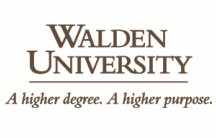

2018

At-Risk Boys' Engagement in the iEngage Model

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
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2018

Abstract

At-Risk Middle School Boys' Engagement

in the iEngage Model

by

Deborah L. Houston

MA, University of South Florida, 1996

BA, University of California at Santa Barbara, 1976

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Learning, Instruction, and Innovation

Walden University

May 2018

Abstract

There is a growing problem with male under-achievement in public education. Boys who are unsuccessful in elementary and middle school are likely to drop out in high school. Engaging at-risk boys could alleviate school dropouts and the resulting consequences. The purpose of this study was to explore at-risk boys' engagement in a middle school model employing collaborative learning, problem-based learning, and technology. The study was framed on the self-determination theory and the idea that competence, autonomy, and relatedness are vital for engagement. A qualitative case study approach was used to explore teachers' views of at-risk boys' engagement. Eleven teachers who implemented the middle school model in a southeastern school district were interviewed individually and then participated in focus group discussions. Interviews and discussion data were coded to identify words and phrases describing engagement and disaffection. Results indicated that collaborative learning was a factor for at-risk boys' disaffection. Problem-based learning and technology use were factors for engagement when implemented with appropriate strategies. These results and the participants' recommendations suggest that individual instruction and coaching during preliminary research are effective supports to put in place before addressing a final project in a problem-based learning project. This study contributed to positive social change in middle school education, benefiting at risk-boys, their families, and communities, by informing current teaching methods and learning environments that are best suited to engage at-risk boys, help them succeed in school, and give them the opportunity to reach their innate potential.

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Dedication

I dedicate this to my mother, Alberta Barton, and my father, James Houston, who always believed I could accomplish anything I wished. I dedicate this also to Cassandra and Courtney, my daughters; I believe you can accomplish anything you wish.

Acknowledgments

I would like to thank my family for their confidence in me. Thank you to my friends and neighbors who listened to my ideas for my dissertation and always asked about my progress. I sincerely thank Dr. Pederson and Dr. Jayasena, who have offered great advice and support.

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Chapter 1: Introduction to the Study

This study explored the engagement of at-risk boys in the iEngage model. The model is used in nine middle schools in a southeastern school district; it features collaborative learning, technology use, and problem-based learning. Boys are considered at-risk when they achieve in the lower quartile on standardized tests and demonstrate low academic skills in the classroom (Peters & Woolley, 2015). At-risk boys struggle with reading, writing, and critical thinking skills. They are often identified as needing special education services because of learning disabilities, behavioral disorders, or cognitive issues (Legewie & DePrete, 2012). They are sometimes diagnosed as having Attention Deficit Disorder (ADD) or ADD with hyperactivity (Ullebo, Posserud, Heiervang, Obel, & Gillberg, 2012). They are at-risk for dropping out of school and poor life outcomes (Peters & Woolley, 2015).

The iEngage model was designed to build skills by immersing students in an engaging environment featuring research-driven best practices. The physical model was constructed to promote collaborative learning through problem-solving and the use of technology. The classrooms are furnished with six semi-circular tables with space for four chairs at each table. There is a large touch screen computer at the end of each table; there are tablets for each individual at the table. The physical set-up and equipment facilitate the use of problem-based learning. The teacher poses a question or topic for consideration. The students work collaboratively at their tables using the technology to research and answer the teacher's challenge. This often involves creating a product together that can be presented to the rest of the class.

This study's focus is on at-risk middle school (sixth, seventh, and eighth-grade) boys in regular education classes that use the iEngage model. The model incorporates elements that have been proven to promote student engagement. Collaborative teamwork is engaging (Burns, Pierson, & Reddy, 2014) as is the use of technology in the classroom (Lui, Horton, Olmanson, & Toprac, 2011), Students are motivated by problem-based learning (Devlin, Feldhaus, & Bentrem, 2013). These three teaching methods have been shown to promote engagement for most students, but how they act on the academic engagement of at-risk boys has not been deeply explored. Middle school at-risk boys have disengaged from school because of their previous failures (Gregory, Allen, Mikami, Hafen, & Pianta, 2014). Because student engagement is a vital part of active learning and is crucial for academic achievement learning (Brozo et al., 2014; Devlin, et al., 2013; Steinberg & McCray, 2012), it is valuable to define the methods and strategies that will engage at-risk boys.

It was important to focus on boys, rather than at-risk students in general, because boys' learning preferences are often different from girls' (Upadyaya & Salmela-Aro, 2013). The traditional school culture is better suited to girls, who are generally better readers and writers (Heyer & Kessels, 2013; Huyge, Van Maele, & Van Houtte, 2015). Boys make up the majority of the lower quartile (Legewie & DePrete, 2012) and are the majority in special education and remedial classes (Johnson & Gooliaf, 2013). At-risk boys report that they don't care about their schoolwork (Donalson & Halsey, 2013; Poothuis, et al., 2015). This disaffection with learning leads to further academic failure (Poothuis, et al., 2015).

This study has the potential to contribute to social change by identifying factors that promote engagement for at-risk boys. Since academic achievement is positively linked to student engagement (Brozo et al., 2014), the first step to closing the achievement gap is to motivate the students to be involved and interested in their own learning (Orthner Jones-Sanpei, Akos, & Rose, 2013). Motivation is an impetus for academic achievement, especially for remedial reading students (Zentall & Lee, 2012). Academic failure and subsequent school dropout have negative consequences for the individual and for society. School dropouts have been linked to health issues and high demand for social services such as welfare, criminal behavior, unemployment, and loss of national income (Peters & Woolley, 2015). The exploration and description regarding how teaching and learning models effect the academic engagement of at-risk boys could offer solutions to engage boys. Engaging at-risk students with learning could positively impact the high school dropout rate (Lamote, Speybroeck, Van Den Noortgate, & Van Damme, 2013).

Chapter 1 is an introduction to this study. The background information in Chapter1 includes a brief summary of the research literature related to this study, a discussion of the gap in the research literature on this topic, and an explanation of why the study is needed. Chapter 1 also includes a statement of the problem, the purpose of the study, the conceptual framework for the study, and the central and related research questions. Additionally, it includes a brief overview of the methodology of the study including the assumptions, limitations, and significance of the study.

Background

This study explored the engagement and motivation of middle school boys who have not been successful in school who are students in iEngage classrooms. There is a positive connection between motivation, self-efficacy, and success (Bircan & Sungur, 2016; Orthner, et al., 2013; Senko, Hulleman, and & Harackiewisz, 2011; Zentall & Lee, 2012). Technology use and participation in problem-based and collaborative learning boosts students' engagement and motivation (Devlin, et al., 2013; Steinberg & McCray, 2012). Social motivation, which is endemic to academic collaboration, has been positively linked to self-efficacy and improved performance (Burns, et al., 2014). Technology use can boost students' interest, engagement, and understanding (Devlin, et al., 2013). Additionally, there is a significant positive relationship between students' motivation scores and their knowledge scores after engaging in problem-based learning (Lesseig, Nelson, Slavit, & Seidel, 2016; Lui, et al., 2011).

This study's focus was on boys because they make up most of the lower quartile and may have different learning needs and preferences than girls (Johnson, & Gooliaff, 2013). There are few studies that target the effect of various teaching methods specifically on at-risk boys' engagement. This study was necessary to address the gap in the literature about how to help at-risk boys succeed in class through the exploration of how collaborative learning, technology use, and problem-based learning act on their engagement.

Problem Statement

There is a growing issue with male underachievement in public education (Legewie & DiPrete, 2012; Robinson & Lubienski, 2011). The problem addressed in this study was the underachievement of at-risk middle school boys. School failure can impact a person's entire life. Those who consistently experience failure, are at-risk for dropping out of school altogether. The lack of a diploma will impact job opportunities and future earning potential. The Program for International Student Assessment (PISA) tests students from over 90 countries in reading and mathematics. PISA data indicate that in the United States, boys outnumber girls by a ratio of 4.5 to 1 in the lowest quartile (Hyde, 2014). The achievement gap is reflected in college attendance rates for males, which have dropped to 22% (National Center for Education Statistics, 2015). Boys are overrepresented in special education and remedial classes; middle school remedial and special education classes are comprised mostly of boys (Legewie & DiPrete, 2012). Boys diagnosed with ADD far outnumber girls (Ullebo, et al., 2012).

The problem of male underachievement is significant for several reasons. Underachieving students are at-risk academically and emotionally because of the negative impact their academic failure has had on their motivation (Poothuis, et al., 2015). There is a snowball effect with failure and loss of motivation (Zentall & Lee, 2012). When failure occurs, students usually reduce their efforts. Boys' focus shifts from gaining competence to avoiding embarrassment in front of their peers (Donalson & Halsey, 2013; Zental & Lee, 2012). This phenomenon is exacerbated in middle school when adolescent students are extremely self-conscious about their peers' perceptions

(Donalson & Halsey, 2013). Engaging disenfranchised students could raise their achievement levels (Connor & Pope, 2013; Orthner, et al., 2013). The traditional classroom in which the student must absorb knowledge through lecture and note-taking is not engaging for students who struggle with reading (Piechura-Couture, Heins, & Tichenor, 2011). At-risk students in this learning environment continue to score in the lowest quartile on standardized tests of academic achievement (Kaiser & Wisniewski, 2012). Middle school is often the turning point for these students (Poothuis, et al., 2015), so understanding how the iEngage model acts on the motivation and engagement of at-risk boys could inform current teaching methods.

Skinner and Chi (2012) found that students' feelings of engagement increased when participating in a hands-on approach to learning Science. Burns, et al. (2014) asserted that effective use of collaborative learning provided social motivation, built self-efficacy, and improved performance. According to Lui, et al. (2011), there was a significant positive relationship between students' scores on motivation scales and their scores on mastery tests after engaging in problem-based learning. Devlin, et al. (2013) studied students who stated that the use of technology boosted their interest, engagement, and understanding. Piechura-Couture, et al. (2011) concluded that classrooms that employed boy-friendly lessons that allow for greater physical movement, elevated noise levels, and direct teacher talk were successful in boosting achievement.

Senko, et al. (2011) concluded that when students are not successful in achieving academic goals, there is a negative effect on their motivation. Students avoid tasks they believe they cannot accomplish. Zentall and Lee (2012) concluded there is a connection

between motivation, self-efficacy, and success and failure negatively impacts motivation. Academic failure prompts the assignment of at-risk students to remedial classes and special education services (Donalson & Halsey, 2012; Legewie & DiPrete, 2012). The assignment to remedial classes can result in further discouragement, embarrassment, and loss of self-efficacy (Zentall & Lee, 2012). There is a considerable body of research that shows a positive increase in learning goals through the use of technology, collaborative learning, and problem-based learning. However, there is very little research that explores how these learning approaches act on the engagement of at-risk middle school boys.

Purpose of the Study

The purpose of this case study was to explore teachers' views regarding how the iEngage model influences the academic engagement of middle school at-risk boys. The research paradigm was qualitative. Qualitative case study data provided rich description of these views. The data were analyzed for patterns and trends that illuminated and explained the factors that were examined in the study. The factors included teaching and learning methodology that were shown to be engaging for most students, but had not been investigated for the specific population of at-risk boys in middle school. Interviews with teachers who facilitate the iEngage model provided rich and meaningful data that explored at-risk boys' engagement in the model.

The phenomenon addressed in this study was engagement as an impetus for academic achievement, especially for at-risk students. Engagement, enthusiasm, and interest are essential if the boys in remedial programs are to achieve academic success (Zentall & Lee, 2012). This exploration of middle school boys' engagement in iEngage

teaching and learning strategies added to the body of knowledge regarding how to meet the needs of boys who achieve in the lower quartile.

Research Questions

These questions were informed by the study purpose and impelled the research method and design.

Central Research Question

RQ1: What are teachers' views of how the iEngage model influences the engagement of at-risk middle school boys?

Sub- Questions

1. What are the views of teachers about how technology use in the iEngage model influences the academic engagement of at-risk boys?

2. What are the opinions of teachers about the way collaborative teamwork in the iEngage model influences the academic engagement of at-risk boys?

3. What do teachers say about how problem-based learning used in the iEngage model influences the academic engagement of at-risk boys?

Conceptual Framework

The SDT was used in this study as a basis for analysis. The SDT posits that academic engagement can be facilitated through social and personal factors including competence (feelings of confidence and perceived control), relatedness (feelings of being welcome and belonging), and autonomy (feelings of self-determination). These factors influence a student's motivation and participation and are important for achievement. Competence, relatedness, and autonomy are vital for effective learning in collaborative

groups (Burns, et al., 2014; Igel & Urquhart, 2012) and for problem-based learning (Balim, et al., 2015; Jaeger & Adair, 2014). Academic engagement is characterized by constructive, emotionally positive, and enthusiastic participation in learning activities (Skinner & Chi, 2012). Engagement, interest, and motivation are vital elements for active learning. Students who are engaged will learn and achieve (Harbour, Evanovich, Sweigart, & Hughes, 2015). The framework of the SDT provided the contextual lens through which the engagement of middle school boys who struggle academically was described by their teachers.

The Self-Determination framework was used to explain the effect garden-based education had upon academic achievement. Garden-based education incorporates collaborative teamwork and problem-based learning. The activities built students' relatedness, competence, and autonomy were a gateway to increased engagement in school (Skinner & Chi, 2012). Moos and Honomp (2011) positively correlated SDT's three basic needs (relatedness, competence, and autonomy) to the use of problem-based and collaborative learning. Environments that meet these three basic needs will engage the learner and foster intrinsic motivation (Moos & Honcomp, 2011). Furtak and Kunter (2012) used the STD framework for the analysis of an autonomy-supported teaching design in which students had control and choice over their topics and the products that demonstrated their learning. The autonomy-supportive classroom teaching was associated with higher achievement, deeper understanding of the topic, and a greater feeling of competence as compared with a more controlling teaching style (Furtak & Kunter, 2012).

The SDT asserts that students begin their school years with a high level of intrinsic motivation. When academic failure occurs, intrinsic motivation changes to extrinsic as well-meaning adults offer rewards and punishments. External motivators generally produce negative outcomes, whereas success promotes intrinsic motivation (Zentall & Lee, 2012). The success which builds intrinsic motivation also builds self-efficacy. The components of the SDT and their effects will be discussed further in Chapter 2.

Nature of the Study

A qualitative design should be used when the study's purpose is to gain a deeper understanding of the participants and to explore an under-researched topic (Benton, Androff, Barr, & Taylor, 2012). A case study design should be used when the research questions focus on a specific topic within a particular setting and context (Robinson, 2014; Yin, 2014). For these reasons, I chose to use a bounded case study design. The case in this study was the practice of using collaborative learning, problem-based learning, and technology to engage and instruct at-risk middle school boys. The bounds included the middle school classrooms in a particular Florida school district. The study explored one issue of concern: the engagement of middle school boys who struggle academically as they participated in the iEngage model. The participants in this study included 11 teachers who instructed in the school district that instituted the iEngage model's technology and teacher training. Two focus groups of teachers, one from each of the two schools, shared their perceptions of the engagement of middle school boys who struggled with academic achievement. Focus group discussion supplemented the input

from 11 individual teacher interviews. Teachers were asked to reflect upon the behavioral engagement, emotional engagement, behavioral disaffection, and emotional disaffection of struggling male learners. Open-ended questions regarding the effect of collaborative learning, problem-based learning, and technology provided the impetus for discussion and reflection.

Data were collected from multiple sources within the site and included individual interviews with teachers, focus group discussions, and the use of a reflective journal. Data were analyzed and synthesized into case-based themes and reported through a detailed description of the case. Validation strategies included interviews and follow-up discussions over a month-long period, member checks, and peer review including external audits.

Definitions

The following research-based definitions are presented because they were fundamental to this study.

Collaboration: Learner-centered instruction in which each team member is responsible for a certain part of the task and must learn to handle conflict and argue constructively. Team members physically work together to complete an overall product (Burns, et al., 2014).

Disaffection: Another work for antagonism, discontent, dissatisfaction, and aversion.

Engagement: Being a constructive, enthusiastic, willing, emotionally positive, and cognitively focused participant in learning activities (Skinner & Chi, 2012).

Intrinsic Motivation: The enjoyment or interest in performing a task that fulfills the needs for competence, autonomy, and relatedness (Liu, et al., 2011).

Motivation: Behavior, task engagement, and performance that is directed by achievement and social goals (Zentall & Lee, 2012).

Problem-Based Learning: Student-centered learning that is research-driven and features hands-on, project-based curriculum that requires students to solve problems (Devlin, et al., 2013).

Technology: Media such as computers, laptop computers, and handheld devices such as iPads (Devlin, et al., 2013).

Assumptions

This study was based on several assumptions. The first was that the teacher-participants in this study facilitated a reasonably high level of collaborative, problem-based learning and incorporate technology use. This assumption was important in order to determine the influence of the combination of the three elements in the iEngage model. The second assumption in this study was that the participants were honest and candid in describing their observations and views of students' engagement. These assumptions were intrinsic to the study's validity and reliability.

Scope and Delimitations

While the aspects of the academic underachievement of middle school at-risk boys are numerous, this study focused solely on their engagement using the iEngage model. Engagement was explored through their teachers' perceptions of the boys' motivation and involvement in classroom activities and tasks. This research study was

limited to teachers assigned to and teaching in technology-enhanced classrooms in the district's middle schools and who were willing to share their perceptions for the purpose of the study.

While the framework chosen for this study supported the purpose of this investigation, it also limited the study. The social learning theory (Bandura, 1963) focuses on the motivation intrinsic to social and collaborative learning and could have been used as a framework for the collaborative learning aspect of this study. However, the social learning theory was not comprehensive enough for all of the elements of instruction that were being investigated. It would not have addressed the boys' engagement using technology and problem-based learning because those elements can be used on an individual basis that would not involve social motivation.

Transferability of the findings from this study is dependent on the context and setting. However, conclusions may inform future research and could provide an impetus to change the teaching and learning approaches for middle school boys. Middle school teachers employing traditional teaching methods using lectures and assignments for individual students may be influenced to try methods that are more engaging for at-risk boys and strategies to help them succeed. The knowledge gained from this study could provide insight into how to help narrow the gender-based achievement gap and revitalize middle school classrooms.

Limitations

In qualitative research there are inherent universal weaknesses including transferability and dependability. There were specific elements of this study's design that

also contributed to limitations. Teachers' views of their students' engagement may have been biased either in favor or against those who struggle academically. The demographics of the schools is another limitation of the results. The two schools chosen for the study had very different student populations. The first school had few minority students and a small percentage students receiving free and reduced lunch (an indication of socio-economic levels). The second had a much higher population of minority students and many students receiving free or reduced lunch. Even with these variations, the results may not be easily generalized on other populations of middle school students. In addition, this study was limited by time (I work full time as a middle school teacher) and financial constraints (tuition for doctoral studies) on the researcher. Another limitation of the study is that it is an overview rather than an in-depth examination, so results could change if a specific content area was examined more closely.

Limitations in this study were minimized by the use of validation strategies. The first strategy was building trust with the participants. In order to build a sense of trust, I was friendly during the interviews, and I was carefully neutral and accepting of all responses. I assured participants of confidentiality and provided transcripts for their approval. The second validation strategy was to triangulate data. Eleven participants having varying areas of teaching specializations and experience served to ensure I included multiple sources of information. Other validation strategies included member checking, in which participants reviewed the credibility of the findings and interpretations, and focus group discussions which served to confirm the initial findings. The use of thick, rich descriptions was augmented by peer review and external audits.

Significance

Middle school success paves the way for success in high school, college and careers (Orthner, et al., 2013). Middle school failure generally indicates that the student is at-risk for dropping out of high school, which has a resounding and devastating effect on the individual's adulthood (Martin, 2013). The study contributes to positive social change by exploring the engagement of middle school boys who are achieving in the bottom quartile and are at-risk for academic failure. Motivation, engagement, enthusiasm, and interest are the foundation for the attitude adjustment that needs to happen if the boys in remedial programs are to achieve academic success (Zentall & Lee, 2012).

Engagement and motivation are the foundation for closing the achievement gap (Harbour, et al., 2015). The significance of a study is determined in relation to advancing knowledge in the field, improving practice in the field, encouraging innovative strategies, and contributing to positive social change. This study will advance the knowledge of at-risk boys' engagement with collaborative learning, technology use, and problem-based learning. In relation to improving practice, the iEngage model focuses on student-led learning rather than on traditional teacher-centered methods (Muir-Herzig, 2003). This study could provide an impetus to change traditional teaching and learning approaches in which students sit quietly and learn mainly from a textbook. Teachers might allow for greater movement and freedom in the classroom, build relevance and choice into their lessons, and create a classroom environment that is engaging for at-risk middle school boys. The combination of technology, social and collaborative learning, and the challenge of problem-based inquiry could alleviate the growing academic disengagement

that many middle school boys are experiencing. Engagement can be the impetus for academic achievement, especially for remedial reading students (Zentall & Lee, 2012). Engagement is essential if boys in remedial programs are to achieve academic success. The study has the potential to promote at-risk boys' success in middle school classes that could reverse the path to dropping out of school. This has implications for the boys and their families. Society would benefit if the dropout rate decreased and the educated workforce increased (Appel & Kronberger, 2012).

Summary

Chapter 1 was an introduction to this qualitative study which used a case study design. The background section included a brief summary of research literature related to student engagement in collaborative learning and the use of technology in problem-based learning. The problem statement focused on the disengagement of middle school boys who struggle with reading. The purpose of this study, as reflected in the central research question, was to describe the engagement of middle school boys in the iEngage model as perceived by their teachers. The conceptual framework was based on the SDT which proposes that engagement can be fostered through social and personal factors. I used a a qualitative case study design to gather thick rich data. The 11 teachers in the iEngage model participated in individual interviews and focus group discussions. Descriptive data concerning at-risk boys' engagement were collected during individual interviews with teachers and in focus group discussions. Data were organized into category-based themes for analysis and evaluation. Findings were reported through a detailed description. Assumptions and limitations were discussed. The significance of this study

was that it contributed to the body knowledge concerning the engagement of at-risk boys, and could influence teaching methods and practice in middle school. The overarching goal of this study is to improve the life outcomes for boys who struggle academically.

In Chapter 2, I provided a comprehensive review of current research and literature relating to the engagement of middle school boys in academic classes. The chapter included the working definition of engagement and an analysis of its elements and factors. The review incorporates analyses of research studies focusing on the engagement of students in relevant learning environments. These environments include classrooms centered on collaborative and social learning in which problem-based learning is facilitated, and feature the use of technology. The review reports on the components of cognitive research which explores gender differences in learning and engagement. Chapter 3 details the research method and procedures used to conduct the study. Chapter 4 presents the results of the research. In Chapter 5, I interpret the findings of the study, including the limitations. Recommendations for future research and the implications for social change are explained.

Chapter 2: Literature Review

The problem addressed in this study is male academic underachievement in public education. Identification and elimination of the factors that contribute to this achievement gap is vital for future economic growth (Appel & Kronberger, 2012). Boys who are at risk for dropping out generally achieve in the lower quartile on standardized tests and experience failure in the classroom. At-risk boys' lower achievement is directly linked to their lack of academic engagement (Heyder & Kessels, 2013; Spinath, Eckert, & Steinmayr, 2014). Failure and frustration cause the boys to disengage from school (Huyge et al., 2015). The purpose of this case study was to explore teachers' views about how the iEngage model influences the academic engagement of middle school at-risk boys. Student engagement is boosted in settings that incorporate collaborative learning (Burns, et al., 2014), technology use (Devlin, et al., 2013), and problem-based learning (Lui, et al., 2011). The iEngage model incorporates all of these elements in a technology-rich setting for students.

There is a large body of research which explores the respective impacts and motivational benefits of collaborative learning, problem-based learning, and technology use on the engagement and academic achievement of middle school students. A significant number of studies address the problem of the gender-based achievement gap and examine gender differences in cognition and learning preferences. Many researchers have tested the effect of a variety of teaching and learning approaches upon boys' engagement. Yet there is a gap in the literature concerning the engagement of this specific population, at-risk boys in middle school. Educators are working to close the

achievement gap (Appel & Kronberger, 2012; Benner, et al., 2013). Middle school is often a pivotal time for students achieving in the lower quartile (DiPrete & Jennings, 2012). Addressing the achievement of middle school boys is significant (DiPrete & Jennings, 2012). Current teaching methodology could benefit from the exploration of at-risk boys' engagement in middle school classrooms designed to promote participation and intrinsic motivation.

The sections in this chapter include a description of the literature search strategy and a detailed description of the SDT, constructivism, and the social learning theory. A thorough literature review concerning the impact of academic failure on struggling learners and student engagement with respect to gender is detailed. Research studies that focused on the benefits and detriments of collaborative learning, technology use, and problem-based learning are discussed. The chapter ends with a summary of the relevant literature.

Literature Search Strategy

In order to obtain literature for this review, a number of library databases and search engines were used to locate articles that were published in peer-reviewed journals within the past five years. A variety of databases were used, including Education Research Complete, ProQuest Central, Academic Search Complete, Education Resource Information Center (ERIC), ProQuest Dissertations & Theses, and Google Scholar. The following key words were used to conduct this search: *academic achievement, at-risk students, boys, cognitive development, cognition, collaborative learning, educational technology, engagement, gender differences in education, gender gap, inquiry-based*

learning, learning, middle school, problem-based learning, SDT, school engagement, teaching methods, technology, and *technology use in education.* Because there was little research on the current iEngage model, searches were made in search engines including Google and Yahoo to make sure the literature had been exhausted. One hundred forty-eight sources are cited in this study; ninety-eight of them are less than five years old.

Conceptual Framework

In this study, engagement was studied and analyzed primarily through the framework of the SDT. The theories of constructivism, experiential learning, and the zone of proximal development are also elemental in the framework for this study. Constructivism promotes the idea that learners build their own knowledge through their experiences and reflection (Brunner, 1968). Constructivism is based on the idea that the purpose of education is to facilitate a student's problem-solving skills rather than to impart knowledge (Brunner, 1966). Kolb (1984) theorized that experiential learning is a process where experiences are transformed into knowledge. The zone of proximal development refers to what the learner can or cannot do without help (Vygotsky, 1978). These theories are reflected in the learning and instructional components in the iEngage model. The implementation of collaborative learning is supported by the zone of proximal development; the positive aspects of problem-based learning are rooted in constructivism and experiential learning. The combined use of these learning strategies can facilitate students' motivation and engagement and is analyzed using the SDT.

Constructivist teaching and learning approaches can facilitate the development of students' comprehension of concepts and their ability to communicate their knowledge

(Ross & Willson, 2012). These approaches include teacher promotion of student independent thinking, the creation of problem-centered lessons, and facilitation of shared meanings (Ross & Willson, 2012). Bruner (1966) conjectured that learning is an active process in which learners make meaning from their experiences and the information that they gather by building on their current knowledge. Students must be active learners and construct knowledge for themselves, yet motivational, cultural, and personal factors such as academic ability and self-efficacy contribute to the learner's proclivity to engage in tasks (Bruner, 1966). Learning becomes meaningful when it is intentionally related to prior knowledge and used to build new knowledge (Rye, Landenberger, & Wallace, 2013). The students' experiences are the center of learning which is an interactive process in which people observe, reflect, develop concepts, and then actively engage in experimentation (Kolb, 1984).

Schuh, Yi-Lung, and Knupp (2013) used the frameworks of constructivism and experiential learning develop a knowledge-linking instrument that would build the vocabulary of middle school students. Schuh, et al. (2013) concluded that although middle school students have a variety of different experiences which serve as a foundation for building knowledge, they use their background knowledge link new information to what they already know. Although the students in the iEngage model have varied levels of achievement, they are able to build on their existing knowledge by participating in activities which are scaffolded to meet their needs.

One principle for the efficacy of collaborative learning is Vygotsky's (1978) theory of the zone of proximal development. The zone of proximal development can be

defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers″ (Vygotsky, 1978, p. 86). Vygotsky’s reasoning is that with guidance, a student can acquire skills that he would struggle with on his own. This guidance may come from the teacher (Pi-Sui, Van Dyke, & Yan, 2015), or the guidance may come from more competent peers (Igel & Urquhart, 2012; Shieh &Wheijen, 2014).

The SDT proposes that academic engagement is characterized by intrinsic motivation. Students are intrinsically motived through psychological requirements including relatedness, in which the student feels a personal connection to and interest in the topic, competence; in which the student feels comfortable and confident in his ability to succeed, and autonomy, which includes freedom, self-determination, and personal choice. These facets of engagement have been shown to contribute to students’ positive self-perceptions and classroom engagement (Jang, Reeve, & Deci, 2010; Skinner & Belmont, 1993).

The SDT evolved from studies that compared extrinsic and intrinsic motivation. Intrinsic motivation comes from within a person and extrinsic motivation comes from outside influences (Deci & Ryan, 2000). Deci and Ryan posited that intrinsic motivation has a dominant role in an individual’s behavior and personality, and they proposed the three intrinsic needs for self-determination: relatedness, competence, and autonomy. The framework of the SDT has been used to explain the effects garden-based education had upon academic achievement (Skinner & Chi, 2012). The researchers concluded that

activities which build students' relatedness, competence, and autonomy were a gateway to increased engagement in school. The framework was also used to examine the effect of Adventure Learning on student motivation in middle school (Moos & Honkomp, 2011). The researchers correlated SDT's three basic needs (autonomy, competence, and relatedness) to the features of the study they conducted. They concluded that environments that meet these three basic needs would engage the learner and foster intrinsic motivation. The SDT was the framework for the analysis of an autonomy-supported teaching design (Furtak & Kunter, 2012). Researchers concluded that autonomy-supportive classroom teaching was associated with higher achievement, deeper understanding, and perceived competence as compared with a more controlling teaching style.

Specific to the SDT are several definitions and statements. Intrinsic motivation comes from within the person and is the defined as inherent interest and desire to seek challenges. Extrinsic motivation comes from forces outside the individual and is exemplified by rewards or the opinions of other people (Ryan & Deci, n.d.). Academic engagement is defined as the constructive, enthusiastic, willing, emotionally positive, and cognitively focused participation in learning activities (Skinner & Chi, 2012). There are three types of engagement: behavioral, emotional, and cognitive. Students participate in learning activities (behavioral engagement), respond positively to the teacher and academic tasks (emotional engagement), and problem-solve (cognitive engagement) (Gregory, et al., 2014). Engagement is demonstrated through time-on-task, effort, and application of higher-order thinking skills (Alexander, 2014).

The current research study benefited from this framework in a number of ways. The SDT posits that engagement facilitates motivation and achievement. This study's purpose is to explore the engagement of at-risk boys with the underlying desire to identify effective means of engaging students and narrowing the achievement gap. Second, the theory breaks the experience of engagement into observable components. The three manifestations of engagement, behavioral, emotional, and cognitive, form the foundation for observation. Further, they provide the structure for data analysis when looking for trends and patterns. Finally, the theory identifies three facets which promote engagement: relatedness, competence, and autonomy. With proper facilitation, these components are intrinsic to the iEngage model.

Analysis of student engagement was facilitated using the behavioral, emotional and cognitive elements which are key to the SDT (Deci & Ryan, 1995, 2000; Ryan & Deci, 2000). Boys' engagement in the iEngage model was described in detail through the teachers' observations of engagement and or disaffection in each of the model's foundational components, technology, collaborative learning, and problem-based learning, which are listed in the related research questions. These related questions included: What are the views of teachers about how technology use in the iEngage influences the academic engagement of at-risk boys?, What are the opinions of teachers about the way collaborative teamwork in the iEngage influences the academic engagement of at-risk boys?, and What do teachers say about how problem-based learning influences the academic engagement of at-risk boys?

The issues addressed in this study are the motivation, academic engagement, and learning preferences of boys who have a history of academic failure. Research has demonstrated that the learning needs of boys in the lower quartile are not always met in a traditional classroom in which the teacher stands in front of the students and lectures (Johnson & Gooliaf, 2013; Lewegie & Deprete, 2012). In the traditional model, students are often directed to read a selection from their textbooks, take notes, and answer the questions at the end of the section. Brozo et al. (2014) found that the traditional model favors girls because they are better readers than boys; girls are more engaged in reading which results in a significant gender difference in achievement. A passive approach to teaching and learning can exacerbate the disengagement of boys achieving in the lower quartile (Donalson & Halsey, 2012; Piechura-Couture, et al., 2011). Lam et al. (2012) concluded that girls report higher levels of school engagement and that teachers reported girls had higher levels of academic achievement. A study conducted by Huyge, et al. (2015) stated that gender is a predictor of academic success. This is why this study focused on boys in the lower quartile, rather than all students in the lower quartile.

The Conceptual Framework guided this study in the examination of how the downward spiral in engagement for at-risk boys might be addressed through the implementation of specific classroom practices. The Conceptual Framework for this study is focused on the exploration of how these teaching and learning methods can address the academic disengagement of boys achieving in the lower quartile.

Exploring teachers' views offered insight into how academic engagement could be promoted and disaffection could be reduced. Teachers understand the influences of

the factors relating to reading difficulties and can evaluate the relationship between academic struggles and motivation (Moreau, 2014). Further, students with academic difficulties often lack the skills to analyze and communicate their feelings, so the observations and views of their teachers were explored to provide insight into the students' engagement.

Engagement as a Vital Component of Achievement

Student engagement is a key to academic achievement (Brozo, et al., 2014). Skinner, Pitzer, and Steele (2016) conducted a longitudinal study that examined the correlation between engagement in the classroom and persistence on challenging academic tasks. The researchers wanted to examine whether students' engagement could activate the coping mechanisms that would sustain them through academic problems. They surveyed 880 students in 4th, 5th, and 6th grades as well as 53 teachers. Student self-reports and teacher-reports were analyzed using multiple regressions. Adaptive and maladaptive ways of coping emerged and were connected to engagement and persistence as well as disaffection and giving up. The researchers concluded that a student's academic success is predicted by engagement particularly during the transition to middle school (Skinner, et al., 2016). A major premise in my study is that academic success might be facilitated by reengaging boys in their learning. Buehler, Fletcher, Johnston, and Weymouth, (2015) conducted a quantitative study of 390 middle school students in a southeastern U.S. county. Descriptive statistics were calculated using SPSS. The researchers concluded that student gender and prior grades were significant indicators of school satisfaction and engagement. My study focused on boys who entered middle

school with poor scores on standardized tests, low grades, and past experiences with academic failure and frustration.

Wang and Fredricks (2014) conducted a study that was guided by the SDT which postulates that people begin life with a high level of intrinsic motivation that withers when academic failure occurs (Deci & Ryan, 1985, 2000). Well-meaning adults try to build motivation by providing the adolescent learner with rewards of various types. However, these forms of external motivation generally produce negative outcomes (Deci & Ryan, 1985, 2000). Other researchers have found a definitive connection between engagement and academic success. Lee, Hayes, Seitz, DiStefano, and O'Connor, (2016) conducted a quantitative study of 2,094 middle school students examining the relationships between engagement and internal versus external motivation. They found that engagement played a mediating role between intrinsic motivation and achievement. The researchers stated there was no correlation between extrinsic motivation, achievement, and engagement.

Chase, Hilliard, Geldhor, Warren, and Lerner (2014) conducted a longitudinal study, following 710 youth to examine the correlation between academic success and school engagement. The researchers utilized a construction equation model that demonstrated the factors of engagement and achievement were reciprocally predictive. Students who are engaged will likely achieve; students who fail are likely to feel disengagement (Chase, et al., 2014). Wang and Fredricks (2014) collected data on 1,272 adolescents and concluded that students who are academically disengaged experience school failure. Disengaged students are on a path for school dropout, depression,

delinquency, and substance use (Wang & Fredricks, 2014). Zentall and Lee (2012) conducted an intervention to build the motivation of students enrolled in remedial reading classes. The researchers found that success, not external motivation, promotes intrinsic motivation. They concluded that motivation could be the impetus for academic achievement, especially for remedial reading students (Zentall, & Lee, 2012). Bircan and Sungar (2016) stated that engagement had less effect then self-efficacy on academic achievement. Their quantitative study of 861 seventh graders found that task value and self-efficacy were the best predictors of achievement. In their study, cognitive engagement did not significantly predict achievement. Their findings have implications for my study. The element of collaborative learning has the potential to allow at-risk boys some academic success. In theory, this success could promote school engagement and build self-efficacy.

A student's motivation is dependent upon their belief that they can achieve specific results; this is the Achievement Goal Theory (Psychology Dictionary, n.d.). Students who are intrinsically motivated by their interest and enthusiasm are going to feel engaged in class (Heyder & Kessels, 2013). They are then more likely to experience academic success. This can create a positive spiral between engagement, motivation, and success (Gregory, et al., 2014). Unfortunately, engagement during middle school years declines dramatically for many students (Orthner, et al., 2013). Orthner et al. (2013) surveyed 3,493 middle school students in North Carolina to determine the effect of career-relevant instruction on engagement. They concluded that career-relevant program benefited all students but was especially effective in re-engaging those students who were

at a higher risk for school failure. The researchers asserted that middle school performance and engagement were crucial predictors for graduation from high school.

Examining Student Engagement through the Lens of Gender

This study's focus is on boys. Males and females can have different learning experiences in the same learning environment (Catsambis, Mulkey, Buttaro, Steelman, & Koch, 2012; DiPrete & Jennings, 2012). Traditional teaching methods, in which students are expected to sit quietly, learn from the teacher, and work independently, are generally more favorable to girls than boys (DiPrete & Jennings, 2012; Heyder & Kessels, 2013; Huyge, et al.; Johnson & Gooliaff, 2013). Spinath, et al. (2014) performed a meta-analysis of research findings on gender differences in school achievement. They concluded that girls were better suited for today's school environments due to stronger self-discipline and more developed verbal intelligence. The researchers argued that changing some features of classroom environments could help boys be more successful in school (Spinath, et al., 2014).

The manner in which knowledge is constructed in educational environments can differ for males and females (Bull, Cleland, & Mitchell, 2013; Casanova, Whitlow, Wagner, Espeland, & Maldjian, 2012; Reilly, 2012). Wolter, Braun, and Hannover (2015) analyzed data of preschool teacher/boy/girl dyads (n=135) and concluded that boys' motivation to learn to read was more dependent upon their teachers' gender role attitude then were the than girls' motivation. The more traditional the teachers' views were, the weaker the boys' motivation was. Results from an international reading assessment affirm that girls are better readers because they are more engaged (Brozo, et

al., 2014). It has been shown that boys' learning and engagement is boosted when they are allowed to move around and talk to each other (Piechura-Couture, et al., 2011). Boys generally prefer hands-on learning, rather than the passive reading and answering the questions that are too often the teaching practice in secondary education (Piechura et al., 2011).

The gender differences in engagement are of interest because boys demonstrate less interest in school and often feel less connected to school than girls do (Huyge et al., 2015). Bergold, Wendt, Kasper, and Steinmayr, (2017) investigated the correlation between academic achievement and gender. They examined achievement data of 74,868 4th graders. Boys were overrepresented at the high and the low extremes of the competency spectrum. The researchers surmised that boys' underperformance could be attributed to personality and motivational factors (Bergold, et al., 2017). There are significant differences in behavioral and emotional engagement between girls and boys (Wang, Willett, & Eccles, 2011), and that boys are frequently disengaged in the classroom (Arroyo, Burleson, Tai, Muldner, & Woolf, 2013; Johnson & Gooliaf, 2013). Arroyo et al. (2013) conducted four studies of students enrolled in public school mathematics classes. The studies, which spanned ten years, were focused on observed gender differences as students used a computerized Mathematics program. The researchers detected gender differences in engagement and concluded that middle school girls showed more enthusiasm and interest that did the boys. They noted that further studies were needed to advance suggestions for specific strategies that work for male students. Mol, Jolles, and Boerna (2016) gathered data from 160 fifth and sixth-grade

participants to determine the relationship between students' motivation to read and their teachers' views. Their results established that the correlation between motivation and teacher perceptions was different for boys and girls; boys were less influenced then girls by teacher expectations.

Boys often earn lower grades than potentially indicated by standardized test scores (Heyder & Kessels; Huyge et al., 2015; Johnson & Gooliaf, 2013). Voyer and Voyer (2014) conducted a meta-analysis of 369 samples to examine gender differences in academic achievement. The researchers reported a significant female advantage for language courses as well as an advantage for math courses. They asserted that females have a stable advantage in school grades. Duckworth et al. (2015) conducted three studies to explore the female advantage in school grades. In all three studies, they found that girls were higher in self-control; in their first study, they found that girls were more motivated then boys were to perform well in school.

Boys' underachievement is linked to their behavioral engagement, which is observably worse than girls' (Huyge, et al., 2012; Jonson & Gooliaf, 2013). Heyder, et al., (2017) examined the motivational beliefs of 520 students and 374 parents. They declared that boys' lower grades were most impacted by the students' motivation and their parents' views (Heyderet al., 2017). Hartley and Sutton (2013) examined the impact of stereotype threat on boys' underachievement. The researchers informed children (n=162) that girls are better than boys at school. In a second study, they informed the children (n=84) that boys and girls perform the same in school. In the first study, the boys' achievement was negatively affected. In the second study, the performance of the

boys was better than in the first. School performance is strongly linked to students', parents' and teachers' expectations (Hartley & Sutton, 2013; Heyder, et al., 2017). Students who have been identified as "underachievers" are at-risk academically and emotionally. There is a negative impact on motivation when students experience failure (Zentall, & Lee, 2012). Many of these students are identified as having special needs, such as students having learning disabilities, cognitive challenges, or behavioral issues (Legewie & DiPrete, 2012). Boys are overrepresented in special education and remedial classes; middle school remedial and special education classes are comprised mostly of boys (Johnson & Gooliaf, 2013; Legewie & DiPrete; Wu, 2014). There is a similar prevalence of boys on drugs to address ADD (Ullebo, et al., 2012).

Cadime, et al. (2016) studied the effects of burnout and engagement on academic achievement in secondary school pupils. The sample for their study consisted of 489 students ages 13-20 in secondary school. Students completed the Maslach Burnout Inventory in which they recorded how frequently various sets of feelings occurred in school. The researchers used multi-group structural equation modeling and T-tests to assess differences between girls and boys. They found that gender was a significant predictor of lower levels of engagement and higher levels of burnout. The researchers asserted a gender gap between male and female students was persistently recorded; boys are at a disadvantage and experience higher levels of burnout and lower levels of educational attainments (Cadime, et al., 2016).

The gap between the academic performance of boys and girls is evident in elementary school, but it is in middle school that the gender achievement gap widens

(DiPrete & Jennings, 2012). Boys who have experienced repeated failure in elementary school are likely to feel disengaged and defeated (Zentall, & Lee, 2012). Student engagement is vital for academic achievement (Ainley & Ainley, 2011), but student disengagement in middle school and high school is frequent **(**Gregory, et al., 2014; Wang, et al., 2011).

Brain-based learning theory suggests that learning styles and preferences differ between the genders (Reilly, 2012). Many boys who enter school enthusiastic and eager to learn are defeated and disengaged by the time they enter middle school (Gregory, et al. 2014; Johnson& Gooliaf, 2013). The lower quartile is comprised overwhelmingly of boys (Legewie & DiPrete, 2012). Boys might be more engaged in class and achieve higher mastery results if the instruction was tailored to their particular learning styles (Rockwell & Eunsook, 2013). Engagement for the boys in the lower quartile can be promoted by using teaching methods that have been proven to be "boy-friendly" (Piechura-Couture, et al., 2011). These methods are based on the cognitive and behavioral preferences of adolescent boys. Teaching methods that cater to their particular learning preferences have the potential to encourage and engage middle school boys (Serafina, 2013). For example, classrooms in which the teacher employs boy-friendly lessons that allow for greater physical movement, elevated noise levels, and direct teacher talk are successful in boosting achievement (Piechura-Couture et al., 2011).

The Impact of Academic Failure on Struggling Learners

All students in grades 2-10 in Florida public schools take the Florida Standards Assessment (FSA) for reading and mathematics. The majority of students achieving in

the lowest quartile on standardized tests are boys (National Center for Education Statistics, n.d.). Students in Grade 3 are retained if they do not achieve a passing score. Andrew (2014) analyzed data from 12,686 youth and concluded that retained students were often scarred: stigmatized by beliefs about their lesser intelligence and abilities. Students in all grades are placed in remedial classes if they earn a low score on the standardized reading test. Boys are over-represented in remedial reading and special education classes (Legewie & DiPrete, 2012). Donalson and Halsey (2013) conducted a qualitative study of eighth middle school students who were enrolled in mandatory remedial reading classes. The researchers surveyed students in remedial classes and concluded that many students believed that improvement was beyond their control; students stated that they felt inadequate and dumb. Martin (2013) found that academic failure increases the likelihood of school disengagement.

When students are not successful in achieving performance goals, there is a negative effect on their motivation (Donalson & Halsey, 2013), so most at-risk students struggle with a lack of engagement in academic classes (Conner & Pope, 2013). These deficits in motivation and achievement spiral into further disengagement and failure (Senko, et al. 2011). Zentall and Lee (2012) found that students who have reading difficulties often experience academic failure which negatively impacts their motivation. Low-achieving students experience negative emotions of frustration and anxiety (Arroyo et al., 2013). Often struggling readers avoid academic tasks and demonstrate conduct and behavior challenges (Benner, et al., 2013).

A vital connection exists between motivation, self-efficacy, and success (Orthner, et al., 2013). Cantrell et al. (2014) documented the reciprocity of engagement in literacy tasks to effort, persistence, and achievement. Louick et al. (2016) conducted a mixed-methods study that evaluated the self-efficacy of 112 middle school students enrolled in remedial reading classes. They found a positive correlation between self-efficacy and reading comprehension status. There is also a connection between failure, loss of motivation, and disaffection in the classroom. Student engagement stimulates learning and achievement for students of varying abilities (Harbour, et al., 2015), but failure results in disengagement. Students who have repeatedly earned poor grades and low scores are likely to feel disengaged and disenfranchised (Donalson & Halsey, 2013). This study will explore how the components of iEngage influence and perhaps stimulate the engagement of boys who have begun the spiral of disaffection.

Educators have attempted for years to narrow the achievement gap between students scoring in the lower quartile on standardized tests of reading achievement and students who achieve passing, or grade-level, scores (Appel & Kronberger, 2012). Schools and districts have implemented programs to address the needs of these students (Benner, et al., 2013). These students are at-risk academically and emotionally because of the negative impact their academic failure has had on their motivation (Zentall, & Lee, 2012). There is a snowball effect with failure and loss of motivation; when a failure occurs, students reduce their efforts, and their focus shifts from gaining competence to avoiding embarrassment in front of their peers (Zentall, & Lee). This phenomenon is exacerbated in middle school when adolescent students are extremely self-conscious

about their peers' perceptions (Donaldson & Halsey, 2013). The effect is evidenced by high school dropout rates. Further, college attendance rates for males are dropping (National Center for Education Statistics, n.d.). Motivation, engagement, enthusiasm, and interest are the foundation for the attitude adjustment that must happen if the boys in remedial programs are to achieve academic success (Zentall, & Lee, 2012). This study explored at-risk boys' engagement in a classroom model designed to promote relevance and interest.

Collaborative Learning

A primary component of the iEngage model is collaborative learning. Vygotsky's (1978) zone of proximal development emphasizes social context as an impetus for learning and provides an incentive to use collaborative learning. Social learning experiences have a positive impact on motivation (Chiriac, 2014; Tihaele, Suhre, & Hofman, 2016). Research has determined that student engagement increases when cooperative learning strategies are implemented correctly (Igel & Urguhart, 2012). Gaston, Martinez, and Martin (2016) conducted research to assess the effect of literacy strategies in social studies classes. The strategies examined included the use of collaborative learning and problem-based learning. Factors of interest were student engagement, motivation, and achievement. Participants included 43 eighth-grade students who were randomly assigned to one of two classes. The first class served as a control group and received direct instruction. The teacher in this class used lecture, worksheets, and exercises from the textbook. The second class used collaborative and problem-based learning strategies. The instruments used in this study were a content-

knowledge pretest and posttest, a student motivation questionnaire, a student engagement checklist, and field notes. The students in both classes were the same regarding academic achievement on the pretest. On the content area posttest, students in the literacy strategy class scored significantly higher than did the students in the control group. Further, students in the literacy class demonstrated more on-task behaviors and had a better work ethic on assignments. Students in the control group were more likely to play and talk during instruction, fail to complete their work, and put their heads down on their desks during class. The researchers concluded that the strategies could be used to keep students actively engaged and help them succeed academically. These findings indicate that collaborative learning and problem-based learning promote engagement. Although Gaston, et al.'s (2016) study focused on middle school students, their results were not broken down to indicate engagement of students specific to prior achievement level or gender.

The school environment plays a vital role in student affect and performance (Louick et al., 2016). Adolescents are generally social creatures and are motivated by the opportunity to work collaboratively rather than in solitary (Igel & Urquhart, 2012; Strom, Thompson, & Strom, 2013). Strom et al. (2013) surveyed 297 middle school students to evaluate their team members during group learning in inclusive classrooms. Thirty-nine of the students received special education services. Teams, composed of 4 to 5 members, were assigned problem-solving tasks. Students affirmed that they preferred to work in teams and believed that cooperative learning could be an asset for their future. However, Strom et al. (2013) found that less than half of the general education students observed

that the special education teammates demonstrated good teamwork competencies. The students with disabilities often struggled to focus on the team task; they did not offer new ways of looking at problems and rarely brought reading materials to the discussion (Strom et al., 2013). Their findings concerning special education and struggling students were highly relevant to my study.

Collaborative group work can provide social motivation and academic support for learners. Boardman, Buckley, Maul, and Vaughn (2014) investigated the relationship between the results for students having disabilities and the implementation of Collaborative Strategic Reading (CSR). CSR is grounded in cooperative learning (Kagan, 1986) and reciprocal reading (Palincsar & Brown, 1984). The strategy aims to enhance student engagement and improve reading comprehension. The researchers examined the engagement and achievement of 63 Colorado middle school Language Arts, Reading, Science, and Social Studies classes. There were significant gains in outcomes for students having disabilities (Boardman, Buckley, Maul, & Vaughn, 2014).

Spitzer and Aaronson (2015) stated that collaborative learning can boost self-esteem, greater liking for school, and better performance on tests. Chiriac (2014) concluded that the overarching purpose of group work in educational practice is to serve as an incentive for learning. After surveying 210 university students, Chiriac (2014) reported that 97% of the participants reported that group work facilitated learning by providing support, motivation, and a platform of belonging. Collaborative group work also has negative aspects having to do with group climate or dysfunction between members (Chiriac, 2014). Tihoaela et al. (2016) conducted a study with 118 college

students and concluded that peer learning was the most significant motivator- even more influential that extrinsic or intrinsic motivation. They concluded that collaborative learning might boost students' motivation, comprehension, and achievement. Ning and Hornby (2014) studied the impact of cooperative learning on the motivation of 100 university students. They concluded that cooperative learning improves intrinsic motivation. The participants were motivated to perform by their participation in the group (Ning & Hornby, 2014). While these results indicate that collaborative learning will increase achievement for the students who participate, there are no data specific to the engagement levels of at-risk boys.

The learning environment and peer socializations have a dramatic influence on learning (Kirshner, Paas, & Kirshner, 2011; Pai, Sears, & Maeda, 2015). Altun (2015) observed and interviewed twenty middle school students and found that the cooperative learning environment provided them with opportunities to be successful. Further, group learning helped to build personal and social skills. Vaughn et al. (2013) compared the achievement of students in traditional classes that focused primarily on independent work to the achievement of students who were in classes that used team-based learning approaches. The middle school students in the team-based learning group (n=261) scored significantly higher than those in the comparison conditions (n=158). Small-group learning has better results than individual learning (Lee, Waxman, Wu, Michko, & Lin, 2013; Pai et al., 2015).

Effective collaboration provides social motivation, builds self-efficacy, and improves performance (Burns, et al., 2014). Isolated learning can be a negative and

anxiety-producing experience for at-risk students. Those negative emotions hinder learning (Igel & Urquhart, 2012). There are emotional benefits associated with social learning. Group members are more readily able to overcome challenges when they have the support of other group members (Chriac, 2014). Collaborative learning can motivate all students; further, the implementation of collaborative learning produces emotional and academic benefits for students who struggle (Igel & Urquhart, 2012; Shieh & Wheijen, 2014; Strom et al., 2013). When working collaboratively, students can share the cognitive load and process more complicated tasks (Kirshner, et al., 2011).

In a collaborative setting, instruction should be scaffolded and supported for the students to make the most gains (Igel & Urquhart; Pi-Sui, et al., 2015; Schuh, et al., 2013). Support and scaffolding are provided by other group members as the students learn from their peers (Brunner, 1966). This leads to a better outcome during the task and for the final product (Kirshner, et al., 2011). Success can halt the downward spiral of academic engagement (Gregory, et al., 2014; Orthner, et al., 2013). Participants in my study echoed the efficacy of these strategies in engaging at-risk boys in collaborative learning.

The studies cited in this section of the Literature Review generally concurred that collaborative learning increases engagement and achievement. The concept that collaborative work benefits both high achieving students and struggling learners is fundamental to both the social learning theory and the zone of proximal development (Vygotsky, 1978). However, the researchers who looked specifically at the experiences of the struggling learner in a collaborative situation had mixed reports. Boardman,

Buckley, Maul, and Vaughn (2014) and Altun (2015) cited significant achievement gains when students receiving special education services participated in collaborative learning. Strom et al., 2013, however, found that students having disabilities were less successful in collaborative groups.

Technology Use

Technology is an important factor for engaging adolescents in learning (Johnson & Gooliaf, 2013). In constructivist environments, computers are tools that support active knowledge building (Baskerville, 2012). Middle school students today are "digital natives" (Downes & Bishop, 2012), and students report that they felt motivated and involved when engaged when they use technology in problem-based learning (Lui, et al., 2011). Lower-achieving students demonstrate raised self-esteem when using technology to demonstrate their knowledge (Muir-Herzig, 2003).

Chen and Chou (2015) examined the engagement and achievement of 139 7th grade students using a quasi-experimental design. Sixty-eight students were randomly assigned to the treatment group; they used technology and problem-based learning. Seventy-one students were in the control group that participated in traditional content delivery; they used textbooks, worksheets, and lectures. The posttest achievement scores of students in the treatment group were significantly higher than those students in the control group. The treatment group also demonstrated significantly higher motivation, specifically in relevance (Chen & Chou, 2015).

Marino et al. (2014) conducted a mixed-methods study with five middle school Science teachers and 341 students, 57 of whom were identified as having a learning

disability (LD). Their first research question focused on the engagement of students with LD when the regular Science curriculum was supplemented with video games and alternative text in the inclusion classroom. The second question focused on achievement on the paper and pencil test performance after participation with video game units compared with traditional instruction. Marino et al. (2014) found a positive increase in engagement and motivation for students with LD who utilized video games and alternative text in the inclusion classroom. Their performance in paper and pencil tests showed no significant difference when compared with posttest scores of their peers without LD. Marino et al. (2014) explained that students having LD often do not perform well on paper and pencil tests and may have benefitted form an alternative test format. However, it is noteworthy that the students having LD felt engaged in school and achieved on a level with their peers without LD. The conclusions noted by Marino et al. (2014) were highly relevant to my study because their research focused on students having LD as they participated in a Science inclusion classroom. My study was set in inclusion classrooms for Science, Social Studies, Language Arts, and Math.

Students demonstrate academic engagement when using technology, problem-based activities, and collaborative learning (Devlin, et al., 2013; Steinberg & McCray, 2012). Devlin et al. (2013) surveyed 87 middle school students to see whether the use of video-taped instructions boosted students' interest, engagement, and understanding. The Devlin et al. (2013) concluded that technology was an effective tool for engaging and motivating students. Students reported that technology use was beneficial in assignment completion (Devlin et al., 2013). The integration of technology into learning activities

can facilitate student learning (Baskerville, 2012). Technology use has a positive impact when it is used by students to solve problems and is used a foundation for inquiry-based learning in the 21st century (Muir-Herzig, 2003) and can have a significant educational effect when used as a tool to gather and organize information (Devlin et al.; Muir-Herzig, 2003).

Mitchell (2016) conducted an exploratory qualitative study focused on the motivational aspects of using a Nook for a summer reading program. She studied the reading engagement of less proficient readers (n=15). The majority of the students reported they enjoyed reading on the Nook, and the use of technology inspired them to read more over the summer (Mitchell, 2016). Mitchell (2016) concluded that technology could enhance and inspire student reading. Similarly, in Laine and Nygren's (2016) mixed-methods study of active versus passive technology integration, the students expressed that the use of cell phones and video games for academic tasks was motivating and engaging.

Technology can facilitate more effective learning for students (Baskerville, 2012). Technological advances can be used to promote collaborative learning where students to work together to build their knowledge and creativity by solving real-world problems (Tambouris et al., 2012). Shankar-Brown and Brown (2014) conducted a single-case study to examine the use of vodcasting. Participants included twenty-five 7th-grade students and one teacher in a middle school language arts class. Data were collected through observations, interviews, and 87 student reflections via journaling as students collaborated to create simple movies. Shankar-Brown and Brown (2014) found that

student motivation was extremely high throughout the vodcasting process. They asserted significant positive cognitive, emotional, and social development can be achieved using technology for learning (Shankar-Brown & Brown, 2014).

Middle school students are motivated by technology use (Chen & Chou, 2015; Shankar-Brown & Brown, 2014). Studies that concentrated on struggling learners found that a positive correlation between technology use and engagement (Marino et al., 2014; Mitchell, 2015). Further, connections were made between technology use, problem-based learning, and collaborative learning (Muir-Herzig, 2003; Tambouris et al., 2012).

Problem-based Learning

Students learn best when they are actively engaged and building their knowledge through their efforts (Dewey, 1938; Kolb, 1984; Igel & Urquhart, 2012). Problem-based learning is founded in constructivism, and learning results are greater when a constructivist approach in used in the classroom (Devlin et al., 2013.; Lee, et al., 2013). Students engage in real-world, authentic tasks that support social and academic learning goals (Barnes & Uankowski, 2014).

Problem-based learning spans various approaches and interpretations, however, there are some general characteristics of this learning situation. Problems are the starting point for the learning process, and learners use prior knowledge and experiences as a starting point to build new knowledge. They learn through active engagement with real-world problems. This requires research activities including investigation and writing, often in collaboration with other learners (Tambouris, et al., 2012). The learning

environment should encourage students to take risks, to think critically, and to communicate (Jaeger & Adair, 2014).

Problem-based learning involves the teacher presenting the lesson as a problem to be solved rather than a series of facts which are lectured about then memorized and regurgitated for a test. Students construct their knowledge through research and hands-on experiences as they provide solutions to the problem they have encountered (Balim et al., 2014). Problem-based activity can be characterized by phases that include problem analysis, brainstorming, using resources, evaluation, and reflection (Ioannou et al., 2015). This approach is important because students can consolidate and extend their knowledge (Bian, Minhong, Spector, & Yang, 2013). Problem-based learning is central in a boy-focused curriculum because it promotes hands-on, active learning (Johnson & Gooliaf, 2013).

There is a significant positive relationship between students' motivation scores and their knowledge scores after engaging in problem-based learning (Lui, et al., 2011). Lesseig, et al. (2016) stated that the use of open-ended problem-based tasks promoted rich learning and was motivating and engaging. Lesseig et al. (2016) analyzed surveys of three middle school teachers' perceptions as well as their own observations and field notes as students engaged in STEM design challenges. They concluded that students were able to use their individual talents because of the collaborative design of problem-based learning which made it empowering for all learners. Students report enjoyment when involved in problem-based learning and are more likely to engage in future classroom activities (Ainley & Ainley, 2011). Student engagement is a primary

component of students' understanding and application of learning (Ross & Willson, 2012).

Problem-based learning has been shown to engage underachieving middle school students in History classrooms. Stoddard, Tieso, and Robbins (2015) conducted a quasi-experimental study and found that students participating in problem-based learning earned significantly higher scores than students in comparison classrooms. Mukadder (2016) carried out a mixed-methods study to determine the academic and motivational effects of problem-based learning. Participants included 56 high school chemistry students. The experimental group (n=27) participated in problem-based learning; the control group (n=29) learned in a traditional classroom using textbooks and teacher lectures. Achievement scores revealed a significant difference in achievement levels between the two groups, with the experimental group achieving higher scores than the control group. There was not a significant difference between the two groups as far as motivation scores. However, Mukadder (2016) stated that the students participating in problem-based learning increased their communication skills and their skills in making presentations.

Gallagher and Gallagher (2013) asserted that problem-based learning is more engaging and rewarding for students. Because students were intrigued and challenged by the problem, their achievement was boosted. Gallagher and Gallagher (2013) conducted a study in which they used problem-based learning as a means to identify potential academic talent in underachieving students. They worked with 271 sixth grade students and identified a unique group who demonstrated advanced academic potential when

engaging in problem-based learning. These students were those previously overlooked because of standardized test results. The students in the study were completely engaged by the problem; they worked and thought harder (Gallagher & Gallagher, 2013). Problem-based and experiential learning offer learners the opportunity to explore a topic and build their knowledge while using their creativity (Igel & Urquhart, 2012; Shieh and Wheijen, 2014).

Oliveira, et al. (2013) compared student performance in seven New York middle school science classes. Oliveira, et al. (2013) explored the effects of best practices; three of these best practices included instructional methods aimed at relevance and engagement, inquiry, and collaborative work. The study used mixed methods including interviews (n=83), field notes, and standardized test results. Oliveira, et al. (2013) found that higher performing schools used hands-on activities more and relied on textbooks less than moderately performing schools. Educators at the higher performing schools gave students more opportunities for group work (Oliveira, et al., 2013).

Problem-based learning is engaging and motivating (Lui, et al., 2011; Lesseig, et al., 2016). Stoddard, et al. (2015) focused on struggling students' achievement in problem-based learning and found they earned significantly higher scores than students in traditional classrooms. These studies were highly relevant to my study which was aimed at exploring the engagement of struggling boys in a classroom model that employed technology use and collaborative learning to investigate a problem.

Summary and Conclusions

Summary

This chapter was a literature review. The literature search strategy section included an explanation of which databases and key terms were used to identify the articles included in the review. (Deci & Ryan, 1995, 2000; Ryan & Deci, 2000), constructivism (Bruner, 1966), Experiential Learning Theory (Kolb, 1984), and the zone of proximal development (Vygotsky, 1978), was next. An explanation of the Conceptual Framework, an interweaving of theory and research about the impact of failure on motivation and student engagement viewed through the lens of gender. Finally, the Literature Review included research about collaborative learning, the motivational aspects of technology use, and problem-based learning.

Themes and Gaps

Through the process of the literature review several themes and gaps emerged. The implementation of collaborative and problem-based learning using laptops, ipads, and iphones is growing exponentially (Devlin, et al., 2013). There was a wealth of information about the use of these learning approaches in higher education and in teacher training. However, there was significantly less research about the application of these techniques in secondary school, especially in middle school. There was a paucity of research about the effect of these learning approaches on the engagement and motivation of middle school boys achieving in the lower quartile. This research addressed the identified gap of how middle school boys who are at-risk for academic failure respond to the use of collaborative, technology-based, problem-solving learning that are the

foundation of the iEngage model. The study will extend knowledge about the engagement of this population of boys. Therefore, the purpose of this case study is to describe the engagement of at-risk boys in the iEngage model through the analysis of the observations and perceptions of their teachers.

Next Chapter

The following chapter on research methodology includes a description of how the study was designed to investigate that research gap. The research methodology features a report of the research design, which was a qualitative case study, and the rationale for the design. The role of the researcher is described, and detailed information about participant recruitment and selection is covered. A thorough explanation of the instrumentation and data collection is introduced in Chapter 3, and a description of the data analysis plan is included. Chapter 3 concludes with a discussion of issues related to trustworthiness in qualitative research and ethical procedures.

Chapter 3: Research Method

The purpose of this case study was to explore teachers' views of how the iEngage model influences the academic engagement of middle school at-risk boys. The iEngage model features collaborative learning, problem-based learning, and the use of technology including computers, laptops, and Surface Pros. The model's objective is to boost students' engagement, learning, and achievement. This study focused on at-risk boys' academic engagement. For the purpose of this study, academic engagement was defined as constructive, emotionally positive, and enthusiastic participation in learning activities (Skinner & Chi, 2012). I explored the views and experiences of teachers who employ the model and documented their observations and reflections about the academic engagement of the at-risk boys as it pertains to the model's three components: collaborative learning, problem-based learning, and the use of technology.

In this chapter, the qualitative case study design is described and is followed by a thorough discussion of the rationale and justifications for the design choice. The researcher's role in the setting of the study is explained; instruments used are presented. The qualitative methodology for data collection and the data analysis plan are discussed. Finally, issues of trustworthiness and ethical procedures are documented.

Research Design and Rationale

The central research question focuses on how the iEngage model influences the engagement of middle school boys who are achieving in the lower quartile. The sub-questions target the three components of the model.

Research Design and Rationale

Central Research Question

RQ1: What are teachers' views of how the iEngage model influences the engagement of at-risk middle school boys?

Sub- Questions

1. What are the views of teachers about how technology use in the iEngage model influences the academic engagement of at-risk boys?

2. What are the opinions of teachers about the way collaborative teamwork in the iEngage model influences the academic engagement of at-risk boys?

3. What do teachers say about how problem-based learning used in the iEngage model influences the academic engagement of at-risk boys?

The research questions focus on teachers' experiences and observations about how at-risk boys' engagement is influenced by the iEngage model. Research questions that seek to explain how or why a social phenomenon occurs are best answered by a case study (Yin, 2014). A case study explores a phenomenon within its real-life setting (Yin, 2014). Grounded theory is not appropriate because it is not the objective of the study to develop a theory from the gathered data. Ethnography was not considered because the purpose is not to study a cultural or social group. I chose the case study design because it allows the researcher to gain the perspective of the individuals who are living the experience within its real-life context (Holweck, 2015; Yin, 2014). A descriptive case

study yields rich and illuminating information that could help teachers better teach and engage at-risk boys in middle school.

The research paradigm is qualitative. Quantitative data are numerical and can be measured. A quantitative design could provide statistics about the impact of the model on achievement, attendance, and behavior of at-risk boys, but it would not describe how the components of the iEngage model influence the engagement or disaffection of at-risk boys. A quantitative study could answer the question: Does the use of collaborative learning/ problem-based learning/ technology integration engage at-risk boys? The answer would be yes or no to varying degrees. A qualitative study design provided the framework to explore why collaborative learning, technology use, and problem-based learning did or did not work to engage boys. Further, participants shared their perceptions regarding modifications and what levels of support and scaffolding were necessary. Qualitative data are observed and explored. A quantitative research design would not be able to explore the lived experiences of participants. The use of numerical data would diminish the teachers' views and lived experiences by using numbers rather than thick rich description (Mabry, 2008).

The case study design was the most suited to answer the research questions. The purpose of the study was not to generate or discover a theory, so grounded theory was not pertinent. The narrative, phenomenological, and ethnographic approaches, focusing on the teachers' experiences and feelings, were not appropriate means to explore the perceptions of the boys' engagement. The case study, detailing the teachers' views regarding how at-risk boys react and respond to the model requires the collection of

descriptive data. Thick, rich description regarding how the methods and environment affect the academic engagement of boys best answered the research questions and identified how engagement can be inspired and maintained. This qualitative study helped to address the research gap about how to engage at-risk boys.

Role of the Researcher

My role was to conduct the interviews, anchor the focus group discussions, and collect the data. I am a middle school teacher in the school district which is the setting for the research. I was a special education inclusion teacher for 14 years and a general education classroom teacher for 9 years. I do not currently teach in the iEngage model. I am a peer, not a supervisor, of the teachers who implement the model. Further, I have no ties to the administration of the other middle schools in the district. I did not relate my own experiences nor did I express my views or feelings about any statements made by the participants. My role as the researcher was to pose questions and prompts. I developed interview questions and prompts (see Appendix A) that encouraged a thorough discussion of the central research question. I asked the participants to relate specific anecdotes and observations they have made. I recorded, transcribed, and analyzed the responses of participating teachers.

Methodology

Participation Selection Logic

The iEngage model is implemented in a Southeastern school district's middle school core classes which include Language Arts, Math, Science, and Social Studies. This study explored one issue of concern: The engagement of middle school boys who

struggle academically and who are students in the iEngage model. The phenomenon of the study was the engagement of at-risk boys within the iEngage model overall. The participants in this study included middle school teachers who teach content-area classes and implement the model.

Because this was an exploratory study focusing on the iEngage model rather than the content area, I employed purposive sampling to include two teachers from each core class, Math, Science, Social Studies, and Language Arts, and two Exceptional Student Education (ESE) teachers working in the content area inclusion classrooms. I endeavored to have representation from each grade level (sixth, seventh, and eighth grades) taught.

The 11 teachers shared their perceptions regarding how the model influences the engagement of middle school boys who struggle with academic achievement. The diversity of subject areas provided for heterogeneity of sampling and established that the findings were not based entirely on the perceptions of a particular group such as only math teachers, or only science teachers. Other demographics such as gender, age, race, and years of teaching experience were random; participant selection was on a first-to-volunteer basis.

The criteria for participation were that the teacher must be using the three strategies of the iEngage model and must have boys who have been identified as qualifying for remedial classes and/or special support services such as an Individual Education Plan or a 504 Plan in their classes. Potential participants were informed about the criterion to ensure they were appropriately qualified for the study.

The sample size of 11 participants was chosen to include two teachers in each of the four content areas and two ESE inclusion teachers. An 11th teacher volunteered to participate in the study and was added to the sample. The variety of content area specialization, ESE, and English speakers of other languages (ESOL) certification, and the number of years teaching allowed for different viewpoints. The rationale for including 11 participants was to include many perspectives of engagement while keeping data collection and analysis manageable. The participant selection was designed to add depth to the reflections. Interviews with 11 individuals and two focus discussions yielded a rich descriptive data set yet also provided a manageable amount of data (Robinson, 2014). A greater number of participants could constitute a logistic and time problem for the researcher.

There are eight middle schools in the district. All of these schools implement the iEngage model. I recruited volunteer participants from two middle schools that are located closest to my home and enlisted five volunteers from both schools for a total of 11 participants. I began the process by meeting with the district administrator to obtain a letter of cooperation granting approval to conduct this study. After getting district approval, I met with the principals of the two middle schools, explained the study, and received their permission to solicit participants at the site. Recruitment was accomplished through networking and snowball sampling.

Potential participants were contacted via email to explain the purpose of the study, the amount of time and location for the interview, and the amount of time and the location for the focus group. I first met with all potential volunteers face-to-face to

explain the study, the data-gathering procedures, and the study's implications. Participants were asked to sign an informed consent and received a confidentiality agreement from me. I planned to find a replacement if a volunteer decided against participation in the study early on. However, if no replacement was to be found, I planned to reduce the sample size (Robinson, 2014). No volunteers withdrew from the study. I planned to increase the sample size slightly if recruitment produced more than ten potential participants. Robinson (2014) advised that it can prove beneficial to increase the sample size slightly. The sample size was increased to 11 because 11 out of 15 teachers solicited expressed interest in participation.

Because of the diversity of content areas and grade levels taught, the sample size provided saturation of data. The heterogeneous nature of the participants supplied a range of input and data needed for thorough analysis (Yardley, 2000). The diversity of subject area and grade level provided a larger scope for the study. Many researchers have explored phenomenon with fewer than 11 participants. Bature, Atweh, and Treagust (2016) observed four preservice teachers and conducted focus group discussions with six students. Their study focused on educational methods to increase students' engagement and interest in mathematics regardless of student gender or ability. Akkoc, Balkanlioglu, and Yesildere (2016) interviewed eight preservice teachers in their investigation of preservice teacher's perceptions of mathematics teaching. Gomez-Arizaga, Bahar, Maker, Zimmerman, and Pease (2016) found that eight participants were sufficient for their case study investigating the motivation and self-regulation of elementary students having learning disabilities. Borup, Stevens, and Waters (2015) interviewed ten students

for their qualitative case study of parental engagement; Borup et al. (2015) stated they chose depth over scale. The 11 participants included in my study provided a rich, descriptive perspective of the iEngage model.

Instrumentation

Interview data were gathered using questions based on the Engagement versus Disaffection with Learning Teacher Report developed by Skinner, et al. (2009). Participants were asked open-ended interview questions that explored their perceptions of the boys' engagement in the iEngage model. The model's three components included collaborative learning, problem-based learning, and technology use. Teachers shared their impressions regarding how boys' engagement was influenced by each of the components. Interview data were further explored through focus groups discussions. Initial analysis of interview data was used to formulate open-ended questions for focus group discussion. The discussions focused on the teachers' understanding of how at-risk boys respond to collaborative learning, problem-based learning, and technology use. All individual responses and discussion responses were elicited through open-ended questions, prompts, and discussion with teachers who implemented the iEngage model. The teachers were asked to share their perceptions of behavioral engagement, emotional engagement, behavioral disaffection, and emotional disaffection of struggling male learners.

Teachers were asked to describe specific instances of students' engagement and disaffection, including behavioral and emotional engagement and behavioral and emotional disaffection. Emotional engagement was indicated by how much interest and

enthusiasm the student demonstrated; emotional disaffection was identified as when the student was apathetic (Skinner & Chi, 2012; Skinner, et al., 2009). The student's behavioral engagement was characterized by how hard the student worked; behavioral disaffection was indicated by the student's resistance to a task (Skinner & Chi, 2012; Skinner, et al., 2009). Descriptors for emotional engagement vs. disaffection as well as for behavioral engagement vs. disaffection were used to probe for deeper and richer qualitative data. All interviews were audiotaped and then transcribed. After the interview, the transcript was sent to the participant. This "member checking" contributed to the credibility of the study (Cope, 2014; Polit & Beck, 2012). If further clarification or deeper information was needed after a face-to-face interview, I planned to email the participant and print the reply for analysis. This step was not necessary, as the interview probes were satisfactory for clarification of statements made in interviews. There were two focus group discussions: one at each school. The 5 or 6 participants at each school comprised the focus group. The focus groups met only one time. The session was audiotaped and then transcribed. The transcription was sent to each participant for member checking. Field notes were taken during the interviews and focus group discussions to help bracket my ideas.

All field notes were typed and stored digitally for use in analysis. I also kept a reflective journal that was used to record my thoughts, impressions, and observations of each interview and group discussion.

Researcher-Developed Instrumentation

I used the Engagement versus Disaffection with Learning (EvsD) teacher report (Skinner, et al., 2009) to define indicators of engagement or disaffection with learning. The SDT was used as a basis to focus on the elements of relatedness, autonomy, and competence. These indicators and elements were used in the development of interview queries and prompts. The EvsD scale is public domain and is available at Dr. Skinner's website (Skinner, n.d.). The EvsD teacher report is a quantitative measure that surveys teachers' observations of the students' levels of engagement. Items from the scale were rephrased and converted to open-ended questions. The purpose of the interview was to explore the means and levels of engagement and methods to stimulate engagement. Interviews lasted approximately 30 minutes.

Table 1.

Sub-Questions and Interview Questions

Research Sub-question	Sample Interview Questions
Technology Use	What factors contribute to the boys' engagement?
	Can you make any suggestions that could improve their engagement?
	What strategies do you use if boys demonstrate disaffection?
	What mitigating factors are there?
Collaborative Teamwork	What factors contribute to the boys' engagement?
	Can you make any suggestions that could improve their engagement?
	What strategies do you use if boys demonstrate disaffection?
	What mitigating factors are there?

(table continued)

Problem-Based Learning	What factors contribute to the boys' engagement? Can you make any suggestions that could improve their engagement? What strategies do you use if boys demonstrate disaffection? What mitigating factors are there?

The interview questions and prompts are recorded in Appendix A. The questions were formulated to assess the levels of student engagement or disaffection in the iEngage model. The teachers reflected on at-risk boys' behavioral engagement, emotional engagement, behavioral disaffection, and emotional disaffection. These attributes are the foundation of the Engagement versus Disaffection with Learning (EvsD) teacher report (Skinner, et al., 2009). Skinner and Chi adapted the EvsD quantitative measure in 2012 for use with a larger sample. They surveyed 310 middle school students and their teachers in the Pacific Northwest. The original measure of Classroom Engagement had 16 teacher-reported items; the adapted measure had six items (Skinner & Chi, 2012). The adapted measure was important to this study because it established the content validity of the EvsD teacher report.

Content validity of the Engagement vs. Disaffection with Learning Scale was paramount to my study because only teacher views are being recorded and analyzed. Validity was indicated by the high correlation between the teacher reports and the student reports (Skinner & Chi, 2012). The convergent validity was positive and significant ($p<.001$) between the independent assessments of the same construct (Skinner & Chi, 2012). The level of significance demonstrated that the teacher perceptions of the students' engagement are highly correlated with the students' perceptions of their engagement.

The research questions are founded on the framework of the SDT. The central research question: What are teachers' views of how the iEngage model influences the engagement of at-risk middle school boys? asked teachers if they believed the students' three basic psychological needs of relatedness, competence, and autonomy are being met (Deci & Ryan, 1985; 2000). Teachers reported their perceptions of students' relatedness, interest, and connection to the topic as well as the students' competence, the confidence demonstrated by the student, and autonomy, the element of student choice and self-determination.

Procedures for Recruitment, Participation, and Data Collection

Interviews and data collection were conducted and data collected at a time and place convenient for the participant. I thought that the data collection including interviews and focus group discussions would be conducted at the participants' school site. Only four individual interviews were conducted at the school sites. The rest of the individual interviews were conducted at a quiet coffee shop. The focus group discussions were conducted in a library conference room. The interviews and discussion groups took place either before or after school hours. I conducted the interviews, led the discussion groups, and collected the data. Each participant engaged in one 30-minute individual interview and, at a later date, in one 30-minute focus group discussion with the other teacher-participants at their school site. Participants were involved with interviews, discussion, and member checks intermittently for approximately six weeks. Data were recorded using a digital audio recorder and a cell phone audio recorder was used as a back-up. Field notes were taken to help record non-verbal communication and to bracket

my thoughts and ideas. All interviews and discussions were recorded and then transcribed verbatim. All field notes were kept and stored for analysis.

If initial recruitment using networking resulted in too few participants, I planned to network with the site participants and other colleagues to connect with other teachers at the selected middle schools. This referral process is also known as snowball sampling (Robinson, 2014). If a teacher had to drop out of the study, I planned employ snowball sampling to fill the spot. These strategies were not necessary; I had 11 teachers volunteer to be part of the study.

At the end of the interview, I thanked the teachers for their participation and reminded them that they would receive a copy of the initial findings to check. Member checking of the individual interviews took place one week after the interview. Initial findings were hand-delivered to each participant. Member checking was accomplished through email or phone conversations. This process of member checking was used to include any expansions or changes in what they previously said.

Participants took part in a discussion group with other teachers from their work site. The groups assembled after the individual interviews were completed. I gave the participants the written list of discussion questions which included the review of my findings across the cases (Yin, 2014). Teachers were prompted to share their views regarding how the components of the iEngage model acted on the engagement of at-risk boys and discussed what worked and what did not work. Data gathered using the teacher report instrument served as a springboard for focus group discussions which focused on teacher perceptions of students' responses to the components of the iEngage model:

technology, collaborative learning, and problem-based learning. The focus groups met at a mutually convenient time and location; the discussion lasted approximately 30 minutes. The focus group session was audio-taped and then transcribed verbatim. Written transcriptions were sent to each participant for member checking. Field notes were taken during the discussion and then stored digitally for use in analysis.

After the discussion, I thanked the teachers for their time and their effort. I asked if they were willing to check the preliminary results of the focus group discussion data as a member check. The findings were hand-delivered to each participant. Member checking of preliminary results of the focus group discussion took place one week after the discussion and was verified using email communication. I offered to send each participant a copy of the final report.

Participants were involved with interviews, discussion, and member checks intermittently for approximately six weeks. Participants exiting the study were thanked for their time, and it was affirmed that all names of participants were changed in the dissertation.

Data Analysis Plan

The Central concept of phenomena of the study was how the teaching strategies used in the iEngage model influence the engagement of boys who were achieving in the lower quartile. Data were organized into the categories of technology use, collaborative teamwork, and problem-based learning.

Behavioral engagement was assessed through teachers' observations and recollections of the students' participation in learning activities and time on task.

Emotional engagement was evaluated by discerning the students' enthusiasm and effort (Skinner & Chi 20012; Skinner, et al., 2009). Cognitive engagement was evaluated by examining the students' use of problem-solving and higher order thinking skills (Alexander, 2014; Gregory, et al., 2014).

First, I created a case study database that was separate from the final report. The case study database contained the initial open-ended interview and focus group questions, transcriptions of the interviews and the focus group discussions, and the field notes that were taken during the interviews and discussions (Yin, 2014). A descriptive framework was used to organize data for analysis. The framework was based on the description of the general characteristics of engagement and disaffection. For each piece of data, there was a connection made to the specific research questions (Yin, 2014). Pre-existing coding was used; code words were rooted in descriptors for the Engagement versus Disaffection with Learning Teacher Report developed by Skinner, et al. (2009).

Table 2.

Pre-Coding for Engagement and Disaffection Chart

Engagement	Involved; enthusiastic; works hard; interested; actively participates; enjoys a challenge; puts forth effort
Disaffection	Seems bored; is not into it; does not like it; refuses to do anything; does not care; can be disruptive; gives up; gets overwhelmed

Coding was used to discover trends and patterns in the data. Results were categorized and organized by using the research questions and emerging themes.

Table 3.

Emerging Themes

Factors for Engagement	Mitigating Factors
Strategies to Engage	Strategies to Engage
Classroom Demographics	Accommodations and Modification to Content

Ten of the 11 participants expressed the view that the model's components could be effective learning tools for at-risk boys, one disagreed. This discrepant case is discussed in Chapter 4. Similarities and differences in responses were identified and sorted. Data analysis was conducted using spread sheets. The conclusion was comprised of thick, rich description in a narrative analysis.

Issues of Trustworthiness

Credibility

A study that demonstrates credibility is one in which the data and participant views are interpreted and presented truthfully (Cope, 2014; Polit & Beck, 2012). Credibility, or internal validity in this study, was ensured through member checks for the preliminary analysis of the individual interviews and the focus group discussions. The notes and materials in the study were maintained to provide and audit trail for future research as recommended by Cope (2014). Peer review provided additional credibility; a colleague who holds a Ph.D. volunteered to be a review my study. Credibility was maximized through triangulation which is the procedure of using multiple sources to draw conclusions (Casey& Murphy, 2009, Cope, 2014). Triangulation for this study was accomplished through interviews, focus groups, and my field notes and reflective journal.

Transferability

A qualitative study demonstrates transferability if it has meaning for its readers (Cope, 2014; Houghton, Casey, Shaw, & Murphy, 2013; Polit & Beck, 2012) and can be identified as having similarities or differences to other contexts and locations. Transferability is attained through the use of **t**hick description and in variation in participant selection. Comprehensive interview queries and prompts bolstered the collection of rich descriptive data. Variation in participant selection was achieved by purposeful sampling (Robinson, 2014). This study demonstrated transferability through participant selection and especially through detailed and comprehensive description of the environment, participants, and the boys' experiences in and reactions to the iEngage model.

Dependability

A qualitative study exhibits dependability when the data is constant over similar circumstances (Cope, 2014; Polit & Beck, 2012; Tobin & Begley, 2004). Dependability is the qualitative counterpart to reliability in a quantitative study. Strategies to establish dependability in a qualitative study include reflective journal containing observations and decision trails and the triangulation of peer review with member checks. These strategies were integral to the study.

Confirmability

Confirmability indicates that the data in a qualitative study express the participants' responses and not the researcher's viewpoint (Polit & Beck, 2012; Tobin & Begley, 2004). I demonstrated that my interpretation of the data represented the

participants' perceptions through the use of rich quotes that illustrated the emerging themes (Cope, 2014). Confirmability was ensured through member checks and by peer review.

Ethical Procedures

In this section, I included the letter of cooperation from the appropriate district administrators and letters of consent from the teacher/participants. The IRB application and documents are thoroughly detailed and explained. These documents included the above agreements to gain access to participants, institutional permissions and also included IRB approvals and relevant IRB approval numbers. There was a thorough description of the treatment of human participants including the actual documents in the Institutional Review Board (IRB) application.

I treated the participants with utmost respect and courtesy. I directed, led, and shaped the interview in a calm manner and was sensitive to the body language and emotions of participants (Price, 2002)

Ethical Concerns

Data was kept confidential and anonymous to promote trust and honest observations and reflections from the participants. The confidentiality agreement assured participants that all names were changed for the study and that all transcripts and recordings were kept in a locked file cabinet. Digital transcripts and recordings were password protected. Data will be destroyed four years after the study.

Summary

In Chapter 3, I described the qualitative case study design and discussed the reasons for my design choice. I examined my role as the researcher, and I explained the rationale for the setting of the study. The proposed instrument was presented as well as the plans for participant recruitment. The methodology for qualitative data collection and the data analysis plan were discussed. Issues of trustworthiness including credibility, transferability, dependability, and confirmability were thoroughly considered. Finally, ethical procedures were presented.

Chapter 4: Results

The purpose of this case study was to explore teachers' views of how the iEngage model influences the academic engagement of middle school at-risk boys. The central research question was: What are teachers' views of how the iEngage model influences the engagement of at-risk middle school boys? The sub-questions included:

1. What are the views of teachers about how technology use in the model influences the academic engagement of at-risk boys?
2. What are the opinions of teachers about the way collaborative teamwork in the model influences the academic engagement of at-risk boys?
3. What do teachers say about how the problem-based learning aspect of the model influences the academic engagement of at-risk boys?

This chapter will first describe the setting for the study and participant demographics and characteristics relevant to the study. Data collection and analysis will be described. Evidence of trustworthiness including credibility, transferability, dependability, and confirmability will be presented. Next, results will be presented to address each research question using quotes, tables, and figures. Non-confirming data will be discussed. Finally, the answers to the research questions will be summarized in the transition to Chapter 5.

Setting

I began the interviews on August 20, 2017, intending to complete them within four weeks. Hurricane Irma hit South Florida in September, causing schools to close for six days. Many of us were without power for an extended period, and some teachers had

evacuated the area. Consequently, the time for data collection had to be extended. This event did not constitute a condition that would influence the interpretation of the study results. There were no other events or trauma such as changes in personnel or budget cuts to be considered in the study's results.

Demographics

The 11 participants taught in two middle schools of a large school district in Southwest Florida. The participants included male (3) and female (8) teachers with a wide range of teaching experience. All subject areas were represented including English Language Arts (ELA), ESOL, ESE, Math, Social Studies, and Science. The teachers shared their perceptions of the engagement of at-risk middle school boys in the iEngage model. The 11 teachers were invited to participate because they taught in the model and had students achieving in the lower quartile in their classes. To ensure confidentiality, each participant was assigned a pseudonym. The following table lists the pseudonyms alphabetically. It details the subject area taught, grade level taught, number of years teaching experience, and special certifications.

Table 4.

Participant Demographics

Participant	Gender	Teaching Experience (Years)	Subject Area	Grade	ESE Certified	ESOL Endorsed
Alice	F	28	History	7,8		X
Beth	F	32	History	7,8	X	X

(table continued)

Cheryl	F	48	ELA;ESOL	6,7,8		X
Deborah	F	21	History	6	X	X
Ellen	F	5	ELA;Math	7,8	X	X
Frank	M	32	Math	8		X
Grace	F	14	ELA	7,8		X
Heather	F	18	Science	6	X	X
James	M	15	Science	8		X
Kristin	F	7	ELA	6	X	X
Lori	F	5	Math	6		X

Educator Participants

Alice has 28 years of teaching experience in both high school and middle school. She has a Bachelor's degree in Social Studies Education and a Master's degree in Education and Curriculum. She is certified to teach Social Studies grades 6-12. She is currently teaching seventh-grade Social Studies, and she taught eighth-grade Social Studies from 2010-2017.

Beth has been a teacher for 33 years. She has a B.A. in History and an M.A. in Technology Integration. She is certified in History, ELA, Math, ESE, Media Specialist, and has endorsements for Reading and ESOL. She is currently a Behavior Specialist working with sixth, seventh and eighth-graders in all subject areas. She taught History to seventh and eighth-grade students from 2014-2017.

Cheryl has a B.A. and M.A. in Education. She holds certifications in Gifted Education, Reading, ELA, Social Studies, Media, and ESOL and has been a teacher for

48 years. She is currently an ESOL teacher; she has one class of ELLs grades sixth, seventh, and eighth, and teaches ESOL inclusively with four content area teachers.

Deborah is a sixth-grade Social Studies teacher. She also holds certifications in ESOL and Social Studies. She has a Bachelor's degree in Special Education and a Master's degree in Gifted Education and has been a teacher for 21 years.

Ellen has been a teacher for 5 years. She has a Bachelor's degree in Early Childhood through Grade 6 and is certified in ESE, ESOL, ELA, and Math. She is currently an inclusion teacher co-teaching ELA for seventh graders. She has also worked with sixth and eighth-grade students in ELA and Math.

Frank is currently an eighth-grade Math teacher and has also taught at the sixth and seventh-grade levels. He has an MA and is certified to teach Math. He has been a teacher for 32 years.

Grace has been a teacher for 14 years. Her BA is in Secondary English Education, and her MA is in Gifted Education. She is currently a seventh-grade ELA teacher. She taught eighth-grade ELA from 2006-2017.

Heather has a BA in Social Work and another BA in Science with a minor in Elementary Education. Her MA is in Educational Leadership. She is certified to teach Science and Math and ESE. She has been a teacher for 18 years and is currently teaching sixth-grade Science.

James is certified to teach Social Sciences and General Science. He has a BA in Anthropology and an MA is in Aerospace Science Education. He has been a teacher for 15 years and is currently teaching eighth-grade Science.

Kristin has been a teacher for seven years. She has a BA in Elementary Education and has certifications in ESE and ESOL. She is Reading Endorsed and is certified to teach Middle Grades ELA. She is currently teaching sixth-grade ELA.

Lori is currently teaching sixth-grade Math. She has a BA in Math and is certified to teach Math for fifth to ninth graders. Lori has been a teacher for 5 years.

Data Collection

I conducted 11 semi-structured face-to-face interviews and facilitated two focus group discussions. Data collection went as planned in Chapter 3 with the exception of including an 11th participant since I had originally proposed to interview ten teachers. I sent the invitation to participate to 15 teachers with the expectation that not all teachers would wish to participate. Eleven teachers indicated they wished to be included, so I interviewed all willing participants for the study. The 11 participants reviewed and signed the consent form. Participants chose the date and time that was most convenient for them to have the interview. Individual interviews were conducted between August 20, 2017 and October 10, 2017. Participants were given a copy of the research questions before the interviews and were given a copy of the interview questions (see Appendix A) to which they could refer during the interview. Most of the interviews were conducted at a coffee shop; one was conducted over the telephone. All interviews were audio recorded, and then I transcribed them verbatim. The interviews varied in duration from 25 minutes to 40 minutes. Participants were provided with a copy of their transcript for member checking. None of the participants requested any changes to their interview transcript.

The interview data were sorted, and I used the initial findings as prompts for the focus group discussions. There were two focus groups comprised of five participants each. One participant moved out-of-state after her interview was conducted and so did not join a focus group discussion. Focus groups met on October 14 and 15, 2017 in a library conference room. The focus group discussions lasted 30 minutes and 35 minutes. The discussions were audio recorded and then transcribed. Copies of the transcripts were provided to each focus group participant for member checking. All participants were satisfied with the accuracy of the transcripts, and there were no changes made to the data.

Recording and Tracking the Data

The interviews were recorded using a digital recorder. I transcribed all the data word by word, then checked each transcript for accuracy multiple times by listening to the audio recording while reading the transcript. All interview transcripts and recordings were saved on a password-protected flash drive. Each interview was labeled with a pseudonym to maintain confidentiality. Initial data analysis was completed using a spreadsheet that categorized and sorted the data. These spreadsheets were saved on a password-protected flash drive and were also printed out. The printed versions were locked in a file cabinet.

The two focus group discussions were recorded digitally and transcribed. I checked each transcript for accuracy multiple times by listening to the recording while reading the transcript. Data from the focus group discussions were analyzed by sorting and categorizing the information on a spreadsheet. All digital information was stored on

a password protected flash drive. All printed analyses were stored in a locked file cabinet. All data will be destroyed in five years.

Data Analysis

Process

I first reviewed each transcript to highlight words and phrases that referred to engagement or disaffection. I developed a chart for pre-coding in Chapter 3 of this study that listed possible word clues for this step. I sorted the data by highlighting these words and phrases and similar words and phrases.

Table 5.

Pre-Coding Chart

Engagement	Involved; enthusiastic; works hard; interested; actively participates; enjoys a challenge; puts forth effort
Disaffection	Seems bored; is not into it; does not like it; refuses to do anything; does not care; can be disruptive; gives up; gets overwhelmed

Next, I re-read each transcript looking for the reasons attributed to the boys' engagement or disaffection and highlighted those phrases in a different color. I used a third color to find references to the teaching strategies and general tips given by each teacher. A fourth color was used to identify possible differences in the teaching approaches for girls versus those for boys. I used a spreadsheet to organize the information. The broad categories based on the research questions included Collaboration, Technology Use, and Problem-Based Learning. Sub-categories included Engagement, Reasons, Disaffections, Reasons, Teaching Strategies Related to Students'

Level, and Teaching Strategies Related to Students' Gender. Repetitions, patterns, and trends in the transcripts of the teachers' views were used to formulate the focus group discussion prompts.

The focus group discussion provided valuable confirmation of some data trends as well as clarification of others. Data analysis of the focus group discussions was completed by first printing out the transcripts and then highlighting words and phrases that connected to the initial individual interview data analysis. I constructed a spreadsheet to organize and categorize the focus group data. This data set was compared to the interview data set to support the answers to the research questions.

Categories and Themes

The interview questions were organized into large categories that explored at-risk boys' engagement with the three primary elements of the iEngage model. These categories included collaborative learning, technology use, and problem-based learning. Other interview questions delved into strategies used by teachers for level-based instruction in the model. Some questions explored teachers' views about gender differences in learning preferences and whether they employed different approaches based on student gender. The following table organizes the emerging themes by looking at commonality and frequency of words and phrases used in the teachers' responses.

Table 6.

Interview Questions and Emerging Themes.

Interview Questions	Key Words and Phrases	Emerging Themes
At-risk boys' engagement in collaborative learning	Collaborative work is on a project Talk instead of write Choice of partner Roles are explicit Clarity of steps	Clarity Choice Discussion Others do the writing
At-risk boys' disaffection in collaborative learning	Slow to start Embarrassed Feel judged Frustration Copy the work from others Communication problems Distract the group Overwhelmed	Embarrassment Frustration
Teaching strategies for collaboration	Assign roles Accountability Limit size of the group Partner/pair Positive reinforcement Procedures in place	Assign roles Limit size of group Teach procedures
At-risk boys' engagement with technology use	Better than a worksheet Interactive Like a game Competitive	Something different Interactive
At-risk boys' disaffection with technology use	Can't use technology for academic purposes Frustration when it doesn't work	Frustration
Teaching strategies for technology use	Train them Guide them	Training

(table continued)

At-risk boys' engagement with problem-based learning	They like the product Prior knowledge Relevant Choice	Relevant Choice Prior knowledge
At-risk boys' disaffection with problem-based learning	Research is too difficult Reading and writing are difficult No wide base of knowledge Communication is difficult	Difficulty with reading and writing
Teaching strategies for problem-based learning	Extend time limits Engaging topics Relevant topics Choice Chunking and scaffolds Differentiation Build background knowledge	Choice of topic Chunking Scaffolding Build background knowledge
Teaching strategies by gender	Boys need to move around Let boys be loud Girls are better organized Girls are more passive Different topics Relationships are different with boys and girls	Boys need: Movement Noise Topic

Collaborative Learning

The iEngage model features collaborative learning in class, so generally all students are expected to work collaboratively on many of their assignments. Many teachers stated that they would place the at-risk boys with one partner rather than in the group of four promoted by the physical set-up of the classroom. Others stated that they sometimes had to allow a boy to work alone. Teachers' perceptions about the engagement of at-risk boys in collaborative learning were sorted into the categories: Reasons for Engagement, Reasons for Disaffection and Strategies. Reasons for

Engagement included being able to discuss rather than write, limiting the size of the group, and having procedures in place.

The following statements by the participants indicate their views of the engagement of at-risk boys in collaborative learning groups.

- Deborah: "I think if they have procedures established, if there are steps for the students to follow, if they have those clear steps, they are more likely to engage because they have a clear idea of where to start."
- Heather: "His struggle was in writing and in reading, so when he was able to express his ideas and somebody else could listen to those ideas and do something with them, he really became part of a project."
- Grace: "As long as they are not the scribe- the one typing- they can share. They feel more comfortable because they are not going to be made fun of because they misspelled something."

Several teachers noted that at-risk boys had difficulty producing work in a collaborative situation and would often let others do the work. This is evident from some of the statements listed below.

- Alice: "They tend to let other do their work [and] just copy what the higher achieving students have written."
- Deborah: "They allow others to do the work for them."
- Kristin: "The girls just took over, and the boys sat back."

Reasons for Disaffection with working in collaborative groups included embarrassment, frustration, social interaction issues. Below are some of the ideas expressed by the participants.

- Grace: "In order to distract from his lack of competence, he would distract the group. He would try to be funny. He would make silly remarks. If no one paid attention to that, he would throw a mini-tantrum. That's how he coped."
- Ellen: "They don't want to come across as dumb. They don't want to be embarrassed. They feel they're a burden for the group- especially if there's a grumble when they're put into the group."
- Justin: "They are easily frustrated and overwhelmed. They'll try to gain negative attention because they can't contribute otherwise."
- Deborah: "They don't like to be wrong or struggle in front of their peers."

Heather and Ellen noted that some at-risk boys might have social interaction issues.

- Heather: "At-risk students have difficulty connecting with others."
- Ellen: "The communication can be very difficult. They get angry and argumentative, or they shut down and say, "I don't know. I don't care."

Although 89% of the participants expressed the opinion that collaborative learning was not motivating for at-risk boys, all participants cited methods they employed to promote engagement. Strategies included careful pairing, having clear steps to follow,

building prior knowledge, and assigning students specific roles and tasks. All participants stated that it was essential to closely monitor the groups. Some of them expressed the following viewpoints about how to promote engagement with collaborative work.

- Deborah: "I think if they have procedures established, if there are steps for the students to follow, if they have those clear steps, they are more likely to engage because they have a clear idea of where to start."
- Grace: "Generally, before we do group work, collaborative work, I have them do something individually so they have something to contribute individually. So they look at the text alone and close read and make some notes and underline. When they begin to talk about it, everyone has something to say. The low-achiever has something to say as well. "
- Alice: "We do such an extensive amount of group work- anything from 2-4 in a group at their tables, it's much better if I limit the size of the group for the at-risk boy. It's better to give them one other person to work with rather than the whole group. Because if you put these at-risk boys in a group of four, they tend to just let the others do their work. But if you let them chose a person to work with, even if they are a raucous pair, and just stay close to them and keep redirecting them, I find they work better that way."

Technology Use

While only 45% of the participants thought that technology was an effective learning tool, 77% stated that technology use was motivating for at-risk boys. They agreed that the boys' engagement with technology depended upon the task they were given. The essential factors for engagement with technology included instant feedback, competition, and game-like simulations.

Below are some of their observations.

- Ellen: "I think that they feel more comfortable because it's a one-on-one form of technology where they can get instant feedback… It's private feedback."
- Alice: "Interactive sites do engage them."
- Heather: "There were games that were involved, and those can be particularly engaging for those at-risk boys."
- Grace: "It's definitely very helpful as opposed to giving them a pen and a piece of paper. It's night and day."
- Lori: "If it's on their computer screen, they are probably more engaged."
- Deborah: "They love looking at interactive maps… the multi-media component… learning games… and video clips. They also enjoy inking with the styluses on the tablets as they're taking notes."
- James: "I think when it's used in moderation, it's very engaging and motivating. When it's overused… they can become bored with it."

The primary factors for disengagement included challenges when the technology did not work, and problems using technology for academic purposes. This is evident from the following statements.

- Beth: "When they say that these kids are tech-savvy, they're only tech-savvy when it comes to entertainment software, when it comes to their cell phones, and Snapchat, and texting. But they don't know how to make a webpage. They don't know how to manipulate a program for creative purposes. They don't even know how to format a Word document. They can't set the margins. Those dull skills, they can't do."
- Cheryl: "To use technology in an academic arena is totally different from the way they want to use technology."
- Alice: "[At-risk boys] get very discouraged with any technology issues… The low achievers aren't self-starters; they are very used to people fixing things for them."

Problem-Based Learning

All of the participants expressed the view that engagement with problem-based learning depended on factors that included choice, relevance, and prior knowledge.

- Kristin: "I leave a lot of options for choice. How can you satisfy what you need to do to get the assignment done, but on your own terms?"
- Lori: "If they have prior knowledge about what I am asking them, yes, they will be more motivated. If it's something that is relevant, real-world."

- Beth: “They need to be in a classroom that gives them a sense of relevance for what they are learning.”
- Ellen: “If they are motivated to do it, I chalk it up to: they feel comfortable to do it, and they have the background knowledge on it.”

Factors for disaffection with problem-based learning were related to embarrassment, frustration, and lack of confidence as shown from the following statements.

- Cheryl: “There’s always going to be someone or maybe even a couple who are going to disengage. I think that part of the reason they do is because they get frustrated.”
- Grace: “When there’s writing involved, it gets a little tricky, or when there’s a lot of reading involved.”
- Beth: “They think they’re going to embarrass themselves or they’ve had a series of failures they are predicting the outcome before it happens based on their past experience.”

Level-Based Instruction

All the teachers stated that they employed specific learning strategies to help at-risk boys be academically successful. The strategies that were cited most often included clarity, chunking (breaking down of information into smaller pieces), scaffolding (supports for reading and writing), and building background knowledge.

- Deborah: “Clarity of expectations, clarity of the task, looking at those procedures, steps that they need to follow.”
- Grace: “[At-risk boys] get a lot more one-on-one.”
- Ellen: “Make sure that he has enough competence. They tend to do a fight or flight response… Front-load and prep them for what they are about to do.”

The boy’s personal relationship with the teacher was listed as being an important piece of academic engagement.

- Beth: “You must continually build relationships with kids who are turned off to learning.”
- Kristin: “Everything in education is about relationship… Show them that you care.”

Gender Influences

Most teachers stated that they did not base or change their approach based on the gender of the students. In fact, most teachers stated that they hoped they did not differentiate according to gender. However,

- James: “Girls are just as excited about those activities [as boys are]. I don’t see any difference between boys and girls.”
- Alice: “I have always felt that the classroom was set up for girls. Girls enjoy order and sitting and listening and pleasing the teacher. So it easy

for a girl to follow my lessons. But boys, especially in middle school are so active and so distractible."

Some teachers identified factors of engagement that were true for boys versus girls. Learning preferences for boys included such things as being allowed to move around, games, and competition.

- Deborah: "The boys like digging through the information and pulling those pieces out. It was easier to engage the boys than it was the at-risk girls."
- Alice: "I have always felt that the classroom was set up for girls. Girls enjoy order and sitting and listening and pleasing the teacher. So it easy for a girl to follow my lessons. But boys, especially in middle school are so active and so distractible. One thing that I like to keep in mind is that they need to get up and move around."

Discrepant Cases

Ten of the 11 participants had some level of satisfaction with at-risk boys' engagement in the model. It was generally expressed that when given choices and provided with scaffolding, boys could be successful. One participant disagreed with the effectiveness of any the three components of the model (collaboration, technology use, and problem-based learning) on at-risk boys' engagement. The teacher felt that the disaffection of at-risk boys had more to do with the boys' outlook than it did with teaching strategies. He expressed the view that while girls are organized and work hard, boys are unorganized and don't work hard. Using keywords and phrases from his

interview and discussion group transcripts, his views were factored into the data analysis percentages presented in Results on the following pages.

Evidence of Trustworthiness

Credibility

Credibility was maintained through member checks of the preliminary analysis of the individual interviews and the focus group discussions. All participants were provided with the transcript of their individual interview and a transcript of the focus group discussion for their approval. Triangulation for this study was accomplished through the synthesis of interviews, focus groups, and field notes and reflective journal. Additionally, a colleague who holds a Ph.D. provided feedback as she reviewed my dissertation. I planned to have two colleagues act as a peer review panel, but time constraints prevented one from serving.

Transferability

Transferability strategies used included of thick description of instances of boys' engagement and disaffection. Interviews and discussion groups supplied detailed descriptions of at-risk boys' experiences in the iEngage model. Transferability was achieved through purposeful sampling in participant selection. The teachers' experience in years ranged from 5 to 48. The teachers represented all core subject areas (Language Arts, Mathematics, Science, and Social Studies) as well as special service areas (Special Education and English Speakers of Other Languages). There were nine female teachers and two male teachers who participated in the study.

Dependability

This study demonstrated dependability; the data was constant over similar circumstances. While the subject areas were different, the setting, or circumstance, of the iEngage model in middle school remained constant. The trends and patterns that emerged were consistent. All participants were provided transcripts of their individual interview and their focus group discussion for member checking. One colleague with a Ph.D. reviewed the study. Focus group discussions focused on initial data analysis to confirm that my analysis corresponded to the participants' views. Triangulation of member checks, peer review, and focus group discussions indicated the dependability of the study.

Confirmability

As stated in Chapter 3, confirmability in a qualitative study is demonstrated through the use of rich quotes that illustrate the emerging themes (Cope, 2014). Confirmability was accomplished by member checking of transcripts and focus group discussion of initial findings. Peer review can control researcher bias in a study (Polit & Beck, 2012; Tobin & Begley, 2004). A peer review provided additional confirmation that the data and results expressed the participants' responses and not my personal viewpoint.

Results

The data came in two waves. First, the individual teacher interviews were recorded, transcribed, and analyzed. The results of this initial analysis are recorded on the following three tables: Teachers' Views of Collaborative Learning, Teachers' Views

About Technology Use, and Teachers' View About Problem-Based Learning. The tables display the key words and phrases in the first column. The 11 teachers' names are abbreviated to their first initial in columns 2 through 12; an X in the row indicates that the teacher reported the trend in their individual interview. The second wave of data came from the discussion of the initial findings in the focus group discussions. The discussion in the focus groups expounded upon the initial findings from the individual interview data.

Research Question 1

What are the opinions of teachers about the way collaborative teamwork in the model influences the academic engagement of at-risk boys?

The following table shows the initial results that emerged from the individual interviews. Four teachers expressed the view that collaborative work was motivating for at-risk boys. One teacher stated that the boys were motivated if they could create a product while working with the group. Another teacher reasoned that the boys were allowed to talk during class. Three teachers felt that collaborative learning was an effective learning tool for at-risk boys if the boys were closely monitored and provided with clear directions and given the steps they would need to complete the collaborative task. Seven teachers stated that collaborative work was not a motivation for at-risk boys, and six of those stated that it was not an effective learning tool. Eight of the 11 participants stated that collaborative work could cause at-risk boys to shut down. They cited communication challenges, self-esteem issues, and struggles with reading and writing as the biggest obstacles. (See Table 7).

Table 7.

Teachers' Views of Collaborative Learning.

Collaborative Work:	Agreed	Disagreed	No Opinion
Can be motivating	11%	64%	25%
Is an effective learning tool	27%	55%	18%
Can cause the boy to shut down	82%		18%

Percentages were rounded to the nearest whole number

In the focus group discussions, the participants agreed that with the use of chunking, scaffolding, sentence frames, and intense monitoring, the students could contribute to a collaborative group. The teachers agreed that collaborative work could be facilitated for the at-risk boys by assigning specific roles and duties and through careful pairing of students. They confirmed that collaborative learning was not, in their view, the best way to engage at-risk boys. Frustration and embarrassment were listed as the primary barriers to success for at-risk boys in collaborative learning. James summed up the discussion on collaboration.

- James: "They need to be set up to be able to do things independently. They need frequent monitoring. I don't think working in groups is necessarily good for the at-risk boy."

Collaborative learning is motivating and beneficial for many students (Igel & Urguhart, 2012; Strom, et al., 2013), and it is an integral part of the iEngage middle school model. Thus, at-risk boys in the regular education classroom are expected to

participate in collaborative learning groups. Eight of 11 teachers expressed the view that many supports were necessary to help at-risk boys participate in groups.

Research Question 2

What are the views of teachers about how technology use in the model influences the academic engagement of at-risk boys?

Data from individual interviews showed that 8 of the 11 participants viewed technology as being engaging and motivating for the at-risk boy. These teachers cited learning games, multi-media, and interactive sites. The boys' preference for inking on a stylus rather than using paper and pencil was mentioned several times. Five of the 11 participants said technology was an effective learning tool because it provided immediate private feedback and the reading program was adjusted to the student's level.

Two teachers stated that in their view, technology was not motivating for at-risk boys. Nine of 11 participants referenced frustration as a factor of technology use. The frustration was attributed to the boys' inability to use technology for academic purposes, difficulties with research, and difficulty with typing. The teachers agreed that a barrier to technology use was the boys' frustration when the technology didn't work for them. One teacher stated that the boys had difficulty with problem-solving when the technology didn't work.

- Alice: "They get very discouraged with any technology issues. Sometimes we have to get under the table and make sure the cords are still connected. The low achievers aren't self-starters; they are very used to people fixing things for them." (See Table 8).

Table 8.

Teachers' Views of Technology Use

Technology Use:	Agreed	Disagreed	No Opinion
Can be motivating	73%	18%	9%
Is an effective learning tool	45%		55%
Can cause frustration	90%		10%

Percentages were rounded to the nearest whole number

In the focus group discussions, it emerged that one basis for the difference of opinions about technology use was the subject area taught. Mathematics teachers stated that while games are engaging, they are not necessarily a valuable use of time. Social Studies teachers who instructed students how to analyze historic documents said that seeing the document on a computer was not any different than seeing it on paper. They further stated that because the markup tools on the computer were not adequate; they preferred to print the documents for the students. Reading and ELA teachers liked the immediate feedback provided by one program being used by the county. However, they felt most of their curriculum was more effective using actual books and written sheets of paper for text analysis. Science teachers stated that technology provided a means to have students observe and experience things that they would not normally be able to access. Science teachers were the most appreciative of technology use, although, one teacher said that technology use could be taken too far.

- Heather: "Unfortunately, the pendulum swings to one side and I found that we were even presenting rocks online rather than having actual rocks- which is just ridiculous."

Research Question 3

What do teachers say about how the problem-based learning aspect of the model influences the academic engagement of at-risk boys?

Ten of 11 participants felt that problem-based learning was motivating and engaging for at-risk boys. They stated that the topics had to be relevant and that students should be offered choices in their topic for optimal motivation. Five of the 11 participants believed that problem-based learning was an effective learning tool because it was engaging.

Six of 11 teachers stated that problem-based learning could be frustrating to at-risk boys because of the research involved. They cited boys' problems with googling for information and difficulties with reading and understanding the information found in the research. (See Table 9).

Table 9.

Teachers' Views of Problem-Based Learning

Problem-Based Learning:	Agreed	Disagreed	No Opinion
Can be engaging	91%		9%
Is an effective learning tool	45%		55%
Can cause frustration	55%		45%

Percentages were rounded to the nearest whole number

Problem-based learning is implemented in collaborative groups or pairs. In the focus group discussions, it was noted that although problem-based learning was challenging and engaging for at-risk boys, it was essential to pair the boy with a partner that could effectively work with him. The essentials for effective collaborative group learning were reiterated: choice, relevance, clarity of steps, clarity of directions, chunking the assignment, providing scaffolds and frames, and constant monitoring were cited by the participants. (See Table 10). There were no discrepant data for strategies; the table indicates the percentages of participants who cited the strategy during the interview or the focus group discussion.

Table 10.

Strategies for Effective Collaborative Learning

Teaching/Learning Strategy	Percent of participants who cited the strategy
Constant monitoring	82%
Assignments are relevant	82%
Steps are clear	73%
Directions are clear	73%
Chunk the assignment	73%
Provide scaffolding and frames	36%
Provide choice	36%

Percentages were rounded to the nearest whole number

Summary

The purpose of this qualitative study was to explore teachers' perceptions of at-risk boys' engagement in the iEngage model. Eleven teachers participated in 30-40 minute individual interviews. The interviews were recorded and then transcribed. Member checking was used to ensure the data's credibility. Next, data were sorted into categories using a spreadsheet. Data were analyzed for patterns and trends to discover initial findings. The initial findings were presented to the participants as focus group discussion prompts. The discussions solidified the initial findings and delved further into the factors of at-risk boys' engagement and disaffection with collaborative learning, technology use, and problem-based learning.

The three research sub-questions addressed boys' engagement or disaffection with collaborative learning, technology use, and problem-based learning. The teachers' prevailing view was that collaborative learning was not engaging for at-risk boys. Technology use was perceived as being a double-edged sword. It was engaging when used for interactive learning but was a frustration for the boys when used for other academic purposes. Teachers expressed the view that problem-based learning was engaging when implemented with learning strategies and scaffolds.

The next chapter concludes this study with a comparison to the findings from the Literature Review, an explanation of the limitations of the study, recommendations for future studies, and the implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative study was to explore teachers' views of at-risk boys' engagement in the middle school iEngage model focused on collaborative learning, technology use, and problem-based learning. Academic engagement is an essential element for the academic success of boys who are at-risk of failure and drop-out. Eleven teachers with varying specializations and years of experience were interviewed. Teachers were interviewed because they are better able than the at-risk boys to describe the elements of engagement and to observe and analyze the underpinnings of the boys' disaffection than the boys themselves. After initial data analysis, teachers participated in focus group discussions aimed at clarifying results. The discussions served to triangulate the data thus adding to the credibility of the study.

Collaborative learning was a source of disaffection for at-risk boys. Teachers used the collaborative learning method in their classes, so strategies had to be employed in order to include the at-risk boys. Most participants said that collaborative learning was not an engaging situation for at-risk boys. Technology was observed to be engaging because it offered a change from regular paper and pencil assignments and offered private and immediate feedback. Technology was also a source of frustration when it was used for research because that involved reading, writing, and critical thinking skills. Teachers felt that problem-based learning was engaging for at-risk boys, but it often caused disaffection because of the research involved.

Comparison of Findings to Literature Review

Collaborative Learning

The studies reviewed in Chapter 2 generally indicated the students found collaborative learning to be engaging and motivating. However, the bulk of the research investigating engagement in collaborative learning focused on regular education students and did not examine the motivation of students in special education or students in the lower quartile. Strom, et al. (2013) concluded that although middle school students preferred to work in teams, lower achieving students did not demonstrate good teamwork competencies. The higher achieving students complained that the at-risk students were generally unprepared and did not contribute to the group. Participants in my study confirmed that regular education students enjoy collaborative learning more than at-risk boys do. One participant stated that, in his/her experience, higher achieving students often exhibited resentment when having an at-risk boy placed in their collaborative group.

The SDT lists three requirements for academic engagement: Competence, autonomy, and relatedness. Competence was a key issue with engagement in collaborative learning. The student must feel comfortable and confident in his or her ability to succeed because students' positive self-perceptions contribute to academic engagement (Jang, et al., 2010). Boys who have repeatedly experienced academic failure do not have positive self-perceptions; they feel inadequate and dumb (Donalson & Halsey, 2013). According to the participants, at-risk boys were not confident due to their

perceived lack of competence. The boys felt embarrassed and frustrated and were disaffected rather than engaged in collaborative learning.

The participants expressed the view that collaborative learning was not an effective source of engagement for at-risk boys. Boys often struggle with reading, writing, and communicating, so working with others was a source of frustration and embarrassment. Eight of the 11 participants stated that collaborative learning situations caused at-risk boys to shut down or act out. Zentall and Lee (2012) asserted that when failure occurs, students shift their focus from learning to avoiding embarrassment. Participants in this study affirmed that assertion. They observed the at-risk boys would distract the group, argue, or completely shut down. Teachers suggested that using strategies such as building prior knowledge and pre-teaching vocabulary could build competence before assigning a group task. Participants stated that placing the at-risk boy with just one other person, rather than a larger group, resulted in a better outcome. The assignment of specific tasks and roles was also necessary for success. Participants suggested that these boys should complete individual work before working collaboratively. During the individual assignment, they should be provided with scaffolding including sentence frames, chunking, and one-on-one assistance. These tools would allow the boys to have something to contribute to the group when it was time to work together.

In summation, the participants in this study implemented collaborative learning groups because they were a primary element in the school district's middle school iEngage model. The teachers assigned specific tasks and roles, placed the students in

groups carefully, and closely monitored the boys. They observed that when low achieving boys were placed in collaborative learning groups, the boys demonstrated embarrassment and frustration. A conclusion of this study is that collaborative learning appears to be a challenge rather than a motivation for at-risk boys.

Technology Use

Technology was an important factor for engaging adolescents (Johnson & Gooliaf, 2013). Middle school students considered technology as highly relevant to their lives (Downes & Bishop, 2012). The SDT states that the element of relevance is one of three basic psychological requirements for engagement. At-risk boys are engaged by technology use because it is relevant to their everyday world; 73% of the participants in this study agreed.

As with collaborative learning, the majority of studies on engagement with technology focused on students in regular education. Marino et al., (2014) examined the engagement of middle school students having learning disabilities with technology use, including alternative text and video games and found that technology use provided a positive increase in engagement and motivation. However, students did not show a significant achievement difference on paper and pencil tests.

Most participants stated that technology use was motivating for at-risk boys when the technology was used for educational games or labs. Approximately half of the teachers viewed technology as an effective learning tool when used individually on a program for increasing reading skills. They observed, however, that technology was also a source of frustration for at-risk boys. Two teachers noted that when the technology did

not work correctly, the at-risk boys generally did not have the problem-solving skills to cope and keep trying. All of the teachers agreed that the boys often lacked the reading and critical thinking skills necessary for conducting an online search and processing the information found. The technology was engaging, but the use of technology did not necessarily increase scores on paper and pencils assessments.

Problem-based Learning

Problem-based learning was highly engaging and motivating for students and made learning relevant and intriguing for students (Gallagher & Gallagher, 2013) and empowered all learners (Lesseig, et al., 2016). Stoddard, et al. (2015) stated that problem-based learning was engaging for underachieving middle school students in History classrooms. In the present study, participants stated that problem-based learning was engaging for at-risk boys when it was relevant to their lives and when there were options for choice. Several teachers noted that prior knowledge was sometimes a factor for disaffection with problem-based learning; the at-risk boys often lacked a broad base of experiences and knowledge. Students must to use prior knowledge and experiences to engage in real-world tasks (Tambouris et al., 2012).

The SDT, which posits that relevance and choice are two of the basic psychological requirements for academic engagement, corresponds to the perceptions of the participants in this study. The participants observed that problem-based learning was engaging for at-risk boys when the problem was relevant and when the boys were able to choose their topic and end product. While 55% of the participants stated that problem-based learning could cause frustration for at-risk boys due to their struggles with reading

and writing, 91% said that problem-based learning was engaging for at-risk boys. Nine of the 11 participants supplied anecdotes about the motivational value of relevance and choice.

In Chapter 2, it was noted that research and writing were intrinsic to problem-solving learning (Tambouris, et al., 2012). Several researchers stated that problem-based learning involved communication and presentation skills (Mukadder, 2016) as well as critical thinking and communication skills (Jaeger and Adair, 2014). All the teachers in the current study agreed that problem-based learning worked differently for at-risk boys as compared to higher achieving students. Although the boys were usually intrigued by the problem, they struggled to complete the research necessary. They often lacked communication and critical thinking skills. Teachers concurred that problem-based learning was engaging and motivating for at-risk boys, but to keep the boys engaged, it was necessary to first build prior knowledge, provide reading materials at their level, supply sentence frames and other scaffolds, and to constantly monitor their progress.

Limitations of the Study

Limitations of this study include potential weaknesses in credibility, transferability, dependability, and confirmability. Credibility, the assurance that a true depiction of at-risk boys' engagement was presented, was addressed by gathering data from 11 participants having a variety of teaching experience and areas of specialization. Possible limitations to credibility would include teachers' bias for their own abilities to engage at-risk boys or potential frustration with the boys' behavior in the classroom. Transferability was addressed through the depiction of the specific environment: middle

school core content classes that included students in regular education classes and students achieving in the lower quartile. Transferability could be limited to the specific demographics, socio-economic factors, and geographic location of the middle schools included in the study. Dependability is the feasibility of future researchers replicating this study. The study could be repeated by gathering teachers' views about at-risk boys' engagement with collaboration, technology use, and problem-based learning; replication of results might be limited by the same factors for transferability. Confirmability, the demonstration that results emerged from the data and not from the researcher's predispositions, was managed through the detailed presentation of all participants' views in tables and the rich description contained in the quotations. Confirmability was also handled through the discussion of discrepant cases.

Recommendations for Future Research

This study explored at-risk boys' engagement with collaborative learning, technology use, and problem-based learning. Through teacher interviews and group discussions, trends emerged concerning the strategies employed to boost motivation and engagement. These strategies included relevance, choice of partners, topic and end product. Patterns were established by teachers' methods used to assist at-risk learners. Methods included chunking information, scaffolding, and building prior knowledge.

One recommendation for future research is to explore academic engagement by interviewing the at-risk boys themselves (Donalson & Halsey, 2013). Interview questions could examine the boys' feelings of success or of disaffection with collaborative learning, technology use, and problem-based learning when the teacher

routinely applied the structures and supports cited in the current study. The researcher could examine the effectiveness on engagement of each strategy in a prescriptive way by considering the boys' reactions and feelings as well as achievement data.

A second recommendation is to conduct an experimental study rather than an exploratory one. Because student gender and prior grades are significant indicators for academic engagement (Buehler, Fletcher, Johnston, & Weymouth, 2015), a study focused on boys' reactions to and engagement in boy-friendly environments (Piechura-Couture, et al., 2011; Serafina, 2013) could further define methods to engage at-risk boys. Further research on specific environments and methods that work to engage at-risk boys is imperative.

Implications

Positive Social Change

Promoting the academic engagement of at-risk boys is a vital issue in the life outcomes of the boys themselves, for their families and communities, as well as for society in general (Apel & Kronberger, 2012). This study was conducted with the purpose of adding to the body of knowledge concerning academic engagement. At-risk boys generally exhibit disengagement which causes further academic failure. A downward spiral of failure and disaffection for learning ensues and often ends in school dropout.

The engagement of disengaged boys could encourage them to stay in school and earn their high school diplomas. That would have positive implications for the individuals, their families, their communities, and society in general. The individual who

drops out of school is at a great disadvantage to land a well-paying job. School dropouts have a high risk for poor life outcomes (Campbell, 2015) including limited job opportunities and earning potential (McFarland, Stark, & Cui, 2016). Dropping out has been linked to substance abuse, criminal behavior, and poor health (Reingle Gonzalez, et al., 2016). These issues can have a devastating effect on parents as well as future spouses and children. The implications for society of students who drop out of school are financially significant. Communities pay for inmates in state and federal correctional facilities- 69% of whom are high school dropouts. High school dropouts are reportedly less healthy and account for billions of dollars in Medicaid spending. Society and the economy would benefit if more students graduated with the skills to succeed in careers and college.

Recommendations for Practice

This exploratory research identified sources of engagement, reasons for disaffection, and strategies to promote engagement for at-risk boys. The aim of the research was to explore the engagement of at-risk boys with collaborative learning, technology use, and problem-based learning and to identify strategies to engage disaffected boys and help stop the downward spiral towards failure. If the factors for disengagement were avoided, and the strategies for promoting academic success were systematic, at-risk boys might engage in school.

Data analysis of teachers' views provided examples of engagement and disaffection for at-risk boys. Generally, at-risk boys did not find collaborative learning engaging. They exhibited embarrassment and frustration when placed in a group. The

boys were observed to enjoy problem-based learning- especially creating the end product. Teachers recommended that the boys complete the initial work for collaborative problem-based learning individually with supports in place such as scaffolding, chunking, and one-on-one instruction. The boys would then have something valuable to share and could work with the group to create an end product. Participants observed that at-risk boys found technology motivating when it was private and provided immediate feedback. Boys needed structures and support to be successful using technology for research. Teachers suggested using writing frames, limiting websites used for resources, and coaching to facilitate online research. These recommendations and results could be coordinated with curriculum and lesson planning to engage disengaged boys and help them be successful in school.

Conclusion

Related studies have shown the benefits of collaborative learning, technology use, and problem-based learning, but educational methods that are successful for regular education students are not necessarily engaging for at-risk boys. The results reported in this study were based on the views and observations of 11 middle school teachers who instruct in the iEngage model and have at-risk boys in their classrooms. The teachers shared their experiences in interviews and discussion groups. Their perceptions as well as the field notes taken during the interviews and discussion groups were analyzed using a qualitative case study design. Data were compared to the current literature concerning collaborative learning, technology use, and problem-based learning through the lens of the SDT. The results of data analysis in this study indicated that these elements have

mixed effectiveness on the engagement of at-risk boys. Collaborative learning can bring a boy's academic deficits to the surface causing him acute embarrassment; collaborative learning was viewed as a source of disaffection for at-risk boys. Technology use and problem-based learning were viewed as effective for engaging at-risk boys, but specific supports were necessary for the boys' academic success. Many at-risk boys continue to experience frustration, embarrassment, and academic failure. This causes a spiral of disengagement and further failure. There needs to be further research centered on educational strategies to engage at-risk boys so that they may reach their innate potential.

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Appendix A: Interview Template

INTERVIEW TEMPLATE: IMPLEMENTATION OF THE IENGAGE MODEL

Date of Interview _____ Start Time: _____End Time: _____

Ms. /Mrs. /Mr. _____.

I appreciate you volunteering to participate in this interview. The purpose of this study is to explore teachers' views about the engagement of at-risk boys in the iEngage classroom. For the purpose of this study, at-risk boys are identified as those who are achieving in the lower quartile on standardized tests. I would like to begin by asking you questions about yourself and your teaching experience. Then I will ask you questions about your views on the boys' engagement. All information shared in this interview is confidential. A pseudonym for all participants will be used in the study. If you do not feel comfortable answering a question, please let me know.

As mentioned in the consent form, the interview will last approximately 30 minutes. I will be recording the interview as well as taking notes. Is this process still okay with you? Do you have any questions or concerns before we start?

Background and demographics questions

1. How many years have you been a teacher?
2. What is your educational background? (i.e. degrees, content areas, special certifications)
3. What grade do you currently teach? What subject?
4. What iEngage training have you received?

5. Please tell me how you prepare to implement the iEngage model.
6. What are the demographics in your classes?
7. What differences are there in the approaches you use to teach your higher achieving students and those you use to teach your students who are Levels 1 or 2?

   Probe: Please tell me more about that.
8. Is there a difference between the approaches you use to teach your female students and those you use to teach your male students?

   Probe: Please tell me more about that.

Content Research Questions:

Related Research Questions

1. Describe the engagement level of at-risk boys when they are collaborating with others.

   a. What factors contribute to their engagement? How are the factors the same as those for at-risk girls? How are they different?

   b. Could you please describe a scenario of an at-risk boy's engagement during collaborative learning?

   c. Please tell me about their engagement level and activities.

   d. Can you make any suggestions that could improve their engagement?
2. Describe at-risk boy's disaffection, if any, when learning collaboratively.
   a. How does collaborative work seem to act on the boys' disaffection?
   b. Can you give an example of a common occurrence?

c. What other examples of disaffection have you observed?

d. What mitigating factors are there? How are the factors the same as those for at-risk girls? How are they different?

e. What strategies do you implement?

f. To what degree are your strategies effective?

g. What do you think are some reasons for the situation?

3. Describe the engagement level of at-risk boys when they use technology in the classroom.

   a. What factors contribute to their engagement? How are the factors the same as those for at-risk girls? How are they different?

   b. Could you describe a scenario of an at-risk boy's engagement as they use technology for learning?

4. Describe at-risk boy's disaffection, if any, when using technology.

   a. Can you give an example of a common occurrence?

   b. What mitigating factors are there? How are the factors the same as those for at-risk girls? How are they different?

   c. What strategies do you implement?

   d. What reasons can you attribute to this situation?

5. Describe the engagement level of at-risk boys when given a problem-based learning activity.

   a. What factors contribute to their engagement? How are the factors the same as

those for at-risk girls? How are they different?

b. What have you observed about their engagement level and activities?

c. Could you describe a scenario of an at-risk boy's engagement during collaborative learning?

d. Could you make any suggestions that could improve their engagement?

6. Describe at-risk boy's disaffection, if any, when learning given a problem-based learning activity.
    a. Can you give an example of a common occurrence?
    b. What mitigating factors are there? How are the factors the same as those for at-risk girls? How are they different?
    c. What strategies do you implement?
    d. In what ways are these strategies effective?
    e. What reasons to you attribute to the effectiveness of those strategies?
7. How do the levels of engagement in the iEngage model for the individual vary at different times? How do the levels of engagement vary for the group?
8. What happens when you implement a strategy to accommodate the at-risk boys?

Thank you for taking time to meet and be interviewed regarding your thoughts about the engagement level of at-risk boys in your classroom. Your opinion is very valuable to me as a researcher. I will send you a copy of the transcription for you to read. If the transcription does not reflect your views accurately, please let me know so that I can correct it.

Appendix B: Focus Group Discussion Template

DISCUSSION TEMPLATE: IMPLEMENTATION OF THE IENGAGE MODEL

Date of Discussion _____ Start Time: _____End Time: _____

Participant:_____

Participant:_____

Participant:_____

Participant:_____

Participant:_____

I appreciate you volunteering to participate in this discussion. The purpose of this study is to explore teachers' views about the engagement of at-risk boys in the iEngage classroom. For the purpose of this study, at-risk boys are identified as those who are achieving in the lower quartile on standardized tests. All information shared in this discussion is confidential. A pseudonym for all participants will be used in the study. If you do not feel comfortable answering a question, please let me know.

As mentioned in the consent form, the discussion will last approximately 30 minutes. I will be recording the discussion as well as taking notes. Is this process still okay with you? Do you have any questions or concerns before we start?

1. A trend in the data indicated that collaborative learning _____. What are your experiences with this?

2. A trend in the data indicated that technology use _____. What are your experiences with this?
3. A trend in the data indicated that problem-based learning _____. What are your experiences with this?
4. One pattern that emerged from the interviews was_____. What are your experiences with this?
5. Several teachers used _____ strategy to engage boys. What are your experiences with this?
6. Some teachers found _____ was effective for the engagement of at-risk boys. What are your experiences with this?

Thank you for taking time to meet and discuss your views about the engagement level of at-risk boys in your classroom. Your opinions are very valuable to me as a researcher. I will send a copy of the transcription to each of you. If the transcription does not reflect your views accurately, please let me know so that I can correct it.