CRITICAL THINKING IN SECONDARY LANGUAGE ARTS: TEACHER PERCEPTIONS AND RELEVANT STRATEGIES

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Teacher Perceptions and Relevant Strategies

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ABSTRACT

The purpose of this research was to examine the effectiveness of the dialectical journal as a tool for teaching critical thinking skills, and to assess middle school teachers' perception of critical thinking. Two groups of middle school students were split into one control and one experimental group. Both groups took a critical thinking test before the experimental group alone was instructed on how to use the dialectical journal. Both groups took another critical thinking test after this instruction. For the second part of the research, middle school teachers responded to survey questions and statement. They responded with written statements and checked boxes to indicate their perceptions of critical thinking. Results demonstrate that after two weeks of instruction, the experimental group performed poorer than it did in the pretest group. Similarly, the control group performed poorer than it did in the pretest with the difference being that the control group never received any instruction on how to use the dialectical journal. Results also showed that majority of the teachers surveyed have perceptions of critical thinking that are favorable and accurate by

virtue of their consistency with research. Results show that the dialectical journal is ineffective as a tool for teaching critical thinking, but a few threats to validity make this result inconclusive and therefore a pilot research. Additionally, since teachers have favorable perception of critical thinking, they are willing to learn more about it and to teach it. More research should be done regarding the use of dialectical journal and the research should take timing and the duration of the research into consideration. To help their students think critically using tools such as the dialectical journal, teachers should consider doing so flexibly and incrementally.

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When my baby Victoria was born two years ago, we were inseparable as I took her to the library and to almost everywhere else on campus, but in the last year, we have spent less and less time together due to the demands of school work. I want her to know that all that time was an investment for us and that daddy will always be there!

No lexicon has the words I need to express my gratitude to my wife, Olivia for her unsurpassable support and belief in me! I love you baby! Last, but not the least I give thanks to God to whom I owe everything! Ad Majorem Dei Gloriam!

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Increasingly, it has become conventional for individual and corporate entities, politicians, and the media to blur or twist facts for personal, political, or corporate gains, often to the detriment of gullible and unsuspecting Americans. In the face of this reality, unsuspecting Americans have become pawns in agendas hardly designed for their benefits. Meanwhile, the blurring of facts manifests itself in various forms, including the manipulation of pictures and stories, and the blatant masquerading of opinions, biases, and stereotypes as facts. As a result, it is crucial for schools to help students develop critical thinking skills assisting them in becoming informed consumers of information.

In accordance with this imperative, the Indiana Department of Education is explicit in its rationale for Indiana K-12 students, which is to provide students with the skills and knowledge to, "make reasoned decisions about their lives and contribute to their family, community, and nation" (Indiana Department of Education, IDOE, 2010, p. 1). Therefore, the purpose of this research is to affirm this rationale by defining critical thinking, determining what the teaching of critical thinking skills looks like in secondary schools, examining teachers' current perceptions of critical thinking, and exploring an effective teaching strategy to implement it in a secondary language arts classroom.

To achieve this purpose, this research will examine the different dimensions of critical thinking, and highlight their importance and relevance to the classroom. Four dimensions of critical thinking can be applied to education, including: interrogate multiple viewpoints, disrupt the commonplace, focus on sociopolitical issues, and promote social justice through action (Lewinson, Flint, & Sluys, 2002). Additionally, Beck (2005) defines critical literacy as the

"attitude towards texts and discourse that questions the social, political, and economic conditions under which the texts were constructed" (p. 392). This research will focus on determining current perceptions of critical thinking and relevant instructional strategies in secondary language arts classes.

Research Question

Critical thinking is considered an important skill for students to learn and use. Students who develop and use critical thinking become more involved in their communities. For this purpose, it is important that schools form students who are critical thinkers, and that teachers facilitate the process. But, teachers cannot facilitate critical thinking if their perception of critical thinking is inapt. In order to ascertain what teachers know, and to establish the effectiveness of dialectical journal as a critical thinking tool this research uses middle school teachers and students to garner answers to the following questions: What do middle school teachers perceive critical thinking to be? Are teachers teaching critical thinking skills? Do dialectical journals help students increase critical thinking skills?

Literature Review

Though the term critical thinking was not used until 1941, the idea dates as far back as 2500 years ago with Socrates laying the foundation for finding evidence, analytical examination of basic concepts and assumptions, and determining cause and effect of speech and actions (Cosgrove, 2009; Paul, Elder, & Bartell, 1997). Socrates began the tradition of critical thinking as reflectively questioning common beliefs and expectations, and separating beliefs that are reasonable and logical from those that lack evidence or rational foundation (Cosgrove, 2009). With strong roots in philosophical history, critical thinking has been shaped by some of the brightest minds in the field for over two millenniums. Socrates picked up the gauntlet of critical

thinking and others, such as Plato and Aristotle, followed. Plato and Aristotle advocated cultivation of the intellect. People with cultivated intellects recognize the difference between reality and illusions of reality (Paul, Elder, & Bartell, 1997).

In Medieval times, Thomas Aquinas drew attention to the need for both the development and interrogation of critical thought, and at the beginning of the enlightenment era Descartes wrote the *Rules for the Direction of the Mind* which is essentially a guide for thinking and studying (Paul, Elder, & Bartell, 1997). While most studies recognize the historical influences of philosophy on critical thinking, many studies trace the development of critical thinking to the beginning of last century with the works of Dewey. This is perhaps because of his centrality in American education.

Dewey's work is central not only to American education, but also to critical thinking. For example, Dewey proffers that the "processes of instruction are unified in the degree in which they center on the production of good habits of thinking" (as cited in Kennedy, Fisher, & Ennis, 1991, p.11). Dewey maintains that the curriculum should be built on reflective thinking, a position reinforced by Russell Bertrand (Hare, 1999). Though Bertrand mostly uses such terms as critical habit of mind, critical attitude, and critical judgment, he emphasizes that by necessity education should provide students with lessons that build good habits of thinking (Cosgrove, 2009; Hare, 1999; Kennedy, Fisher, & Ennis, 1991).

Such training should also provide students with the skills of inquiry (Hare, 1999). Students should be able to question their teachers' instructions or their communities' accepted norms. This argument is consistent with Freire's critical pedagogy which focuses on word-level reading skills while investigating the world (Cervetti, Pardales, & Damico, 2001).

In spite of the consistencies that exist between the writings of Freire, Russell, Dewey, and several other critical thinking educators and philosophers, semantic and terminological differences exist. For example, critical pedagogy perceives society as an unequal balance of power between the powerful and the weak (Kennedy, Fisher, & Ennis, 1991). For this reason, it identifies with the weak and seeks to use education as a means of ensuring social justice. However, the primary concern for critical thinking is that everyone in society backs his decisions with facts. This distinction explains why some studies classify Freire's work as critical pedagogy and the work of Dewey as critical thinking, and so each group has authors they favor, a specific audience as a focus, and promotes the term critical as an important goal of education. (Burbules & Berk, 1999). As a result of the many terms used by the aforementioned philosophers, the definition is just as varied.

Definition

With the abundance of literature available on critical thinking, there are many different definitions of critical thinking. The variety of definitions makes it difficult to implement critical thinking in classrooms (Wright, 2002). Not only do different definitions cause trouble, but so does the plethora of terms describing critical thinking. Critical thinking can be referred to as critical attitude, higher cognitive skills, reasoning skills, reflective thinking, critical habit, and critical literacy (Cervetti, Pardales, & Damico, 2001; Hare, 1999; Kennedy, Fisher, & Ennis, 1991). Willingham (2008) suggests that critical thinking revolves around looking at issues from different viewpoints, allowing evidence to change opinions, and expecting evidence to back up claims. Bloom's Taxonomy's upper levels objectives (analysis, synthesis, and evaluation) are sometimes offered as a definition for critical thinking (Ennis, 1993). For the purposes of this review, critical thinking will be defined as reflective, rational, inquisitive thinking with skills to

recognize multiple view points, and to critique texts and society in order to gain a better understanding of the world (Delaney, 2007; Ennis, 1989; Serafini, 2007).

In lieu of the abundant writing that has been done on critical thinking and critical pedagogy, some of which are contentious, this review does not attempt to cover all literatures on critical thinking. Instead, this review focuses on what is a common ground for critical thinking, critical pedagogy, critical social theory, critical literacy, critical judgment, reasoning, reflective thinking, critical habit, critical attitude, and higher cognitive skills (Cervetti, Pardales, & Damico, 2001; Hare, 1999; Kennedy, Fisher, & Ennis, 1991). Various researchers agree on three central points (Burbules & Berk, 1999; Cosgrove, 2009; Kennedy, Fisher, & Ennis, 1991). First, evidence points to inadequate thinking abilities of American students. Second, an informed and discerning electorate is critical for a healthy democratic society. Third, educators need to equip students with skills to base their actions and decisions on facts as opposed to biases and falsifications.

On the one hand, these common grounds highlight the importance and the need for teacher's responsibilities to form students who are both informed and critical minded. On the other hand, given how peoples' multifarious educational, social and cultural backgrounds shape their perspectives and perception, not all teachers may implement critical thinking in the classroom. For those who do, not all may teach or implement it in the same way because of differences in perceptions. This implies that not all students will learn critical thinking in the same way. Therefore, just as it is important for teachers to establish how their students best learn, so it is for teachers to determine how best to implement critical thinking or which critical thinking tools are most effective in their classrooms.

Current Perceptions

Critical thinking in education has been a hot topic since the late 1970s. Despite the focus of this research on the common grounds for critical thinking, this research acknowledges the variety of critical thinking perceptions that teachers may have. These perceptions are significant because they impact teachers' attitudes in the classroom (Choy and Cheah, 2009). In other words, teachers who have an apt and positive perception of critical thinking, and feel equipped to incorporate it in their instruction may actually do so because they believe that critical thinking will help students learn, and by so doing it will lead to positive outcomes (Choy and Cheah, 2009).

In turn, teachers' attitudes and stereotypes play a large part in teaching critical thinking skills to students of all levels of ability and socioeconomic status (SES) (Aronson, 2004; Bronson, 2004). Many teachers feel that low advantage students are not ready for high level critical thinking skills and end up teaching "down" to them (Torff, 2006). High- and low-advantaged students are determined by a combination of academic achievement levels and SES (Torff, 2006). Advantage level characteristics include motivation, ability, and prior knowledge. Teachers' attitudes affect these advantage level characteristics. In many cases, teachers treat students who come into a class with low SES or poor academic performance differently than students at the higher levels (Aronson, 2004; Bronson, 2004). Due to stereotyping, teachers fail to challenge low achieving students because teachers do not believe low achieving students can achieve higher levels skills.

Approaches and Strategies

Students need effective instruction in order to develop good thinking skills (Rudd, 2007). In the classroom, critical thinking skills are divided into two different skills, those used in a

general sense and those used for particular subjects (Beyer, 2008). Sequencing, clarifying, predicting, and comparing are four additional critical thinking skills that create proficient readers, writers, and learners. Students who are proficient in reading, writing, and learning have a greater chance of success in the job market. Other critical thinking skills are identified as necessary in specific disciplines, such as history and for participation in a democratic society (Beyer, 2008). These skills include, but are not limited to sourcing, corroborating, drawing conclusions, identifying cause and effect relationships, detecting bias, and identifying point of view (Beyer).

These skills and other critical thinking skills can be taught using different approaches such as infusion, immersion, and the mixed approach (Ennis, 1989). The general method focuses on teaching critical thinking skills as general logic problems. No subject or content is the focus of the instruction. It is simply using logic-like formulas. Infusion focuses on subject-matter focused instruction that encourages students to think critically based on explicit instruction of critical thinking skills. Immersion does the same, although the skills are not taught explicitly. The mixed approach combines the general with either the infusion or immersion methods. Two levels of critical thinking taught in high schools include high and low levels. High level critical thinking skills are those that deal with questioning activities such as debate and the Socratic Method. Low level critical thinking skills are simply drill and lecture (Torff, 2006).

The most useful techniques in teaching thinking skills are repeated practice, and practice over context to ensure transfer of thinking skills (Kaplan, 1992; Beyer, 2008). Steady and methodical application of critical thinking in the classroom improves learning and comprehension. Outside the classroom, critical thinking skills are highly valued by parents and employers. Meanwhile, in order for students to transfer critical thinking skills, they need to

recognize and know that they need to look for the deep structure. A meta-analysis of 40 studies found that the approach of building background knowledge as a part of problem solving was the most effective (Willingham, 2008). This analysis affirms the importance of background knowledge in acquiring critical thinking skills for students.

Background knowledge is also essential for solving critical challenges. Critical challenges help students develop and use critical thinking skills. In order to solve challenges, students need background knowledge for it, a way for judging it, and critical thinking vocabulary and strategies (Wright, 2002). Critical thinking is a mind-set or habit. Students need to approach a challenge, or any problem, with a critical thinking mind-set. To develop this mindset, students must regularly form the habit of making inquiry about their thinking and think about their prior knowledge (Wright, 2002).

The development of critical thinking and inquiry skills is a focus of essential questions (Brown, 2009). As open-ended questions with no specific answers that lead students to be engaged in their learning, essential questions are similar to Bloom's higher level questions. Questions will vary depending on the subject being taught or the concept under investigation. Asking questions is one of the foundational steps dating back to Socrates.

Dialectical journals are critical thinking tools that provide students with frames for responding to texts (Edwards, 1992). The guiding principle of the dialectical journal is that students make meaning of texts through dialoguing with and about the texts. Typically, the journal has two columns: one for the reader's notations, findings, or snippets of text, and one for the reader's responses to those thoughts (Bromley, 1993; Fulwiler, 1987).The main framing questions or phrases include what it says, and what it means, or what it means to me. The journals are not limited to reading, but can be applied to other content areas with some minor

rephrasing of the focus questions. Some of the different types of dialectical journals include: application journal, problem-solution journal, interpretation journal, and character analysis journal (Edwards, 1992). Application and problem-solution journals are useful in science and math classes while interpretation and character analysis journals are more often used in language arts and social studies.

Since dialectical journal is modifiable and applicable to different subjects, teachers find it instrumental for teaching critical thinking. In addition, dialectical journals combine many of the important elements of critical thinking. Some of these elements include questioning, analyzing, and supporting conclusions with textual evidence. Thus properly modified and applied as a tool for practicing critical thinking skills, dialectical journals have the potentiality to produce better readers, thinkers, and learners. Since students do not come to school with the knowhow or the modification or application skills, they would need to be taught through adequate instruction, modeling and practice (Edwards, 1992). Using middle school students and teachers as participants, this research subjects this potentiality and effectiveness to test. In lieu of the relationship between perception and action, this research also explores teachers' perception of critical thinking in order to establish whether or not it impacts their ability to implement critical thinking in their classrooms.

Methodology

This research project is quasi-experimental, quantitative with a pretest and posttest comparative design, using a convenience sampling of teachers for the survey part and students' data for the strategy part. Two objectives were set for this research. The first objective was to test the effectiveness of dialectical journal as a strategy for teaching critical thinking to students

of diverse social economic and cultural backgrounds. The second objective was to determine the perception of critical thinking currently held by middle school teachers.

Participants.

Elkhart, Indiana has two high schools, three middle schools, and several elementary schools. Participants of both parts of this research came from a convenience sample of one of these urban middle schools. The sampling was limited to this school, because at the time of data collection, the school provided better access to basic data and trends regarding the focus of this research. In the interim, the highly diverse student population consisted of 39.8% White, 31.9% Hispanic, 18.8% Black, 8.5% Multi-racial, and 1% Asian or Pacific Islander with 76.2% free and reduced lunch.

Out of this population, six classes of 7th graders were used for one part of this research. The classes were split into two equal groups. One was used as the control group and the other as the experimental group. The make-up of the students was heterogeneous with abilities ranging from below grade level to post-high school. Since students who were in band, orchestra, choir, or Read 180 did not take this particular reading class, they were excluded from the research. For the other part of the research, 45 teachers from the same school were surveyed regarding their perceptions of critical thinking. The sampling of teachers included special education teachers, general education teachers, and teachers of special classes (physical education, family and consumer science, art, and music).

Data Collection.

The teacher survey includes 14 questions, and covered a range of demographic questions such as gender and subjects taught, as well as questions that focus on critical thinking skills (See Appendix A). The survey included six multiple-choice questions, three open-ended questions,

and five statements based on a four point Likert scale ranging from strongly agree to strongly disagree.

After the pretest, students were originally scheduled to use the dialectical journal for five weeks before taking the posttest, but after the wrong test was initially received, it took three weeks to get the correct test. After the administration of the correct test, students only had two weeks to use the dialectical journal as a critical thinking strategy before taking the posttest. Students only had two weeks because the tests, instructions and surveys were originally slated for the five weeks period preceding spring break. The type of journal used was a graphic organizer students filled out as a response to reading. It included sections for title and page number of text responding to, references from text, and personal reflections (See Appendix B).

Procedures.

Approval for this research project was granted by both the middle school administration and the Institutional Review Board for the Protection of Human Subjects (IRB) at Indiana University South Bend. Approval from the building principal was obtained as data was collected from only this one building. All the while, after approval was given, surveys, including study information sheets were distributed to the teachers. A study information sheet with the survey and unsealed white envelopes were distributed in the teachers' mailboxes. A large manila envelope with the word "Surveys" was placed on the counter in front of the mailboxes for collection. The study information sheet explained the purpose of the research and survey, requested willing participation, and indicated that participation is not mandatory and any information gathered would be strictly confidential, and be seen only by the researchers. Directions for returning surveys and contact information for questions or concerns were also included in the study information sheet.

Teachers were given three weeks to complete the surveys at their convenience. Completed surveys were put in white envelopes, sealed, and then placed in the plain manila envelope labeled "Surveys" on the counter in front of staff mailboxes. Surveys were then collected at one week intervals over the three week period. Each time they were collected, the surveys were kept in a locked cabinet accessible only to the researcher. With the analysis completed, the surveys will be kept for three years in the locked cabinet and then shredded.

Prior to learning the strategy both the experimental and control groups took the Cornell Critical Thinking Test (CCTT) as pre-test to determine students' level of critical thinking before instruction. Afterwards, the experimental group was taught how to use the dialectical journal as a critical thinking strategy. The experimental group also received direct instruction while the control group only received direct instruction of critical thinking. In the meantime, as part of direct instruction the experimental group was introduced to vocabulary terms related to critical thinking skills, such as bias, stereotype, and assumptions. The students in the experimental group also used dialectical journals while the students in the control group only completed typical drills and practiced using worksheets. After two weeks of instruction and practice, students in both groups took the CCTT as posttest. The building Literacy Coach administered and scored the posttests in the same way as the pretests. Students' answer sheets for pre and posttests were copied with student's names expunged. Scored tests were coded, and kept in the same locked cabinet as the teachers' surveys.

Data Analysis.

Quantitative survey analyses were completed using a spreadsheet for the Cornel Critical Thinking Tests and the responses to the Likert scale questions. Pretest and posttest scores were posited in the same spreadsheet and were analyzed using SPSS running inferential statistics.

The scores were then subjected to a t-test. Responses to the Likert scale questions were tallied according to strongly agree, agree, disagree, and strongly disagree. Responses to the open-ended questions were analyzed for common threads, consistencies and inconsistencies to determine teachers' current perceptions of critical thinking. Each survey question was also put into a spreadsheet with all relevant information.

Results and Discussion

To establish the effectiveness of the dialectical journal as a critical thinking tool, students' performances in the Cornell Critical Thinking Skills Test were examined. Teachers' responses to survey questions were also examined to determine teachers' perceptions of critical thinking and deduce what impact these perceptions may have on teachers' instructions. Six tables in the body of the research and two in the appendix were used to illustrate the results. Specifically, Table 1 shows the results of the Cornell Critical Thinking Skills Tests including the pretests, posttests and *t*-test. Tables C1 & D1 (see appendix C & D) give a different angle of the same result as Table 1 does. Table 2 outlines teacher demographics. Table 3 shows teachers' responses to six multiple-choice questions, while Tables 4, 5 and 6 depict Teachers' written responses to three open-ended questions. The questions and responses on tables 3, 4, 5 and 6 were designed to measure teachers' perceptions of critical thinking. Each of the six tables in the body of the research is preceded by a paragraph that delineates the results, and followed by another paragraph or more that discuss the results.

Statistically, Table 1 shows two results; first, there are no significant differences between the pretest and posttest scores of both the experimental and control groups. Secondly, the posttest scores of both the control and experimental groups are actually lower than the pretest scores of both groups. Ad interim, the *t*-test shows that in comparison with the standard deviation, $M =$

35.75, *SD* = 6.76of the experimental group, the standard deviation, *M* = 35.65, *SD* = 9.23 of the control group contained a broader divergence of scores on the pretest. Conversely, this divergence is almost non-existent on the pretest when the standard deviation, *M* = 33.54, *SD* = 8.42 of the control group and the standard deviation of the experimental group, *M* = 33.97, *SD* = 8.78 are paired up in contrast.

Table 1

Pre- and post-test scores for control and intervention groups

	Intervention	*N*	*M*	*SD*	*t*	*df*	*p*
Pretest	No	43	35.65	9.23	-.05	74	0.95
	Yes	33	35.75	6.76			
Posttest	No	42	33.54	8.42	-.22	79	0.82
	Yes	39	33.97	8.78			

The lack of significant differences between the pretest and posttest scores of both the experimental and control groups implies that teaching the experimental groups to use dialectical journal did not improve their critical thinking skills. This implication is affirmed by the decline in the posttest scores. Accordingly, the dialectical journal is an ineffectual tool for implementing critical thinking.

In the meantime, Table C1 (see appendix C) revealed a different spectrum of the same results shown in Table 1. Table C1 shows the individual pretest results of the Cornell Critical Thinking Skills for the control group, which consists of 43 students spread out in three classes listed on the Table as groups 1, 3 and 5. In the pretest, made up of 76 questions, 47% of the

students scored 38 points and above, and 65% students scored below 38 points. 38 points represents half of the 76 points for the 76 questions. In the posttest taken by 42 students 33% of the students scored 38 points and above and 67% of the students scored below 38 points. Also, in the posttest, 33% of the students scored more points than they did in the pretest, 56% of the students scored less points and 7% of the students scored the same points.

Next, Table D1 depicts the results for the Critical Thinking Skills Test for the experimental group, which consists of 33 students during the pretest and 39 students during the posttest. The students were spread out in three classes listed on the Table as groups 2, 4 and 6. In the same pretests given to the control group, 42% of the students scored 38 points and above, while 58% of the students scored below 38 points. As in the pretest, 38 points represent half of the 76 points for the 76 questions. In the interim, in the posttest taken by 39 students, 38% of the students scored 38 points and above, 62% of the students scored below 38 points and only 28% of students scored better than they did in the pretest.

In comparison between the control and experimental groups, in the pretest, 42% of the students in the experimental group scored 38 points and above while 47% of the students in the control group scored 38 points and above. In the posttest, 38% of the students in the experimental groups scored 38 points and above, while only 33 % of the students in the control group scored 38 points and above. From this comparison, emerge two correlations between Tables C1 and D1 on the one hand and Table 1 on the other. The first correlation lays in the lack of significant differences between the pretest and posttest scores of both the experimental and control groups. The second correlation lays in the fact that the posttest scores for both groups were lower than their pretest scores. Table C1, notwithstanding shows that the posttest scores of the control group declined by a margin, 10 points larger than the margin of decline of the

experimental group as shown in table D1.

The 10 point margin however insignificant, suggests that the use of dialectical journal is efficacious. The suggestion, nevertheless does not match the implication that emanates from the statistical data on Table 1. What match the statistical data from Table 1 are the threats of validity in the research. One threat of validity is the short duration of instruction and practice in the use of dialectical journal. Teaching students to use the dialectical journal requires more than a single day's or two weeks' presentation especially if the students are part of the majority who come to middle school without critical thinking skills (Edwards, 1992). Thus, for students to fully understand and know how to use the dialectical journal, teachers have to take several steps, but one step at a time. These steps will include introduction, modeling, and repeated practice. After constructing and modeling how to use the journal, teachers ought to give students the opportunity to complete the journal independently or collaboratively. The process of instruction is complete when students are able to construct and complete their own journals. There are different forms and components of dialectical journals. For example, there are the application and the problem-solution journals. Students need more than two weeks to understand the concept, function and the modus operandi of the dialectical journal. In addition, to ensure transfer of thinking skills students need opportunities for repeated practice (Kaplan, 1992; Beyer, 2008). The lack of repeated practice is likely to lead to lack of comprehension and mastery of how to use the dialectical journal or any new skill for that matter. This may explain the decline in the posttest scores.

Another threat to validity that may explain why the experimental group saw a decline in the posttests scores could be the timing of the posttest. First, there were only two week intervals between both pretest and posttest. Secondly, the posttest was given to students two days before

spring break. A short interval between pretest and posttest is likely to adversely affect the posttest. Also, the proximity of the spring break to the test date was likely to have distracted students and thus negatively affect their performance. In lieu of these threats to validity, it seems more apt to conclude that the results of the posttests are inconclusive.

Table 2 shows the demographics of teachers surveyed. Surveys were sent to 45 teachers and only 10 teachers responded. According to the survey, 100% of the teachers who responded are white, and only 20% are male. At the same time 10% of the teachers have 0 – 5 years of experience, 30% have 6 – 10 years experience, 20% of teachers have taught for 11 – 15 years, 20% have been teaching for 16 – 20, and another 20% have 21+ years of teaching experience. Additionally, 50% of the teachers have each a bachelor's degree as their highest level of education, while the other 50% have masters degree as their highest level of education. In addition, 30% of the teachers instruct 7^{th} graders, 30% teach 8^{th} graders and 40% teach both or split classes. Also, 40% teach English, 20% teach social studies, 10% teach Math, 10% teach science, 10% teach industrial technology and 10% instruct physical education.

Table 2

Teacher demographics

Demographic	Number of Participants per Category
Gender	Male 2 (20%) Female 8 (80%)
Years Teaching	0-5 1 (10%) 6-10 3 (30%) 11-15 2 (20%) 16-20 2 (20%) 21+ 2 (20%)
Highest Level of Education	Bachelor of Arts/Science 5 (50%) Master of Arts/Science 5 (50%)
Content Areas	English 4 (40%) Math 1 (10%) Science 1 (10%)
Teaching	P.E. 1 (10%) Industrial Tech 1 (10%) Social Studies 2 (20%)
Grade Currently Teaching	7^{th} Grade 3(30%) 8^{th} Grade 3(30%) Both(split classes/special) 4(40%)

For 10 out of 45 teachers to return their surveys make the return rate of this research only 22%. One the one hand, it appears that 10 teachers are unrepresentative of all the teachers in the middle school. On the other hand, given that the 45 teachers sampled, represent the teaching staff of the middle school, and considering that the 10 teachers who responded to the survey represent over 20% of the teaching staff, the results of the survey delineated and discussed below are considered representative of the population sampled.

Table 3 shows that 90% of the teachers agree that they know a lot about critical thinking while only 10% disagree that they know a lot about critical thinking. 50% of the teachers agree that critical thinking is important while another 50% strongly agree that critical thinking is important. Meanwhile 70% of the teachers agree that they use critical thinking in their classroom, 10% strongly agree, and 20% disagree that they use critical thinking in their classroom. On the same note, 80% of the teachers agree that critical thinking plays an important

role in their classroom, 10% strongly agree, and another 10% disagree that critical thinking plays an important role in their classroom. 50% of the teachers strongly agree that majority of students lack critical thinking skills when they reach middle school, 40% agree and 10% disagree. 60% of the teachers agree that they would be interested in learning more about critical thinking, 20% disagree while another 20% strongly agree.

Table 3

Critical thinking response statements

Statement	*N*	%	SD n/%	D n/%	A n/%	SA n/%
I believe that I know a lot about critical thinking.	10	100	0/0	1/10	9/90	0/0
In my opinion, critical thinking is important.	10	100	0/0	0/0	5/50	5/50
Critical thinking plays an important role in my classroom.	10	100	0/0	2/20	7/70	1/10
I use critical thinking in my classroom.	10	100	0/0	1/10	8/80	1/10
Students lack critical thinking skills when they enter middle school.	10	100	0	1/10	4/40	5/50
I would be interested in learning more about critical thinking.	10	100	0	2/20	6/60	2/20

Note: % represents the % of respondents to the question. SD- strongly disagree, D – disagree, A – agree or SA – strongly agree. n / % corresponds to the number and overall % of participants responding SD, D, A, SA.

Previous research demonstrates that teachers' perception of critical thinking influences their ability to equip students with the skills (Choy and Cheah, 2009). The fact that 50% of teachers agree and another 50% strongly agree that critical thinking is important is only a matter of degree of agreement. It thus follows from research that there is consistency in the fact that

80% out of the 100% of teachers who agree that critical thinking is important also agree that critical thinking plays an important role in their classrooms. This consistency is reinforced by the fact that 70% out of the 100% agree, and an additional 10% strongly agree that they use critical thinking in their classrooms. Conversely, a degree of congruency runs through the results that 10% of teachers disagree that they know a lot about critical thinking; 10% disagree that critical thinking plays an important role in their classrooms; and 20% disagree that they use critical thinking in their classrooms. Given that all the teachers agree that critical thinking is important, the apt conclusion here is that lack of confidence as opposed to perception explains why these teachers do not implement critical thinking in their classrooms.

Furthermore, research abound with evidence that many American students come to school without critical thinking school skills (Burbules & Berk, 1999; Cosgrove, 2009; Kennedy, Fisher, & Ennis, 1991). Research also underscores teachers' responsibilities to imbue students with these skills and the need for teachers to acquaint themselves with new learning strategies, including the dialectical journal. The findings of these researches are echoed by the 50% of teachers who strongly agree, and the 40% of teachers who agree that majority of students lack critical thinking skills when they reach middle school. These findings are further reinforced by the 80% of teachers who agree that they would be interested in learning more about critical thinking.

Out of the teachers who responded to the general survey, 90% responded to the first of the three open-ended questions. 11% of the teachers who responded delineated critical thinking as "thinking critically", another 11% described critical thinking as having to do with reflection and inquiry. 11 % also depicted critical as a process that requires the subject to distinguish facts from opinion. Meanwhile, 11% of teachers described critical thinking as the

ability to problem-solve. Cumulatively, 77% of teachers also describe critical thinking as the ability to analyze, evaluate, and use higher order thinking to problem-solve or elucidate data.

Table 4

Teacher qualitative survey: perception of critical thinking

Question 1	Answers
From your perspective, critical thinking is…	"Being able to get meaning from information and then being able to analyze that information."
	"Thinking critically."
	"The ability to analyze information and draw a conclusion from the information at a given time."
	"I feel that critical thinking is the student's ability to solve or the ability to come up with a way to solve a problem even if the student has no idea at first "Thinking outside the box" or problem solving skills is what I would relate to it the most."
	"Using higher level thinking skills to solve problems or interpret data."
	"Critical thinking involves teaching students higher order thinking skills. It includes things like inquiry, reflection, and the consideration of alternative answers to a problem."
	"Critical thinking/reading involves a careful evaluation of text to ascertain its validity and reliability. It requires the thinker to separate fact from opinion, understand faulty thinking and propaganda techniques as well as adequate assessment of the source."
	"Critical thinking is being able to identify and evaluate evidence in order to make decisions.""Thinking about the way you are thinking. Analyzing a problem or situation – breaking it down into steps – making it easier to solve or work through – observing, evaluating, evaluating, judging. Looking for patterns and making connections."

The descriptions of critical thinking as the ability to analyze, make inference, evaluate, and use higher order thinking to problem-solve or elucidate data are consistent with Bloom's Taxonomy upper levels objectives of analysis, synthesis, and evaluations. Research shows that these upper level objectives are sometimes offered as definitions of critical thinking (Ennis, 1993). Conjointly, the responses that explain critical thinking as ability to make inference are consistent with the research that shows that critical thinking skills include ability to draw conclusions and detect bias (Beyer, 2008). Though 77% of teachers shared these perspectives of critical thinking, only 66% of teachers actually gave more than one, and therefore a more comprehensive or more complete perspective of critical thinking. For the time being, various definitions of critical thinking in research have incorporated various elements such as ability to problem-solve and make critical judgment, a habit of inquiry and reflection, and ability to distinguish between facts and façade (Edwards, 1992, Hare, 1999 & Paul, Elder & Bartell, 1997). All of these elements of critical thinking are reflected in the varied incomplete responses that represent 11% of the overall responses. These incomplete responses would seem consistent with the 10% of teachers who in Table 1 disagreed that they knew a lot about critical thinking. These incomplete responses appear to mirror the research finding that the varied definitions of critical thinking make it difficult to implement critical thinking (Wright, 2002).

As it was with the first open-ended question, only 90% of the teachers who participated in this survey responded to question number two. 33% of teachers, who responded, stated that the main problem students face when these teachers try to teach them critical thinking is lack of prior knowledge. 56% of teachers cited laziness, recalcitrance, lack of motivation, and 11% of teachers believe that students refuse to think for themselves because teachers have often

mollycoddled them. Meanwhile, 44% of the teachers who responded propounded that students either lack comprehension or the ability to comprehend. These teachers perceive comprehension as prerequisite for doing critical thinking.

Table 5

teacher qualitative survey: perception of critical thinking

Question 2	Answers
What are the problems faced by students when you are trying to teach them critical thinking?	"Limited background knowledge. Lack of motivation and experience. Low reading ability."
	"They simply have not learned (mastered) the skills it takes to do critical thinking on a story. It is not a skill(s) used very often in the elementary."
	"Don't understand the text at the literal comprehension level. Students don't want to take the effort to "read between the lines and do work that doesn't have a right/wrong answer. Limited vocabulary to understand nuances of connotations."
	"The skills can't be taught in isolation. They should be a natural part of the class content. Many of my students don't seem prepared to think critically. They want to memorize information and regurgitate in an objective test."
	"They don't want to go past basic comprehension and recall. To analyze or synthesize is not easy."
	"Students are handed too many things. They refuse to do things for themselves and always expect someone else to do it for they don't understand." "Laziness, lack of knowledge on the topic being discussed. Lack of abstract thoughts."
	"They are in comma."
	"Lack of ability to comprehend what they have read. Many students don't have life experiences to draw on."

Research shows that students need background knowledge for critical thinking (Wright, 2002). This point is highlighted by the 33% of teachers who cited lack of prior knowledge as a problem students' encounter in the classroom. This problem is made complex by the laziness, recalcitrance and lack of motivation on the part of students, which 56% of teachers alluded to. Without necessarily making excuses for students, it is easy to deduct why students may not be interested in doing the work of critical thinking if they lack prior knowledge. Though 11% of teachers attribute the lack of motivation to the tradition of spoon-feeding the students, while 44% of teachers ascribe the problem students' encounter while trying to learn critical thinking to lack of comprehension, what these responses really represent are the challenges that teachers must confront or overcome to facilitate critical thinking, reflective thinking, and inquiry. Critical thinking must constitute the foundation of any education, which is a matter of social justice (Hare, 1999 & Kennedy, Fisher, & Ennis, 1991).

Out of the 10 teachers who responded to the survey, only 50% responded to the third and last question. Out of these, 20% indicated that for them to teach critical thinking students need to first possess the capacity to think. 40% stated that they would need more information on critical thinking to enable them comfortably teach critical thinking. 20% of these teachers currently teach critical thinking and intend to continue to so. Though another 20% of teachers also currently teach critical thinking, they also admit that more could be done.

Table 6

Teacher qualitative survey: perception of critical thinking

Question 3	Answers
If you are not currently teaching critical thinking, would you feel comfortable doing so? Why or why not?	"No, students first need common sense."
	"I wouldn't mind it but would need more information on what exactly to be teaching."
	"I currently use it and will continue pushing students to try."
	"I would like more information about how to best enhance students' critical thinking skills. I am not entirely confident in my own knowledge base."
	"I am, but not to the degree I'd like. Teaching critical thinking requires extra work as it is rarely addressed. It takes time. We are currently racing through instruction of multiple objectives. With our country in such logical fallacies turmoil, it's critical we do the this. Again, it takes time to find current examples. The stakes however are high."

The 20% of responses to the third open-ended question appear to reflect the teacher attitude and stereotypes that prior research has established as detrimental to the teaching of critical thinking because teachers with this attitude tend to excuse rather than challenge their low performing students (Torff, 2006). The perception that for teachers to teach critical thinking, students first need to possess the capacity to think is inapt on two counts. First, it dismisses the possible presence of problems such as lack of prior knowledge or experience which 33% of

teachers attested to in responses to question 2. Second, it is contrary to research consensuses that critical thinking is cultivated, hence the terms, critical habit of mind and critical attitude (Cosgrove, 2009 & Harem 1999). Though research support that there are students who could be averse to thinking in particular ways, research has also established that the number of students who are inherently incapable of thinking are at best very minimal (Edwards, 1991).

Meanwhile, there is a concurrence between the 40% of teachers, who need more information before they can comfortably teach critical thinking and the 20% of teachers, who currently teach and intend to continue teaching critical thinking. This concurrence also includes the 20% of teachers who currently teach critical thinking but admit that more could be done. The concordance lay in their flexibility deemed by research to be pertinent for helping students acquire critical thinking skills (as cited in Choy & Cheah, 2009). It would seem that these teachers know the difference between the use of instructional strategies or tools like dialectical journal to measure whether students are thinking critically or to actually help students think critically(Edwards, 1991). If they do, they would realize that the primary use of the dialectical should be to help students think critically. This knowledge is likely to shape the perception or disposition of teachers to learn more about critical thinking so they can better implement it in their classrooms. This perception and disposition are consistent with the research finding that in spite of such problems as lack of prior knowledge or the perception that certain students are incapable of engaging in critical thinking, teachers can use a variety of tools like the dialectical journal to teach students to develop good thinking skills. (Ruud, 2007,) If students lack critical thinking skills when they enter middle school as 90% of the teachers who participated in this research survey indicate, it would mean that teachers ought to begin teaching critical teaching in middle school from basic or introductory level to the complex level in a gradual incremental

fashion (Edwards, 1991). The dialectical journal is designed to be used this way, a way consistent with the principles and strategies of differentiation that every good teacher uses to accommodate students of varied levels who learn at different pace.

Conclusions

Theoretically, many schools aim to provide their students with critical thinking skills. Against this backdrop the objectives of this research was first, to establish the effectiveness of dialectical journal as a tool for helping students develop critical thinking skills, and second, to examine teachers' perception of critical thinking. Before meeting these objectives, the research traces critical thinking to its roots and establishes a working definition; the reflective, rational, inquisitive thinking with skills to recognize multiple view points, and to critique texts and society in order to gain a better understanding of the world (Delaney, 2007; Ennis, 1989; Serafini, 2007).

To meet the first objective, 82 middle school students were split into two groups, a control group, and an experimental group. The experimental group was taught critical thinking using the dialectical journal with a few opportunities to practice using the dialectical journal, while the control group had their instruction using typical drills and worksheets. Prior to instruction, both groups received a critical thinking test to determine students' current level of critical thinking skills and after the instruction both groups received a similar critical thinking test to determine the impact of the dialectical journal.

Two details emerged from the statistics; there was no significant differences between the pretest and posttest scores of both the experimental and control groups, and the posttests of both groups went down in comparison to their posttests. Based on this result, it sees logical to conclude that the dialectical journal is not an effective tool or strategy to implement critical

thinking skills in the classroom. But there are threats to validity that make it erroneous to draw these conclusions. Students took both the pretest and posttest within a period of two weeks, which means that the experimental group received and practiced using the dialectical for only a two weeks period. Research indicates that the dialectical journal has different parts and types, and the teachers who participated in this survey concur that students come to middle school without critical thinking skills (Edwards, 1991). So, students would have needed more than two weeks to be introduced, become familiar, sufficiently practice and become proficient with the use of the dialectical journal. Proficiency would have validated any result results. This does not however mean that the lack of proficiency invalidate this research. Rather, what it means is that this research is a pilot research. In other words, a further research which takes the threats to validity into consideration is recommended.

To meet the second objective of this research, 45 teachers from the same middle school were surveyed, but only ten responded. The surveys included 5 statements to which teachers were expected to agree or disagree at varying degrees. The survey also included 3 open ended questions that teachers responded to in writing. The questions were all designed to elicit teachers' perceptions of critical thinking. These perceptions were analyzed based on their consistency or inconsistency with research. In line with this analysis, majority of teachers' responded that critical thinking encompasses information analysis and evaluation, making reasonable inferences, consideration of multiple perspectives, differentiating facts from facades, making inquiry and the use of higher order thinking to solve problems, all of which are consistent with research (Edwards, 1992, Hare, 1999 & Paul, Elder & Bartell, 1997). Most of the teachers also believe that critical thinking is important, plays an important role in their classrooms, and are willing to learn more about critical thinking. Here lies the consistency

between this and previous research which indicate that teachers' perceptions impact their instruction (as cited in Choy and Cheah, 2009).

Finally, this research concurs, but goes a step further to maintain that teachers' dispositions or willingness more than their perceptions impact their instruction. Most of these teachers agree that students come to school without critical thinking skills, lack of prior knowledge and motivation. In lieu of this agreement, disposition or willingness to learn more about critical thinking is more likely to prod teachers to avail themselves of the best practices, strategies and skills including the use of the dialectical journal for helping all students learn to think critically.

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Appendix A

Critical Thinking

What Do You Think?

The purpose of this evaluation is to obtain information on your perception of critical thinking.

What do you think critical thinking is? Do you use it in your classroom? Your answers will help us become more effective teachers.

Please check the applicable boxes for each question:
1. What is your gender? ☐ Male ☐ Female
2. What is your ethnicity? ☐ African American/Black ☐ Asian ☐ Caucasian/White ☐ Hispanic/Latino ☐ Pacific Islander ☐ Other
3. Including the current year, how many years of experience do you have as a teacher? ☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21+
4. What level of degree do you hold? ☐ Bachelor's ☐ Master's ☐ Master's +6 ☐ Master's +12 ☐ Doctorate
5. What grade do you teach? ☐ 7^{th} ☐ 8^{th} ☐ Both (split classes/specials)
6. What subject do you teach? ☐ Math ☐ Science ☐ Social Studies ☐ Language Arts ☐ FACS ☐ Industrial Tech ☐ Health ☐ Art ☐ Music ☐ PE

Over

Please indicate the extent to which you agree with the following statements.	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
7. I believe that I know a lot about critical thinking.	☐	☐	☐	☐
8. In my opinion, critical thinking is important.	☐	☐	☐	☐
9. Critical thinking plays an important role in my classroom.	☐	☐	☐	☐
10. Students lack critical thinking skills when they enter middle school.	☐	☐	☐	☐
11. I would be interested in learning more about critical thinking.	☐	☐	☐	☐

12. From your perspective, what is critical thinking?

13. What are the problems faced by students when you are trying to teach them critical thinking?

14. Do you think you will be able to implement critical thinking if you were required to do so? Why or why not?

Appendix B

Dialectical Journal

Date and Work (title of text)	References from text (quotations, passages, summaries, etc.) Look for: • examples of lives that interact • acts of compassion • cause and effect relationships	Page #s	Personal Reflections Comments and Questions

Appendix C

Table C1

experimental group - cornel critical thinking skills test

Group	Pretest	Posttest
1	55	51
1	38	32
1	32	41
1		24
1	32	32
1	41	44
1	44	49
1	34	31
1	32	30
1	44	35
1	23	30
1	41	35
1	23	25
1	11	22
3	36	33
3	39	34
3	35	26
3	37	45
3	51	49
3	43	41
3	40	41
3	32	33
3	31	25
3	46	45
3	34	30
3	42	27
3	39	21
3	37	35
3	42	33
3	25	21
5	32	38
5	40	30
5	40	39
5	46	46

5	47	
5	24	16
5	31	29
5	26	27
5	30	34
5	50	38
5	25	
5	41	39
5	18	29

Appendix D

Table D1

control group - cornel critical thinking skills test

Group	Pretest	Posttest
2	47	53
2	40	39
2	38	49
2	32	32
2	35	43
2		26
2	28	22
2		30
2	33	33
2		40
2	46	45
2	37	36
2	43	40
4	39	36
4	43	47
4	25	31
4	44	26
4	35	23
4	31	29
4	45	43
4	38	37
4		20
4	38	44
4	23	26
4	29	29
4	33	26
4		39
4	28	35
4		39
6	36	29
6	30	21
6	26	
6	33	43
6		27
6	39	19
6	34	25

6	48	41
6	34	30
6	43	44
6	27	28

Appendix E

NOTICE OF APPROVAL
AMENDMENT
EXEMPT REVIEW
March 30, 2011
TO: Traci Pankratz
COPY: Michelle Bakerson, Education
FROM: Erika Zynda, Contracts & Grants Coodinator
Re: Protocol Entitled: Critical Thinking in Secondary Language Arts
Protocol # 11010 Amendment #: 001
Original Approval Date: February 25, 2011
Amendment Approval Date: March 30, 2011
The IUSB Institutional Review Board (IRB) has reviewed and approved the amendment to the research protocol referenced
above. As the principal investigator of this study you assume the following reporting responsibilities:
AMENDMENTS: Investigators are required to report on these forms ANY changes to the research study (such as design,
procedures, study information sheet/consent form, or subject population, including size). You can find the amendment form at
http://www.iusb.edu/~sbirb/amendment.doc. The new procedure may not be initiated until IRB approval has been given.
AUDIT OR INSPECTION REPORTS: Investigators are required to provide to the IRB a copy of any audit or inspection
reports or findings issued to them by regulatory agencies, cooperative research groups, contract research organizations, the
sponsor, or the funding agency.
COMPLETION: You are required to notify the IRB when your study is completed (data analysis finished). For an exempt
study please send an email explaining that the study is complete to sbirb@iusb.edu/
STUDY INFORMATION SHEET/INFORMED CONSENT : All subjects should be given a copy of the stamped approved
consent document.
We suggest you keep this letter with your copy of the approved protocol. Please refer to the exact project title and protocol
number in any future correspondence with our office. All correspondence must be typed.
Enclosures: Approved Amendment Form
Federal Wide Assurance #FWA00003544-IRB00000222
For additional FWA information, see the Web site at http://www.iupui.edu/~resgrad/spon/fwa.htm
IRB Administration | 574-520-4181 | sbirb@iusb.edu | www.iusb.edu/~sbirb

INDIANA UNIVERSITY SOUTH BEND INSTITUTIONAL REVIEW BOARD (IRB) REVIEW

STUDY AMENDMENT

NOTE: Modifications included in this amendment *may not* be implemented until approval from the IRB is granted.

IRB STUDY NUMBER: 11010
AMENDMENT NUMBER: 001

SECTION I: INVESTIGATOR INFORMATION

Principal Investigator: Pankratz, Traci A. **Department:** Education
(Last, First, Middle Initial)
Address: 657 W. Lexington Ave. Elkhart, IN 46514 Phone: 574-596-5612 E-Mail: tpankratz@elkhart.k12.in.us

Faculty Sponsor: Bakerson, Michelle **Department:** Education
(Last, First, Middle Initial)
Building/Room No.: DW 2242 Phone: 574-520-4391 E-Mail: mbakerso@iusb.edu

Project Title: **Critical Thinking in Secondary Language Arts**

Sponsor/Funding Agency: N/A

SECTION II: AMENDMENT DESCRIPTION

This form must be typed and submitted to: sbirb@iusb.edu with any applicable revised documents.

1. Please provide a complete description of the proposed change(s) included in this amendment:
   I would like to send out a final call e-mail to the staff about the last time to turn in surveys.

2. Please state the justification/rationale for this amendment:
   To increase the number of possible responses.

3. Is the study sponsored by a granting agency or other external entity?
   - ☒ No.
   - ☐ Yes. Check the appropriate line below and provide with this amendment, as applicable:
     - ☐ a copy of the agency's or external entity's amendment.
     - ☐ a copy of your notice to the agency or external entity of this change, if you initiated the amendment.
     - ☐ a copy of the approved amendment will be sent to the agency or external entity.
     - ☐ none of the above apply.

4. Do the proposed change(s) described in this amendment alter the balance of risks and benefits presented to the subjects?
   - ☒ No.
   - ☐ Yes. Please describe how the assessment is altered:

5. Do the proposed change(s) described in this amendment affect any of the following documents?
   - ☐ Authorization
   - ☐ Surveys, questionnaires, etc.
   - ☐ Recruitment materials (advertisements, flyers, scripts, etc.)
   - ☒ Other, Please describe: E-mail sent to staff:

Staff,
The final day to return surveys will be Friday March 25. Please make sure the surveys are placed in the envelope by 3 pm. Thank you for your consideration in this project.

Traci Pankratz

There is no changes to the study information sheet or survey.

Recorded in the Minutes of: _____

NOTE: Any document selected above (i.e. any document that was revised due to the amendment) must be included with the submission of the amendment. Please be sure to highlight or otherwise show revisions to the above documents.

6. Do the proposed change(s) described in this amendment require changes to an informed consent and/or assent document?
   - ☒ No. Informed consent, written documentation of informed consent, and/or assent has been waived for this study.
   - ☐ No. Skip to item 7 below.
   - ☐ Yes. Check the appropriate line below.
     - ☐ The new informed consent and/or assent document(s) are in addition to the current one(s).
     - ☐ The new informed consent and/or assent document(s) replace the current one(s).

     If there are multiple consent and/or documents for this study, please indicate which consent and/or assent document(s) are to be replaced.

     NOTE: Please be sure to highlight or otherwise show revisions to the informed consent document(s).

7. Amendment includes:
   - ☐ Informed Consent and/or Assent, dated:
   - ☐ Recruitment materials, dated:
   - ☒ Other, please describe: **E-mail reminder to staff.**
   - ☐ Surveys, questionnaires, dated:
   - ☐ Authorization, dated:

NOTE: Only include documents that were checked in items 5 and 6 above (as being changed because of the amendment).

NOTE: Listing document dates are optional and only necessary if required by the investigator or sponsor.

Please indicate the type of amendment you are submitting. See Guidelines for Determining an Amendment Type for additional information (http://researchadmin.iu.edu/HumanSubjects/IUPUI/hs_amend_guide.html). **Please note, however, that the IRB makes the final determination with regard to whether or not the amendment is acceptable for expedited review or if it requires review at a convened IRB meeting.**

☒ **Minor Amendment.** Change(s) do not significantly affect the safety of subjects and is acceptable for expedited review per 45 CFR 46.110(b)(2)/21 CFR 56.110(b)(2).

☐ **Major Amendment.** Changes potentially involve increased risks or discomforts or decrease potential benefit. The amendment requires review at a convened IRB meeting.

SECTION III: IRB APPROVAL

This amendment, including documentation noted in item 7 above, has been reviewed and approved as meeting the criteria for IRB approval as outlined in 45 CFR 46.111(a) by the Indiana University HSC. I agree with the investigator's assessment above regarding whether the amendment is a minor or major amendment, unless otherwise noted.

Authorized IRB Signature: Erika Zynda IRB Approval Date: 3/30/11

Recorded in the Minutes of: _____

OTICE OF APPROVAL
EXEMPT REVIEW
DATE: February 25, 2011
TO: Traci Pankratz
COPY: Michelle Bakerson, Education
FROM: Erika Zynda, Contracts & Grants Coodinator
Re: Protocol Entitled: Critical Thinking in Secondary Language Arts
Protocol # 11010
Approval Date: February 25, 2011
The IUSB Institutional Review Board (IRB) has reviewed and approved the research protocol referenced above as exempt;
§46.101b, ¶1&2. As the principal investigator of this study you assume the following reporting responsibilities:
AMENDMENTS: Investigators are required to report on these forms ANY changes to the research study (such as design,
procedures, study information sheet/consent form, or subject population, including size). The new procedure may not be
initiated until IRB approval has been given. An amendment form can be found at
http://www.iusb.edu/~sbirb/amendment.
doc.
AUDIT OR INSPECTION REPORTS: Investigators are required to provide to the IRB a copy of any audit or inspection
reports or findings issued to them by regulatory agencies, cooperative research groups, contract research organizations, the
sponsor, or the funding agency.
COMPLETION: It is your responsibility to let the IRB know when this study is complete by sending an email to sbirb@iusb.edu. Approximately one month before the expiration date we will send a notice to you at the address on your
application requesting information on the current status of your study. If this is a student project and we don't hear from
you, we will send a notice to your faculty sponsor. If we do not receive any response we will consider the study as ended
and change our files to show that. It is your responsibility to let the IRB office know of address changes and project date
changes.
STUDY INFORMATION SHEET/INFORMED CONSENT: All subjects should be given a copy of the stamped approved
study information sheet or informed consent.
We suggest you keep this letter with your copy of the approved protocol. Please refer to the exact project title and protocol
number in any future correspondence with our office. All correspondence must be typed.
Enclosures: Documentation of Review and Approval
Approved Study Information Sheet/Informed Consent - stamped copy must be used
Federal Wide Assurance #FWA00003544-IRB00000222
For additional FWA information, see the Web site at http://www.iupui.edu/~resgrad/spon/fwa.htm
IRB Administration | 574-520-4181 | sbirb@iusb.edu | www.iusb.edu/~sbirb

INDIANA UNIVERSITY SOUTH BEND

NOTICE OF APPROVAL
EXEMPT REVIEW

DATE: February 25, 2011

TO: Traci Pankratz

COPY: Michelle Bakerson, Education

From: Erika Zyndy, Contracts & Grants Coordinator

Re: Protocol Entitled: Critical Thinking in Secondary Language Arts
Protocol # 11010

Approval Date: February 25, 2011

The IUSB Institutional Review Board (IRB) has reviewed and approved the research protocol referenced above as exempt; §46.101b, ¶1&2. As the principal investigator of this study you assume the following reporting responsibilities:

AMENDMENTS: Investigators are required to report on these forms ANY changes to the research study (such as design, procedures, study information sheet/consent form, or subject population, including size). The new procedure may not be initiated until IRB approval has been given. An amendment form can be found at http://www.iusb.edu/~sbirb/amendment.doc.

AUDIT OR INSPECTION REPORTS: Investigators are required to provide to the IRB a copy of any audit or inspection reports or findings issued to them by regulatory agencies, cooperative research groups, contract research organizations, the sponsor, or the funding agency.

COMPLETION: It is your responsibility to let the IRB know when this study is complete by sending an email to sbirb@iusb.edu. Approximately one month before the expiration date we will send a notice to you at the address on your application requesting information on the current status of your study. If this is a student project and we don't hear from you, we will send a notice to your faculty sponsor. If we do not receive any response we will consider the study as ended and change our files to show that. It is your responsibility to let the IRB office know of address changes and project date changes.

STUDY INFORMATION SHEET/INFORMED CONSENT: All subjects should be given a copy of the stamped approved study information sheet or informed consent.

We suggest you keep this letter with your copy of the approved protocol. Please refer to the exact project title and protocol number in any future correspondence with our office. All correspondence must be typed.

Enclosures: Documentation of Review and Approval
Approved Study Information Sheet/Informed Consent - stamped copy must be used

Federal Wide Assurance #FWA00003544-IRB00000222
For additional FWA information, see the Web site at http://www.iupui.edu/~resgrad/spon/fwa.htm

INDIANA UNIVERSITY SOUTH BEND INSTITUTIONAL REVIEW BOARD (IRB) REVIEW

EXEMPT RESEARCH CHECKLIST

IRB Study #: 11010
(IRB Office will assign)

SECTION I: INVESTIGATOR INFORMATION

Principal Investigator: Paukratz, Traci A. **Department:** Education E-Mail: tpaukratz@elkhart.k12.in.us
(Last, First, Middle Initial)

Faculty Sponsor: Dr. Bakerson **Department:** Education
(Last, First, Middle Initial)

Building/Room No.: DW 2242 Phone: 574-520-4391 E-Mail: mbakerso@iusb.edu

Project Title: Critical Thinking in Secondary Language Arts

Sponsor/Funding Agency: N/A

SECTION II: EXEMPT REVIEW DETERMINATION

☑ Accepted. Exempt Category(ies): 1 + 2

☐ Denied. Reason:

Authorized Signature: Erika Bymaster Date: 2/25/11

SECTION III: PERFORMANCE SITE

☐ Indiana University South Bend Campus: state location(s):

☐ Other Indiana University Campus: state location(s):

☒ Other: Collect deidentified data at Pierre Moran Middle School 7th grade reading classrom D147. Review data at home office of Traci Paukratz.

IRB: 2/25/11

Study # 11010

INDIANA UNIVERSITY SOUTH BEND
STUDY INFORMATION SHEET
Critical Thinking in Secondary Language Arts

You are invited to participate in a research study. The purpose of this study is to gather information regarding your perceptions of what critical thinking is and what it looks like in the classroom. This research project is for partial fulfillment of a master's degree.

INFORMATION
If you agree to participate you will be one of 45 teachers asked to complete a survey which contains questions about current teachers' perception of critical thinking skills in middle school. In addition, there are a few questions that ask about your teaching experience. The survey will take approximately 10 minutes to complete. Place surveys in envelope labeled "Place surveys here" on counter when you are done with them.

RISKS
We do not anticipate any risks associated with this study.

BENEFITS
While there are no direct benefits to you, we hope to contribute to the body of knowledge surrounding perceptions of teaching critical thinking in secondary schools.

CONFIDENTIALITY
We are not collecting names on these surveys, but you may be identifiable through the answers to the demographic or short answer questions. We will not make any effort to identify who gave what answers and we will not intentionally use any identifiable information in our reports. The administration will never see the surveys; they will only see our report at the end of the study. If you feel uncomfortable you can simply not complete the survey or you can skip any questions you like.

CONTACT
If you have questions at any time about the study or the procedures, you may contact the researchers Traci Pankratz at tpankrat@iusb.edu or Augustine Enabulele at aenabule@umail.iu.edu. You can also contact Dr. Bakerson the IU South Bend faculty sponsor by phone at 574-520-4391 or by e-mail at mbakerso@iusb.edu.

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the Indiana University South Bend Institutional Review Board for the Protection of Human Research Subjects, 1700 Mishawaka Ave., A247, South Bend, IN 46634, 574-520-4181, by e-mail at sbirb@iusb.edu.

PARTICIPATION
Your participation in this study is voluntary; you may refuse to participate without penalty. You may submit a partially completed or completely blank questionnaire. Since there are no names on the surveys, once they are submitted you will not be able to withdraw from the study. You must be 18 years of age to participate in this study.

Form date: 2/25/2011

IUSB IRB Approved
Approval Date: February 25, 2011
Expires: February 24, 2012