teach my high school English classes. My experiences support that mere content coverage, at the sacrifice of any real thinking and learning, is not best practice. Yes, there is literature and skills that need to be taught; it's not the content, but *how* it is taught, that is really important. As an English Department, we are developing a plan and redesigning curriculum to ensure that all freshmen students, as soon as the school year begins, receive intensive instruction in and practice with critical thinking strategies. We are also working with the History Department to design critical thinking based cross-curricular activities that will make clear to students that critical thinking is not the exclusive

realm of an English course, but rather, critical thinking is applicable to, and essential in, all disciplines. My focus on critical thinking—first examining what current experts had to say and then learning how to apply it to my own classroom—has revolutionized how I teach. Teaching students *how* to think is a much more important goal than merely teaching them *what* to think; after all, a trained parrot can spit back facts as easily as a student who memorized facts for a test. As a professional educator, my goal is to ensure that I remain knowledgeable in critical thinking strategy instruction and approaches, so I am able to help equip my students with the skills they will need for their future success. And finally, I am a parent of three young children; my knowledge about critical thinking skills has changed how a parent. I vow never again to clench my teeth in annoyance when I'm asked for the hundredth time why the sky is blue; instead, I've challenged myself to return that question to my children, and help them explore the *hows* and *whys*, not just the *whats* of the world around them.

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Appendix A: *Critical Thinking Strategy Student Guide to Inferencing*

<u>Snow Falling on Cedars</u>: Chapters 5 – 8: Critical Thinking Strategy - Inferencing

The book says…	**I think…**	**…and so I can guess that….**
p.54 "There'd been a darkness of the war in Carl Heine…"		
p. 75 "In the back of Judge Lew Fielding's courtroom sat twenty-four islanders of Japanese ancestry…no law compelled them to take only these rear seats. They had done so because San Piedro required it of them without calling it a law."		
p.93 "Hatsue settled into missing her husband and learned the art of waiting over an extended period of time—a deliberately controlled hysteria that was something like what Ishmael Chambers felt watching her in the courtroom."		
p.121 "'You're the man of the house, you wear the pants, go ahead and sell our property to a Jap and see what comes of it.'"		
p.133. Etta…said to her son what she had to say: take the fishing rod back to the Japs, they owed them money, the rod confused that…the boy had looked at her. Hurt and trying to hide it…the look of the defeated—his father's look—big, plodding strawberry farmer."		
p. 133 "An on account of that [money], she told the court, her son had been murdered by Kabuo Miyamoto."		

Appendix B: *Post-Critical Thinking Guide Questions*

<u>Snow Falling on Cedars: Analysis Quiz Chapters 5-8</u>

Demonstrating your understanding of the novel thus far and supporting your answers with evidence from the story, record and explain your thinking from this portion of the novel. Remember, it is essential to support your thinking with *evidence* (that's code for quotes!) from the reading. You may use both the novel and any other notes you made while reading.

1) Supporting your answer with evidence from the story, record and explain at least one (feel free to include more than one) connection you made while reading (be clear – remember the "how is this story my story" focus). Consider text to text, text to self, and text to world connections.

2) Supporting your answer with evidence from the story, record and explain a "fat question" you asked yourself while reading (recall the difference between fat and skinny questions).

3) Supporting your answer with evidence from the story, record and explain an inference you made while reading; be certain that the inference you choose provided depth and additional insight for you as you read, versus a superficial type of inference.

4) Supporting your answer with evidence from the story, identify and analyze the motivation of the protagonist…be certain to consider his dynamic evolution over the course of the story (yes, there is more than one potential protagonist).