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TEACHER PERSPECTIVE AND THE IMPACT OF USING FORMATIVE ASSESSMENTS ON CLIMATE AND ACHIEVEMENT IN MIDDLE SCHOOL ENGLISH LANGUAGE ARTS

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Abstract

A descriptive case study was conducted to examine how teachers' perception of a positive school climate and effective use of formative assessment practices impacts their students' learning as measured by a state level standards-based assessment. Data collection included (a) two surveys; (b) an e-interview collected from eight 7th and 8th grade core teachers from a suburban public Midwestern middle school utilizing expeditionary learning related to their use of formative assessment practices and school climate; and (c) their student (N = 178) results on the Smarter Balanced English Language Arts assessment. Study results showed that grade 7 and 8 core teachers clearly understood the definition of formative assessment practices, agreed that a positive school climate can impact the effectiveness of formative assessment practices, and expressed confidence that their use of formative assessment practices aided in closing the achievement gap and contributed to student academic success on the Smarter Balanced English Language Arts assessment.

Dedication

There are numerous people who I am greatly indebted to for their support on my journey in completion of this dissertation. I dedicate this writing to my beloved son Issa, who has been a superhero in all rights by exemplifying remarkable courage and strength. A very special thank you. When I first began this journey you had recently been diagnosed with a potentially fatal brain tumor. Amidst the numerous medical treatments and countless therapy sessions over the last four years, you continued to be a pillar of faith and perseverance. You never complained. You never used your illness as a crutch. It was your remarkable tenacity as a scholar that inspired me to continue going despite the various challenges and obstacles I faced. You are a treasure. I am truly honored to be your mother.

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Any of my future endeavors will be fostered on the academic foundation laid by those mentioned above. I hope that my service to the educational community and to the larger society will serve as contribution to the obligations I owe to you all.

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Chapter 1: Introduction

The educational system in the United States (US) has endured extensive educational policies and various scholastic changes to develop the most effective methods to demonstrate achievement gains among kindergarten-twelfth (K-12) grade students. As Stiggins (2005) argued, the influence of assessment is substantially apparent on students' academic success. It is important to determine the way in which teachers' assessment practices impact learning outcomes for students. Current research has shown that formative assessment practices have a tremendous impact on summative assessments, primarily due to student involvement in the learning process (Black & Wiliam, 2009; Stiggins & Chappuis, 2006; Bell & Cowie, 2001). Heritage (2007) noted that exploring teachers' perception of formative assessments can aid in the promotion of a genuine and in-depth examination of their influences on student achievement. In order to support this notion, further investigation of the impact of formative assessment practices on teaching and learning processes should occur in the US.

The purpose of this study was to use descriptive case study methodology to examine how teachers' perceptions of a positive school climate and effective use of formative assessment practices impacted their students' learning as measured by a state level standards-based assessment. This study reviewed formative assessment practices (Stiggins, 2005) that supported teaching and learning processes and helped foster critical thinking skills. The formative assessment method in which these teachers approached their instructional practices was essential for their students to gain mastery of college and career readiness skills, the primary purpose of the newly implemented Common Core State Standards (CCSS).

Conceptual Framework

The conceptual framework used for the development of this study was a social constructivist approach based on the principles from Vygotsky's (1968) theory of socio-cultural learning and zone of proximal development (ZPD). Vygotsky's theory of learning focused on the mental processes and contributions of society and culture to the contribution of mental processes. "He theorized that the origins expansion of thinking takes place in the daily lived occurrences that children have, particularly in exchanges with more experienced members of their cultural communities" (Cole & Gauvain, 2004, p. 34). Vygotsky's theoretical framework provided a base for educational research to seek the most effective way of measuring student learning and achievement. Formative assessment practices use this same premise as teachers aim to build on student prior knowledge and success in order to increase learning.

The analysis of literature for this study provided a foundation for defining formative assessment practices and the importance of this practice on the teaching and learning process. First coined by Scriven (1967) formative assessment practices were designed to aid in student outcome on summative testing. Scriven (1967) determined that formative and summative assessments played different roles but were equally as important in the learning process. Although Scriven preferred summative assessments as an accurate way to measure student achievement, he also acknowledged Cronbach's (1967) partiality to formative assessments. In the late 1960's, Scriven determined that formative assessment acted as a channel for preparation to summative exams (Black & Wiliam, 2003). More recently, Black and Wiliam (1998) reviewed 250 studies on formative assessments and concluded that student learning showed most promise when

teachers utilized formative assessments, with test gains as high as a half to a full standard deviation from the norm.

Additionally, Bloom's (1968) theory of Mastery Learning stated that using formative assessment promotes student learning goals and aids in the development of an exemplary teacher-student relationship necessary for an effective teaching and learning process. Formative assessment methods were designed to assist in aiding successful student summative testing outcomes and resulting in sustained achievement.

Formative assessment practices used as teaching strategies increase student achievement (Black & Wiliam, 1998a, 1998b; Wiliam, Lee, Harrison, & Black, 2004; Wiliam & Thompson, 2007). The success of formative assessment practices is realized when both the instructor and students' level of engagement, learning objectives, and outcomes are incorporated in every aspect of the learning process both inside and outside of the classroom (Stiggins & DuFour, 2009).

Formative assessment practices can also serve as diagnostic tools to help students achieve benchmark goals and demonstrate success. The need for students to develop authentic and rich learning experiences to apply learning to real-life situations is a key aspect in determining success or failure in future careers (Hwang & Chang, 2011). The formative assessments that teachers give throughout the school year provide a baseline measurement for each student in order to attain gains on state criterion test and also serve as a guide to inform instruction. An effective classroom teacher utilizes the results from these pre-assessments and on-going formative assessments to develop personalized instruction that will aid in mastery of the standards in the area of content examined (Stiggins, 2000).

Furthermore, effective formative assessment practices are designed to shape the learning of the student and make adjustments to teaching practices in order to achieve successful academic goals (Wiliam, 2006). When executed appropriately, formative assessments can significantly impact learning outcomes and increase student educational achievement (Wiliam, 2006).

While the implementation practice of formative assessment practices is important, supportive and positive school climate is noted as one of the most effective ways of ensuring that instructional practices such as formative assessments are effective classroom tools (Blase & Blase, 2000). Hence, when teachers feel supported and have the tools to implement new practices, they often perform better; in turn, this aids in increased levels of performance for students.

Equally as important is the need for collaboration between teacher and student. Teacher and student collaboration is a key to the success of student mastery because students will be involved in the learning process, and, along with feedback from their instructors, will adopt their own strategies for improvement (Fisher, Frey & Lapp, 2012).

These efforts have led a drive to reexamine the importance of the evaluation of all assessments and determination of their impact on student outcomes concerning high stakes testing and learning standards. The campaign towards CCSS implementation was a key factor for current changes in instruction and assessment practices. There was a need to individualize and personalize learning for students in order to ensure mastery of the CCSS. Teachers were expected to ensure that all students, from varying achievement levels, diverse ethnicities, and socioeconomic backgrounds, make gains each year on

CCSS assessments. Therefore, the number of teachers that utilize formative assessment has drastically increased.

Statement of the Problem

Each year there seems to be more emphasis placed on student gains and academic achievement. State measurements such as Adequate Yearly Progress (AYP) are used in order to quantify the strength of a district and are ideally used to develop a systematic approach to predicting student outcomes. Teachers have increasingly complained that they spend more time teaching to the test than actually measuring student learning (Jones & Egley, 2004). Moreover, teachers have frequently stated that they feel immense pressure to improve test scores (Koretz, Mitchell, Barron, & Keith, 1996).

The latest educational reform policy designed to close the achievement gap and improve student academic growth in the US was signed into law by President Obama on February 17, 2009. This policy is referred to as the American Recovery and Reinvestment Act of 2009 (U. S. Department of Education, The American Recovery and Reinvestment Act of 2009: Education Jobs and Reform (ARRA, 2009). The ARRA (2009) was intended to assist with recovery of economic and societal investments, including the educational system. The ARRA gave credence to education reform by supporting investments in ground-breaking approaches aimed to improve student learning and school rigor (cite).

The ARRA (2009) provided $4.35 billion for the Race to the Top Fund. Race to the Top was a competitive grant program designed to encourage and reward states that created the conditions for education innovation and reform and achieved significant improvement in student outcomes. The outcomes included making substantial gains in

student achievement, closing achievement s, improving high school graduation rates, and ensuring student preparation for success in college and careers. Race to the Top also featured the implementation of ambitious plans in four core education reform areas: preparation for college and work, establishing data to improve instruction, support instructional needs and turn around the lowest-achieving schools. The definitive outcome of Race to the Top was to reward the states that demonstrated successful student academic success and effectively created road maps for future educational reformation.

These political initiatives created an environment in which teachers were expected to significantly increase student academic achievement scores on state criterion tests. The belief that teachers were directly accountable for student achievement was not a new concept. However, the ARRA policies were designed to authenticate teacher accountability and increase academic rigor. In the US, improving literary competency is at the forefront of increasing rigor. Mastery of literary skills has been recognized as a central factor in determining future academic and career success. Hence, the CCSS expectations had reading and writing expectations at the center of each content area (Zygouris-Coe, 2012).

The CCSS focus on higher standards in reading and writing. One of the most important motivations for the standards was the need for rigor in the classroom in order to prepare students for the workforce and/or college. While the CCSS are being carried out across the nation, strategies to support the implementation processes are not consistent. The CCSS are designed to ask students to do more and increase critical thinking, analytical skills, and reasoning. Hence, scholars such as Fisher, Frey and Lapp (2012) asserted that there is a need for teachers to develop assessments that investigate

where the student's learning is now and where the student needs to improve in order to master the skill.

The most recent drive towards formative assessment methods are making an effort to improve the connection between what students need to learn and what is expected for them to know (Stiggins, 2005). In order to ensure student learning, teachers began incorporating formative assessment practices as a way of preparing students for standardized tests. This method not only aided in the teaching and learning process, but helped build confidence and assurance of knowledge (Stiggins, 2002). The value in these types of assessments was to ensure that they were properly implemented by teachers and served as feedback to students in order to increase learning (Stiggins, 2002). Although there was prior research to demonstrate how formative assessments served as statistically significant predictors of math and literacy criterion-referenced tests (Stiggins, 2005), implementation of the CCSS may challenge the relationship due to the rigor of the standards.

In analysis of the literature, several questions materialized about the impact of formative assessment practices and criterion testing: 1) How can you define the principles of effective formative assessment practices?; 2) How can formative assessment practices work to effectively aid in closing the achievement ?; 3) What role does school climate play in the effectiveness of formative assessment practices?; and 4) Can successful formative assessment classroom practices influence academic achievement gains on state criterion testing aligned with the CCSS? The Literature Review in Chapter 2 examines these questions and provides a foundation for the purpose of this study.

Research Question

This descriptive case study examined how teachers' perceptions of school climate and effective use of formative assessment practices impacts their students' learning as measured by a state level standards-based assessment. The primary research question for this study explored how middle school teachers of core subjects use formative assessment practices to influence student performance on a state ELA criterion-referenced assessment. Two secondary research questions explored included: 1) How did school climate impact the effectiveness of formative assessment practices? and 2) How did formative assessment practices influence the achievement among learners of varying socio-economic levels, ethnicity and gender?

Teacher interviews, teachers' formative assessment survey results, and teachers' school climate survey results were used as guides to answer the research question for this study. The results of these teacher perceptions about the impact of formative assessment practices on school climate and student achievement (Smarter Balanced English Language Arts assessment for grades 7 and 8) were analyzed for patterns and themes.

Context

Vine Middle School* is the school involved in this inquiry and is located in the suburban area of a large Midwestern city. Twelve years ago, Vine Middle School was an underperforming school with less than half of the students showing proficiency or above on the school's standardized tests among all age groups (Vine Middle School website, 2015). By 2014, Vine Middle School achieved various state and national recognition awards for student achievement, including three consecutive years as an "Apple Distinguished" school (Vine Middle School website, 2015). The unique learning environment in which included implementation of active learning both inside and outside

the classroom, effective usage of Culturally Responsive Curriculum, demonstration of a positive school climate and wide spread access and use of technology, caused many schools across the nation were looking at Vine Middle School as a model to replicate their success (Vine Middle School website, 2015). *Pseudonym

The researcher hypothesized that the use of formative assessments is one of the variables contributing to student academic success at Vine Middle School. Through federal and state grants, Vine Middle School allocated a large number of financial and community resources to successfully implement various formative assessment practices throughout the school district (Vine Middle School website, 2015). These resources helped assist with an active learning approach by providing field trips and explorations, grade level projects, 1:1 laptop school implementation, and integration of technology into classroom discussions and small group work. The school also adopted a theme of "school as a hands-on learning model." This thematic approach to learning allowed students to take an active role in the learning process. Vine Middle School experienced an increase in performance on ELA and math state test scores since the implementation of active learning strategies (Vine Middle School website, 2015). Formative assessment practices such as student reflections, collaborative activities, fieldwork, project learning and community strategies are examples of active learning tools used by Vine Middle School (Building Principal, personal communication, March 25, 2016). By raising their AYP, Vine Middle School has not only demonstrated their dedication to overall school improvement, but also demonstrated their level of dedication to students by aiding in increasing academic achievement outcomes.

However, the authenticity of formative assessment practices, the school climate and how these two factors impact student achievement on CCSS measures needed examination. Vine Middle School's investment as a school of active learning practices involved a considerable amount of money and time allotted for field trips and professional development focused on differentiated teaching methods (Building Principal, personal communication, March 25, 2016). This study has proven valuable in gaining an understanding of teachers' perceptions of school climate and how their use of formative assessment practices impacted student achievement. The results of this study also provided the school principal with data to analyze that may be used to meet professional development objectives and assist with curriculum selection. Additionally, the results of the study helped to further inform the impact of formative assessment practices and helped identify barriers related to the achievement on state criterion measures.

Research Design

The researcher used a descriptive case study methodology that utilized a mixed methods approach in both the collection and analysis of the data. The participants in the study included four 7th grade instructors and four 8th grade instructors in the area of math, science, ELA and social studies. The researcher was interested in exploring how these eight instructors used formative assessment practices to enhance the unique characteristics of their school of active learning. The researcher wanted to discover the connection between the perception of school climate and the implementation of formative assessment strategies used to affect student achievement levels. In addition, the researcher wanted to investigate other factors such as culturally relevant curriculum,

student motivation, and student-teacher rapport that aid in the development of formative assessment practices to impact students' learning.

Participants were given an in-depth, open-ended electronic-interview (e-interview) consisting of 13 probing sub-questions. Although the e-interview served as the primary source of data, data from a formative assessment survey, school climate survey (specifically in the area of instructional methods), and results of 7th and 8th grade students' scores from the ELA Smarter Balanced Assessment were also examined. Seven themes emerged from the frequency data collected from the formative assessment and climate surveys. These themes and patterns provided a foundation for the questions administered on the e-interview, which revealed five additional themes.

The researcher proposed to examine the themes and patterns from this study in order to develop a theoretical perspective. Developing a theoretical perspective in qualitative case study research increases its depth and tells a story richer than a strictly quantitative study (Yin, 2009). The intimate nature of this case study allowed the researcher to examine the participants' sense of action and allowed for an accurate portrayal of their perceptions (Yin, 2009).

Limitations

Due to the practical constraints of this study, various limitations existed. This descriptive case study involved eight teacher participants, which was a small sample size. The in-depth interviewing protocol did not include interviews with students, which would have helped improve the details of the story. Threats to external validity included the e-interview and setting. The reach of this study was limited to one school within a school district and the results of this study cannot be applied to other schools. The researcher is a

parent of a child in this district, which jeopardizes impartiality; however, great care was taken in order to address the bias. The Smarter Balanced Assessment and CCSS were also newly implemented tests and educational competencies in this school district. Hence, the results cannot be compared to previous results. Additionally, Creswell (2002) stated that interview data was a limitation due to the insights and individual experiences of the participants.

Definition of Key Terms

In order to ensure a precise comprehension of the information used in this study, the terms and acronyms listed below have been outlined:

Formative assessment- Throughout this paper the term formative assessment will be used to refer to "all those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (Black & Wiliam, 1998, p. 140).

Common Core State Standards (CCSS). This is the new content standards initiative adopted by 45 states across the United States. These standards are designed to prepare students for the skills necessary to succeed in college and career readiness.

Adequate Yearly Progress (AYP). A measurement used by the No Child Left Behind initiative that determines if schools have met adequate measureable gains compared to the state standards. This term is regulated by federal legislation.

Smarter Balanced Assessment Consortium (SBAC). A state- led consortium used to develop assessments aligned with the Common Core State Standards.

Vine Middle School - pseudonym for research site.

Chapter 2: Literature Review

This chapter offers a review of literature in formative assessment practices in order to identify current research and developing trends which have shaped learning in the classroom and fostered increased academic success. Three primary themes helped frame this study. First, the review of literature begins with the principles of formative assessment practices. These principles describe the theoretical foundation that has influenced the benefits of formative assessments. This is followed by an examination of the importance of formative assessment practices related to academic achievement. Finally, the literature illustrates essential factors that affect school climate, particularly factors which can influence teaching and learning processes and characterizations of formative assessment practices that impact the academic achievement gap. In addition, the following key concepts will also be examined: teachers' perceptions that framed their formative assessment practices, academic achievement, and climate.

Teacher Perception and Student Learning

Teachers with a positive attitude and perception about learning and assessments have a higher chance of impacting students learning outcomes (Guskey, 2002). According to Marzano (1992) there were two categories of teacher perception that affected student learning. First, he indicated that the perception by a teacher that the learner can retain information was more important than external elements such as I.Q. level and prior academic achievement levels (Marzano, 1992). Teachers demonstrated this level of perception by accepting their students and creating learning environments that are conducive to comfort and order (Marzano, 1992). The second factor of teacher perception that affected successful learning, was their ability to foster positive attitudes

about classroom tasks (Marzano, 1992). Marzano (1992) indicated that in order to implement successful assessment strategies, students must be connected to the task at hand. Similar findings by Skinner and Belmont (1993) reported, "Teacher perceptions of both behavioral and emotional engagement are influenced uniquely by teacher involvement and autonomy support (teacher report)" (p. 578). These findings showed that teachers' perception of students had a large effect on the way in which students experience teaching and learning interactions with teachers (Skinner & Belmont, 1993). When teachers exhibited positive attitudes and perceptions about learning strategies, student adopted similar principles, which in turn led to successful implementation of learning strategies. Hence, teacher perception of their formative assessment practices greatly impacted the outcomes of student academic achievement. (Stiggins, 2006).

Foundation of Formative Assessments

Assessment practices have been identified as one of the most important influences of educational success in the 21st century. Among the many definitions of assessments, Scriven (1967) defined assessment of student learning as an orderly process of gathering information about student progress in order to monitor their knowledge. Although this conventional approach to assessment is widely utilized by US educational systems, there has also been a push to assess students in a more frequent and summative manner in order to determine if these students are successful in meeting state learning standards (Stiggins & Chappuis, 2006). Stiggins and Chappuis (2006) claimed that assessment for academic achievement must involve a process in which students are involved in their own learning and are the gatekeepers of their own instructional strategies. In addition, the authors insisted that instructors develop a process for descriptive feedback in order enhance

student learning and find a way to evaluate their teaching practices (Stiggins & Chappuis, 2006). This preparation is crucial to the success of formative assessment practices in the classroom.

Wiliam and Black (1998) defined formative assessment practices as “all those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (p. 140). Formative assessment practices provided information during the instructional process and before assessing a student’s knowledge on a summative assessment (Scriven, 1961). The purposes of formative assessments are to assist the student in assessing their own knowledge and provide the teacher with feedback on how to reshape teaching practices (Stiggins, 2006). This teaching cycle aided in the promotion of further learning and successful student achievement measurements.

According to Stiggins (2006), instead of simply rote memorization, students must be asked to use their knowledge to analyze, compare and evaluate what they have learned. This type of reinforced learning helps to provide foundation for alternative types of assessment in order to measure academic gains. Providing students with a foundation of constructivism in the classroom may help support this type of teaching and learning process (Savery & Duffy, 2001).

History of Formative Assessment Practices

The premise of constructivist learning was the foundation for the examination of formative assessment practices in this study. By definition, formative assessment practices rely on variations in teaching aimed to diversify the teaching and learning process (Tomlinson, 2000). It is widely accepted that students need differentiated

learning in order to completely master concepts for all learning content matter. According to Nicolini and Meznar (1995), the social constructivist approach to learning stated that the structure of cognitive learning takes place under the direction or in collaboration with others. Vygotsky (1978) was one of the most noted theorists that contributed to this way of thinking.

Vygotsky's (1978) theory supported the premise that all students have the capability of learning and becoming skilled at a task. His theory on proximal learning indicated that both learning and development are natural parts of the human process. His theory refuted all past beliefs that only the most elite students can master a skill. Based on Vygotsky's theory of learning, Shepard (2000), contended that school learning should be authentic and connected to the world outside of school not only to make learning more interesting and motivating to students, but also to develop the ability to use knowledge in real-world settings (Shepard, 2000). In addition to the development of cognitive abilities, "classroom expectations and social norms should foster the development of important dispositions, such as students' willingness to persist in trying to solve difficult problems" (Shepard, 2000, p. 7).

It is imperative to approach formative assessments from the social constructivist view in order to support new learning goals such as CCSS goals. These standards are designed to expose students to real-life applications in order to prepare them for sustainable careers and college curriculum. Shepard (2000) asserted that supporting formative assessments as an effective tool for evaluating criterion testing is defined as: "expanding the armamentarium for data gathering to include observations, clinical interviews, reflective journals, projects, demonstrations, collections of student work, and

students' self-evaluations, and it means that teachers must engage in systematic analysis of the available evidence" (p. 8). The latest attempt to employ new learning expectations such as the CCSS standards can help determine baselines for students and develop the transfer of knowledge in which students are able to use this information in new situations (Shepard, 2000).

Current literature on assessment and the teaching and learning process view formative assessment practices as an ongoing process that encourages lifelong learning (Stiggins, 2000). Scriven (1991) claimed that learning is supported by both the importance of formative assessments and summative measures. These two components of educational evaluation complement one another (Scriven, 1991). The collaboration of these two assessments have allowed educational reformists to shift their thinking from relying solely on criterion-based testing methods as the only determinant of student achievement.

Yet, standardized criterion remains the most utilized method of measuring student growth in the US. (Stiggins, 2005). From the 1990's to the time of this study, standards-based assessments have remained the leading factor in school evaluations. The US educational mandates have made the pressure of meeting state standards more intense. These expectations are tied directly to financial motivations and incentives for districts that meet certain federal requirements. All students are expected to achieve state academic expectations, with gains each year in the area of mathematics and reading. These efforts alone are believed to demonstrate effective teaching and learning in the classroom (Stiggins, 2005).

However, this claim has been refuted by numerous researchers (Stiggins, 2005;

Black & Wiliam,1998; Scriven, 1961). Herrera, Grossman, Kauh, Feldman, & McMaken (2007) contended that the traditional forms of assessment, which primarily rely on summative outcomes, cannot provide data to aid in improving instruction. There has been little evidence to connect the expectations of increased pressure to improvement of criterion test scores and actual achievement gains in standardized testing. Teachers are expected to raise test scores, but the methodology of raising the scores is not clear. As a result of striving to meet the demands of NCLB and Race to the Top initiatives (RTTT), school districts have simply tried to keep up with policy expectations, rather than developing systems for increasing learning.

These latest mandates for more standards-based teaching can often feel like a barrier to supporting differentiated instruction, especially for teachers who acknowledge the importance of diversified learning (Tomlinson, 2000). Moreover, standards-based instruction and the need to ensure high-stakes testing can jeopardize individualized learning and high-quality instruction (Tomlinson, 2000). Hence, there must a balance between the need to ensure proficiency of standards and a focus on individual learners' needs. Standards may challenge teachers to question what is valuable about successful instruction, but it does not have to dictate the method in which instruction takes place (Knight & Wood, 2005).

The Role of Student Evaluation and Motivation

Utilizing standard based instruction to design practical formative assessment practices was the best way to ensure student achievement outcome. Crooks (1988) conducted a meta-analysis of studies to illustrate the impact between the classroom assessment practices and student achievement outcomes. Crooks (1988) defined

important formative assessment practices as activities that involve time spent both inside and outside the classroom. According to his evaluation of this research, he found that the formative assessment feedback process

> Guides students' judgment of what is important to learn, affects their motivation to learn, forms their self-perception of competence, helps them make decisions about what and how much to study, consolidates learning, and impacts the development of their learning strategies and skills. (p. 467)

Crooks' research determined that there was a clear discrepancy between the higher-order thinking that a summative test alone could offer and transference of learning and the evaluation of such thinking.

Crooks' (1988) theory also supported that standards-based teaching alone has continued to draw a larger gap among students of varying achievement levels. Additionally, Stiggins and Chappuis (2002) argued that the role of standardized testing over the last 60 years has failed to produce effective ways of closing the achievement gap among students who cannot achieve grade level expectations and those that exceed their expectations. Hence, Stiggins and Chappuis (2002) promoted integrating formative assessment practices into the equation for success. They asserted that the largest proponent of change is feedback from instructors and student accountability for this change.

One of the most important factors of student motivation is self-evaluation. When students assess themselves through monitoring their individual educational efforts and feedback from their instructors, they have a higher chance of achieving success (Stiggins

& Chappuis, 2002). In order to have students believe in this model, though, US educators must shift their approach.

> Strong achievement gains are within reach for all students, especially those who have experienced little success before. We must, (a) fundamentally redefine the relationships among assessment, student motivation, and effective schools, and (b) provide teachers with a set of classroom assessment competencies that historically has been students who have not experienced success? (Stiggins & Chappuis, 2005, p. 13)

Bell and Cowie's (1998) argument aligned with this theory. The importance of recognizing effective student and teacher relationship in the feedback process is crucial. In fact, Stiggins (2005) stated that, in order to motivate lower performing students, educators must: 1) Instill confidence in students from the very beginning of engagement, and 2) Restore hope in the students that feel like failures as learners. Stiggins (2005) claimed that if these students are to believe in themselves as productive learners, then they must first experience credible forms of academic success. The goal of educators in this study was to perpetuate this cycle.

The most difficult task was to determine how to effectively implement these practices, especially in a current school system that is highly data-driven. In order to support Stiggins' (2005) theory, students must be involved in the process of assessments. This process of involvement "helps learners see and understand our vision of their academic success. The result will be classrooms in which there are no surprises and no excuses. This builds trust and confidence" (Stiggins, 2005, p. 327). According to Stiggins (2005), student-involved assessments such as portfolios, journals, and projects have been

shown to cultivate student progression over a defined period of time. This progression has been shown to allow students to make record of their achievements and take control of their learning process.

Several studies have supported the importance of student evaluation in the formative assessment practices. One of the most notable studies was a review of research conducted by Black and Wiliam (1998), which examined more than 250 articles seeking evidence to support the notion that student-involved formative assessments resulted in a direct correlation in achievement scores on criterion examinations. In their analysis, they found that when teachers utilized formative assessment scores as a method of teaching, students were able to raise standardized testing scores by as much as one-half to a full standard deviation. Black and Wiliam's (1998) findings also supported Stiggins' (2005) argument that traditionally low achievers' outcomes will increase once they take ownership of assessments and are allowed to measure and track their success.

This theory of self-motivation was a significant factor recognized in literature for the successful implementation of the formative assessment process. Students used knowledge of their current progress to actively manage and adjust their own learning (Deci & Ryan, 1985). This autonomy was a powerful tool that supported independent and creative thinking, which in turn allowed for analytical thinking skills, which are beneficial predictors on how well a student will perform on criterion testing (Chappuis & Chappuis, 2005). This personalized approach to motivation not only led to academic growth, but it also fostered social responsibility, increased positive classroom culture and aided in problem solving and personal adjustment (Deci & Ryan, 1985).

Harlen and Crick (2003) concluded that when students exercise more accountability

for their learning, they are able to be more aware of the learning process, exhibit higher self-esteem, and increase their motivational levels. Student accountability and student drive can ultimately foster and develop student academic achievement (Harlen & Crick, 2003). According to Harlen and Crick (2003), it was important to ensure that a student owns his or her learning experience.

Marzano (2011) also suggests that involving students in assessments will allow for more effective learning. He makes four recommendations for standards based grading and reporting:

> An effective standards-based grading and reporting system should eliminate the overall or "omnibus" grade. If you can't get rid of the omnibus grade, provide scores on measurement topics in addition to the grade. Expand the assessment options available to students. Proficiency scales allow for three powerful classroom assessments that won't work if the teacher uses the 100-point scale in isolation. Allow students to continually update their scores on previous measurement topics. (p. 36)

These recommendations are especially important for students who fail to meet grade level expectations. This methodology eases tensions of student grades and provides students with multiple opportunities to improve on learning (Marzano, 2011).

Another strong factor in the importance of student motivation was to aid in the development of teacher-student relationship among teachers of different SES background. Kem and Connel1 (2004) suggested that a cohesive relationship full of trust and motivation is a crucial bridge to academic success for low achieving students. They insisted that there are key factors that will increase the chances of a successful

motivational behavior. First, students need to know that teachers are involved with them and invest in their educational well-being. This included teachers demanding high expectations for students regardless of their SES status. Kem and Connell (2004) reported that students who have caring and supportive relationships with their teachers perform better academically. According to Kem and Connell (2004), another factor that helped increase student motivation is allowing for student engagement in the learning process. "By high school as many as 40% to 60% of students become chronically disengaged from school - urban, suburban, and rural not counting those who already dropped out" (Kem & Connell, 2004, p. 262). These students lacked the motivation to remain engaged in school. Hence, Kem and Connell (2004) reported that there are various levels of engagement, which should be ongoing. These levels include emotional, psychological and cognitive components of educational engagement. Their longitudinal study concluded that implementing school reformation for student motivation led to changes in teacher support, student engagement, and student performance.

Literature also pointed to "looping" an additional factor that aided in the development of student motivation (Gaustad, 1998). In efforts to increase student motivation schools have implemented looping technique to forge bonds between teacher and student. The terminology "loop" refers to "the practice of advancing a teacher from one grade level to the next along with his or her class. At the end of a "loop" of two or more years, the teacher begins the cycle again with a new group of students" (Gaustad, 1998, p. 1). The practice of looping has allowed teachers to embrace a more in-depth analysis of their students' learning styles, personalities, social behaviors, strengths, and weaknesses (1998). In the US the practice of looping was made popular in the 1990s

because of the implication that student-teacher relationships could have a tremendous impact on student learning outcomes (George & Lounsbury, 2000). The benefits of looping have been shown to allow teachers to individualize teaching and design assessments that best suit students with varying academic achievement levels, socioeconomic backgrounds and learning challenges.

Measuring Student Achievement

Traditionally, assessments have been used to rank students and compare them to those of the same grade level. As noted by Stiggins (2005), "society has come to understand the limitations of schools that merely sort and rank students" (p. 325). Stiggins (2005) asserted that the mission of schools has changed from one that simply measures student progress to one that ensures all students achieve quantifiable measures of achievement. This focus, defined first by the No Child Left Behind Act in 2002 (No Child Left Behind [NCLB], 2002) and more the recent Race to the Top initiative (ARRA, 2009), has outlined that U.S. teaching practices must be effective enough to ensure that students achieve academic proficiency.

Although there have been a variety of initiatives for educational reform, the expectations for student mastery of standardized criterion testing have remained the same. While there have been extensive studies that indicated the link between student I.Q. and content knowledge to the student academic achievement, recent efforts attempt to correlate student achievement and teaching practices (Darling-Hammond, 2000). Measuring student achievement gains can quantify summative test scores, but it is only a step in measuring an effective teaching and learning process.

> "Student achievement is the status of subject-matter knowledge, understanding, and skills at one point in time, while student learning is the growth in subject-matter knowledge, understanding, and skills over time. It is student learning—not student achievement—that is relevant to defining and assessing accomplished teaching" (Linn, Bond, Darling-Hammond, Harris, Hess, & Shulman, 2011, p.8).

As a result, developing effective assessments are critical to the key of student academic success. For this study in order to understand the difference between student learning and student achievement, it is important to review the history of assessment in the US. The overview that follows is a brief explanation of current state criterion tests utilized in the state of Missouri.

History of assessing student achievement.

The concept of standardized testing in the US has existed for more than 150 years. However, in the US, changes in the school system's accountability transformed heavily during the 1940's to 1960's. During this time, the U.S. educational system experienced a more definitive way of measuring school and student accountability (Perdew, 2001). School measurements were introduced to assess student individual testing performances, district curriculum implementations, and grade level expectations criteria (Perdew, 2001). Brigham introduced the Scholastic Aptitude Test (SAT) in 1926 and the American College Test in 1959 (ACT); these were additional assessments designed to assess high school students and determine eligibility into college (Perdew, 2001).

According to Stiggins and Chappuis (2005), the introduction of college admission tests in 1940 attempted to effectively measure student aptitude and develop a baseline for teaching methods. This introduction led to district-wide standardized testing in the 1970's

and individual state testing in the 1990's. State criterion-referenced tests were aimed to produce a rank among students from high achievers to low achievers. These state tests became pivotal platforms for radical change in education as they determined schools' curriculum, standards of excellence and funding for the district (Stiggins & Chappuis, 2005).

State summative assessment and English Language Arts.

The most common form of summative testing in English Language Arts is the state criterion tests implemented by various state designed achievement standards. Missouri has utilized the Terra Nova, Missouri Assessment Program (MAP), and End of Course (EOC) assessments to measure content knowledge in English Language Arts. More recently, to measure the ELA CCSS, school districts across Missouri have started administering tests such as the Smarter Balanced Assessment.

Terra Nova is a standardized summative test constructed to assess K- 8th grade student achievement in reading, Language Arts, mathematics, science, social studies, vocabulary, spelling, and other areas. According to the McGraw-Hill Educational Company, Terra Nova was noted to be "the most respected, valid, and innovative national achievement test." (Getting from Here to Core, 2014). In the English Language Arts content area, the Terra Nova testing methods include multiple choice, constructed response, selected response and open-ended responses. The tests have approximately 20-25 questions and are timed from 20- 25 minutes per subject area.

At present, one of the most well-known state assessments in Missouri is the Missouri Assessment Program (MAP). Despite the anticipation of the CCSS, the MAP assessment is still used by most schools in Missouri. The MAP assessment was designed

to evaluate students' mastery regarding the *Missouri Show Me Standards*. Adopted in 1996 in response to the Outstanding Schools Act of 1993, the Missouri Show Me Standards were designed to ensure that students master grade level skills and are able to apply these skills to decisions and life choices after they graduate. The standards encouraged hands-on activities and a learning process that involved critical thinking and promote understanding (Missouri Department of Elementary and Secondary Education, 2015).

At the time of this study, students in grades 3-8 take the MAP assessment to evaluate their knowledge of math and English Language Arts standards. Students in grade 5 and 8 also take a MAP test that assesses science standards. In the past, districts have used the standards in order to formulate their curriculum. For the last 20 years, these standards have helped teachers structure their classroom practices and have been used to determine how to implement these benchmarks in the classroom. The MAP scores have also provided information to predict the success of a student's performance in the classroom. Ideally, the data obtained from this assessment would also help drive individual instruction to ensure student progress for the state assessments in high school.

The End-of-Course Assessments (EOC) are examples of assessments utilized for determining content retention in Missouri high schools. In 2008 Missouri implemented EOC Assessments for three subject areas: Algebra I, English II, and Biology. By 2009, measurements for English I, Algebra II, Geometry, American History, and Government were added. Finally, in the Fall of 2014, a Physical Science assessment was launched. The EOC exams were designed to meet the demands of both federal and Missouri district requirements (Missouri Department of Elementary and Secondary Education, 2015). The

Missouri State Board of Education identified the following purposes for the Missouri EOC Assessments: to measure and reflect on students' mastery toward post-secondary readiness, identify students' strengths and weaknesses and communicate expectations for all students in Course-Level Expectations (CLEs) regardless of student grade level. (Missouri Department of Elementary and Secondary Education, 2015)

For many schools across Missouri, tests such as the Terra Nova, MAP and EOC will be replaced with assessments that align with the newly implemented CCSS. During the time of this study, Vine Middle School began using assessments like the Smarter Balanced assessments to assess the CCSS. In order to assess the ELA standards, the Smarter Balanced assessment have designed questions that assess key details, craft and structure, integration of knowledge and ideas, and range of reading level and text complexity. The new CCSS more specifically analyze students' abilities to access and deconstruct primary and secondary sources, evaluate author's implications, and test their knowledge of how to integrate of technological skills into responses (Wineburg, Smith, & Breakstone, 2012).

The Smarter Balanced Consortium is an agency located in the University of California at Los Angeles's Graduate School of Education and Information Studies. The Smarter Balanced Assessment has been adopted by 15 states, one territory, and the Bureau of Indian Affairs (Smarter Balanced Assessments, 2015). Through the collaboration of educators across the country, Smarter Balanced Consortium produced an on-line assessment system associated with the Common Core State Standards (CCSS), as well as guidelines in order to assist teachers with teaching and learning strategies in the classroom (Smarter Balanced Assessments, 2015). The goal of Smarter Balanced is based

on the principle that an effectual assessment system can offer evidence for educators and districts to enhance educational practices and help all students succeed. This process was developed with the collaboration of experienced educators, researchers, policymakers and community (Smarter Balanced Assessments, 2015).

Another testing method aligned with the CCSS is the spell out first time used PARCC assessment. PARCC's testing structure is based on the same concept as Smarter Balanced. States utilizing the PARCC practices have designed a variety of assessments to assist all students of varying socioeconomic and ethnic backgrounds (PARCC Assessments, 2016). PARCC's goal is also aimed to ensure that once students complete high school they are able to have access to global educational skills for the workplace or higher education. PARCC's assessments offer suitable evaluations of individual student's educational progress.

Role of formative assessments in mastery of student achievement.

The assessments listed above determine educational success for students in order to measure their learning and ability to understand subject-content material. The task of developing proper problem solving and critical thinking skills is a crucial step in order to master these assessments. In order to ensure that students master content standards, there are various ways in which educators can implement formative assessments in the learning process. First, the classroom instructor must develop a plan for implementation. According to Stiggins (2005), these strategies have been proven to take place in seven steps:

Where Am I going? Strategy 1) Provide students with a clear and understandable vision of the learning target, Strategy 2) Use examples and models of strong and

> weak work, Where Am I now?, Strategy 3) Offer regular descriptive feedback, Strategy 4) Teach students to self-assess and set goals, Strategy 5) Design lessons to focus on one learning target or aspect of quality at a time., Strategy 6) Teach students focused revision., and Strategy 7) Engage students in self-reflection, and let them keep track of and share their learning. (pg. 1-14)

Once the strategies are developed and the educator has outlined the conditions for the assessments, instructors can form well-designed formative assessments to encourage mastery of content knowledge. Some examples include electronic journaling, quick writes, collaborative activities and technology-enhanced assignments.

Formative assessment strategies used in order to aid in achievement must follow four conditions (Stiggins, 2005). The first condition states that assessments must be driven by a clearly articulated purpose. Condition one ensures that educators understand students' informational needs and the expectations of the decision makers [policy makers, district administration, and school leadership]. Condition two states that formative assessments must have clear and specific expectations derived from curriculum standards. Assessments are not intended to be secret decoders that only teachers can understand. Effective assessments that aim to close achievement s and increase summative scores need to outline the learning expectations and incorporated intentional teaching practices.

Stiggins' (2005) condition three revealed that assessment methods must accurately reflect intended teaching targets. This will ensure that results are met and are quantifiable measurements in order to track and align progressions. The last condition stipulated by Stiggins states that the results of the assessments should be delivered to the

intended users. These results should clearly communicate the need for assessments so that all parties can interpret the data and utilize it effectively. This condition is considered to be one of the most important factors of the formative process. Feedback for the user will aid in owning their development and determining how to increase academic performance (Stiggins, 2005). Implementation of these strategies in order to foster effective formative assessment practices is a crucial step in ensuring that students learn (Stiggins, 2005).

Teacher Perception of School Climate

While it is important to examine the effectiveness of teachers' formative practices, school climate can also have profound impact on the outcomes of instructional practices. When a school operates in unanimity in order to ensure a positive school climate, teachers become more aware of the disparity between the commitment to learning for all students and the strategies they must implement in order to ensure that this takes place (DuFour, 2004). Formative assessment practices may be able to help identify and close this gap. However, school administrators and instructors must evaluate the teacher's perception of instructional practices before implementing new practices and changes designed to improve school climate. According to McNeil (2009), this examination should include a clear understanding and purpose of the school, the history, and what will work well for the current school culture. "When the complex patterns of beliefs, values, attitudes, expectations, ideas and behaviors in an organization are inappropriate or incongruent the culture will ensure that things work badly" (McNeil, 2009, p.74). The success of instructional practices, such as formative assessments, rest

with the notion that a positive school climate is one of the most important factors to consider.

Arthur Perry is acclaimed to be the first to acknowledge the importance of school climate (Cohen, McCabe, Michelli & Pickeral, 2009). Perry, a building administrator in Brooklyn, New York, noted that it is important to recognize the significance of the school's physical environment and the *spirit* of the school (Cohen et. al, 2009). Since Perry's first defined school climate in the early 1900's, various researchers have developed very different conceptualizations of the definition (Anderson, 1982). For example, researchers Halpin and Croft (1963) referred to the school climate as a personality of the school entity just like that of an individual. Theorist Tagiuri concluded that field, behavior setting, situation, setting, conditions, and circumstances are all important to a school climate (Anderson, 1982). "Tagiuri's system is preferable because it reflects the growing consensus of many climate researchers that school climate includes the total environmental quality within a given school building" (Anderson, 1982, p. 369).

Freiberg also studied school climate and described school climate as the heart and soul of the school and the essence of the school that draws teachers and students to love the school and to want to be a part of it" (Anderson, 1982, p. 370). Freiberg's definition suggested that teacher perceptions of motivation and instructional support are necessary in order to examine the school's climate. In the 21st century it has been concluded that school should consider four areas as important determinants of school climate: physical safety, relationships of those in the school environment, including faculty, students, and parents, teaching and learning methods, and the physical environment of the school (Cohen et. al, 2009). Hankins (1991) indicated that schools with teachers that view their

school climate as negative send out negative signals to at-risk students, instilling the perception that they are unworthy and unable to continue in the educational process. Schools without the support and guidance of leadership typically have students with a high absentee rate and high academic achievement gap.

These findings concluded that understanding teachers' perceptions of school climate is often a key factor in the successful exchange of the teaching and learning process. It is important to determine how a teacher will structure his or her teaching strategies in order to ensure that all students meet yearly academic gains. For this study, it was important to ensure that the relationship between instructor and student was effective and cohesive. In settings in which teachers are far removed from the challenges of students with low SES because of their different socioeconomic and racial backgrounds, relationships are often difficult to build. Hence, school climate must be an environment of inclusionary cultural learning.

Climate factors addressing achievement disparities.

The term inclusionary cultural learning refers to including sociocultural practices in teaching strategies to ensure that all students learn (Nakanishi & Rittner,1992). Delpit, a leading researcher and expert in urban education, expressed her concern for the educational disparities in America that impact school climate. According to Delpit (1998), teachers are a reflection of their experiences just as much as their students. Their perceptions, preconceived notions, stereotypes and expectations about the abilities of their students shape the outcomes of the student success. Often these beliefs assume that urban children's environment and attitudes interfere with their ability to demonstrate effective learning (Schultz, Neyhart, & Reck,1996).

Consequently, this translates into a classroom that fails to produce conducive and constructive learning for all students. Students of low SES and those of the racial minority are not expected to perform well on criterion testing, especially the tests involving critical thinking and higher level reasoning (Delpit, 1998). Therefore, because of the expectancy of failure, students' academic performance suffers. Delpit (1998) has reflected on the past educational reformations, such as the *No Child Left Behind Act* (NCLB) and programs such as Teach for America and the New York City Teaching Fellows Program, which were intended to help close the achievement gap. Delpit (2013) noted that while these reforms and programs may have suitable intentions to help close the achievement gap, they tend to create additional division among teachers who often perceive themselves as *outsiders*.

Culturally responsive curriculum.

One way schools combated the academic achievement gap across ethnicities and socioeconomic status was to introduce culturally responsive curriculum into classroom planning and assessment approaches. Gay (2002), a current leading pioneer of Culturally Responsive Curriculum (CRC), defined culturally responsive teaching as using the cultural knowledge, prior experiences, and performance styles of diverse students to make learning more appropriate and effective for them; it teaches to and through the strengths of these students. Gay (2002) presented data suggesting that academic gains in urban communities can be best achieved if CRC and differentiated teaching practices are used.

In the field of education CRC refers to the legitimacy of the cultural heritages of different ethnic groups, builds bridges of meaningfulness between home and

> school experiences as well as between academic perceptions and lived sociocultural realities, uses a wide variety of instructional strategies that are connected to different learning styles, teaches students to know and praise their own and each other's cultural heritages, and it incorporates multicultural information, resources, and materials in all the subjects and skills routinely taught in schools (Gay, 2002, p. 29).

Therefore, a teacher's approach and perception of incorporating both CRC and formative assessment practices is a powerful approach to mending the gap among teachers' preconceived notions about students of lower SES. According to Shepard (2000), teachers who approach students with the theory that all students have the capability of learning have created an environment for all students to have a better chance at success. Shepard (2000) concluded that classroom routines and student-teacher rapport has helped ensure the effectiveness of formative assessment practices. School learning should be authentic and connected to the real-world, not only to make learning more interesting and motivating to students, but also to develop the ability to use knowledge life settings. In addition to the development of cognitive abilities, "classroom expectations and social norms should foster the development of important dispositions, such as students' willingness to persist in trying to solve difficult problems" (Shepard, 2000, p. 7).

Active Learning

A school's instructional practices have a profound influence on school climate. Academic gains in students' expectations and sense of efficacy were linked with teachers who exhibit instructional innovation (Brand, Felner, Shim, Seitsinger, & Dumas, 2003).

Incorporating this notion of CRC with an active learning approach resulted teachers' ability to connect learning for all students. Active learning is defined as all instructional activities that involves student as active participants in the learning process (Grabinger & Dunlap, 1995). Examination of the research literature (Chickering & Camson, 1987) proposed that students must do more than just listen when involved in learning. Chickering and Camson (1987) claimed that students must be actively involved in order to master analysis and evaluations of information. Strategies that promote active learning encourage student participation and accountability (Bonwell & Eison, 1991). Hake (1998) described the results of a study involving 62 introductory physics courses. The results of this study concluded that students who were involved in interactive engagement produced much higher scores than those who were instructed solely by lecture style learning. Similarly, Springer, Stanne, & Donovan (1999) conducted a large meta-analysis of studies examining small group learning in math and engineering courses. Compared to traditional lecture-based instruction, active learning activities such as collaborative work in student groups, peer assessments, increased in-class formative assessment and group discussion, were observed to make considerably higher learning gains and foster deeper understanding (Springer et al., 1999).

Prince (2004) conducted a study to uncover the true effects of active learning. In this study he concluded that there is substantial evidence to suggest that active learning increases knowledge retention and ensures that students are actively engaged in their own progress. An important principal behind active learning is that it must involve both doing and engaging in dialogue with a leader or peers (Kuh, 2003). The combination of the two

philosophies guaranteed student engagement and led to successful academic gains (Kuh, 2003).

Technology.

An additional climate factor that affected student achievement is the concept of the digital divide. The term digital divide has become a progressively vital topic of discussion for educators attempting to bridge modern tools with academic content. The term digital divide refers to the inequities among individuals who have access to technology and opportunities to learn Information Communications Technology (ICT) skills (International ICT Literacy Panel, 2002). Many researchers have pointed to socio-economic disparities to explain the phenomenon (Alexander, Entwisle, & Olson, 2001; Hoffman & Novak, 1998). One of the greatest examples of this is in the public education system.

Drawing on research and literature on the digital divide, a study conducted by (Hohlfeld et al., 2008) sought to outline the differences in low and high SES in K-12 schools in Florida in terms of ICT access, knowledge and usage. This study was conducted from 2003–2004 to 2006–2007. The sample population was collected from public elementary, middle, and high schools (N= 2,345) from Florida's 67 school districts that participated in the Florida Innovates survey (previously titled the System for Technology Accountability and Rigor or STAR survey) for all four school years (Hohlfeld et al., 2008). They found (Hohlfeld et al., 2008), that despite the national push to assist students with low SES in advancing their technological needs, these students suffered greatly with Internet access and ICT literacy.

In order to address these deficits across the US many schools have implemented mandatory computer training for students and staff. One of the most profound programs intended to combat computer literacy in low SES classrooms is the 1:1 computer initiative, allowing all students access to a personal computer for educational purposes. For schools like Vine Middle School that have adopted one-to-one programs their efforts have allowed for a better implementation of technology and access to students that experience digital divide difficulties.

The access to technology in Vine Middle School included access to technological formative assessment practices such as providing feedback to students using real-time cloud drives like Google Drive. Vine Middle School used their access to technology to post teaching videos on YouTube and create channels to display student work and projects. Additionally, teachers were able to communicate with students via email in order to answer questions regarding content or learning clarifications. This formative assessment practice allowed students the privacy to alleviate the embarrassment of hand raising during class and avoidance that students felt when they are not clear about a topic. This also encouraged rapport and builds relationships between the student and teacher, which was crucial in order to encourage learning.

Summation

The US has a history of utilizing assessments for measuring the success of the teaching and learning process. Throughout this historical journey, assessments have varied from classroom oral measurement to state standardized testing to national testing, all of which aim to compare students and rank them according to skill. Moreover, in the current climate of high stakes testing, assessments have been utilized to determine both

school effectiveness and student learning. Various political initiatives and educational strategies have been launched in order to safeguard effective learning outcomes.

In the literature reviewed for this study, there was evidence to suggest the effectiveness of formative assessments (Black & Wiliam, 1998; Cowie & Bell, 1999; Sadler, 1989; Shepard, 2005; & Stiggins, 2006, 2008) not only on student learning, but also on student learning outcomes. According to the framework designed by Scriven (1967), formative assessments are a way of supporting the information tested in summative assessments. In order to support learning and develop the most authentic measurement for student achievement, educators must learn to incorporate this method of teaching and learning into their classroom practices (Shepard, 2000).

The literature also supported the need for teachers to include CRC in the formative assessment practices (Gay, 2002). Teachers that developed a strong rapport with their students by making cultural connections can aid in increasing academic gains (Gay, 2002). This was especially important in districts that have wide gaps in academic achievement among groups of students with varying socioeconomic statuses. Active learning has been shown to provide an excellent foundation for differential learning and aid in connecting learning to students' real life experiences. Finally, technology efficiency can help close the achievement, especially when students are provided with tools such as laptops and Wi-Fi access (Shapley et al., 2009). Including these principles in formative assessment practices can make them more effective.

However, opponents of formative assessment claimed that there is a lack of quantifiable data to support the effectiveness of formative assessments (Dunn & Mulvenon, 2009). A study conducted by Dunn and Mulvenon (2009) concluded

"[formative assessments] provides greater support for the need to conduct research in which more efficient methodologies and designs will lead to more conclusive results and understanding of the impact of formative assessment and evaluation on student achievement." (p. 9). This study indicated that further research is needed in this area in order to provide statistical data to support the claim of utilizing formative assessments as a predictor for success in criterion standardized testing.

In the 2014- 2015 school year, the state of Missouri implemented the CCSS into curriculum grades. Students are expected to master these skills in order to prepare them for collegiate learning and career readiness. The purpose of this study was to address this need. Educators in this study established efficient ways of preparing students to master the newly implemented CCSS standards by developing creative formative assessment practices.

The investments have become increasingly higher for all educational stakeholders. Student learning in the US has involved a more in-depth critical analysis of the teaching and learning process. Analyzing how teachers utilize CRC, technology, and active learning in their formative assessment practices will help determine if these practices can aid in closing the achievement gap. Closing the achievement gap and ensuring that all students are viable learners is one of the primary goals of the US educational system. Therefore, the importance and need for this study was critical. It was critical in understanding the relationship among formative and summative assessments and critical in determining how these formative assessments can help classroom achievement. Finally, the critical nature of this study may provide grounds for improving student learning and accountability.

Chapter 3: Method

Overview

Chapter 3 includes an explanation of the rationale for conducting a qualitative case study with teachers from a suburban middle school and their perception of school climate and the use and impact of formative assessment practices on student achievement. Particularly, the purpose of this inquiry was to use descriptive case study methodology to examine the effects of school climate on middle school teachers' formative assessment practices and how formative assessment practices are used to influence performance on state criterion-referenced tests. A case study approach is valued when a researcher wants to deeply investigate the research questions at hand (Yin, 2009). Hence, the researcher aimed to uncover how eight teachers' outlooks on their formative assessments practices affected the achievement levels of their students' Language Arts state testing scores. Seven key factors are articulated in this chapter, including the rationale for the use of case study methodology; setting and participant selection procedures; informed consent and permission procedures; data collection methods; data quality procedures; data analysis procedures; and a summation. In addition, detailed descriptions discussing the role of the researcher, assurance of confidentiality, and the credibility and dependability of study results are discussed.

Research Question

This study investigated teachers' perceptions examining how the use of formative assessment practices can influence academic achievement in the area of English Language Arts for 7th and 8th grade students. The researcher also specifically examined the following sub questions: 1) How does school climate impact the

effectiveness of formative assessment practices? and 2) How do formative assessment practices influence the achievement among learners of varying socioeconomic levels, ethnicity and gender?

Rationale for Case Study

Type of design.

A case study methodology is an approach designed to give depth to individual experiences (Yin, 2009). A case study approach allows the researcher to gather information about individuals or organizations and allows the researcher to study the complexity of a single case in order to apply it to this important circumstance (Yin, 2009). This approach was beneficial for this study because these findings helped support this school in their efforts to evaluate formative assessment practices among the middle school teachers. Particularly, a descriptive case study was the best approach because the data in this study demonstrated a relationship between the unique learning environment of this school and assessment results (Bikerman & Rog, 1998). The research questions in this study addressed specific elements of Vine Middle School pertaining to their school climate and their need to address learning gaps among varying demographic groups. Hence, a detailed analysis of these teachers' perceptions of formative assessments practices and school climate data was used to illustrate Vine Middle School's learning environment.

The researcher conducted a literature review on the characterization of a case study and its relevancy to this practice to promote a clear understanding of case study design. This inquiry was guided by the work of qualitative researchers Merriam (2002), Yin (2009), and Stake (1995), and their extensive backgrounds in case study

methodology to provide a strong foundation for data collection and organization. For the qualitative aspect of the study the researcher sought to draw a connection between teacher perceptions and beliefs about formative assessment practices. The research questions were designed in a way to analyze to what extent or how this phenomenon interacts with the current school climate and student achievement. According to Siedem (1998), this allows a researcher to acquire an understanding of the specified interest, and this aspect of a qualitative research study was used to determine the foundation of the study. The research question aimed to take the perceptions of the instructors and discern their frames of understanding (Ritchie & Lewis, 2003).

Another important aspect of a case study is that it allows the researcher to examine the intentions and sentiments surrounding the studied topic, which may be difficult to capture in traditional quantitative data analysis (Yin, 2009). This study examined teacher perceptions and beliefs about formative assessments and these formative assessment practices may impact the criterion testing outcomes for ELA. Through explanation of their lived experiences (Stake, 1995), this study provided a richer analysis of how the participating teachers viewed formative assessment practices and the cause and effect of their practices on criterion outcomes. Qualitative research methods allow researchers to identify social science behaviors in perspective because it allows explanation of occurrences in their natural setting (Creswell, 2005). This study invited teachers to reflect on their knowledge of formative assessments and beliefs about these practices in their classroom. Participants discussed their perceptions of their school climate in relation to their instructional practice.

In the field of education, qualitative research has become increasingly popular to help provide quantitative analysis with a story behind the numbers. According to Yin (2003), in order to be an effective qualitative researcher, one must study events that occur in their natural settings. In this study, the teachers articulated how they use formative assessment practices in order to drive state testing outcomes. Participants' stories examined their instructional practices, beliefs and perceptions that were delivered in the classroom. The case study approach was the best method of analysis for this inquiry because it allowed for the development of a clearer understanding of the lived experiences of these teachers and their own understanding of formative assessment practices.

Credibility and validity.

A crucial aspect of studies involving qualitative methods is the emphasis of the importance of the researcher as an active participant in the study (Creswell, 2005). For this study, the researcher prepared the surveys based on established researchers. Hence, the researcher was responsible for creating the formative assessment surveys and interview protocols, collecting the data, analyzing the data using both descriptive measures and coding techniques. The student measurement (English Language Arts state testing outcomes) and school climate data were obtained from the Vine Middle School principal August 21st, 2015 and therefore considered existing data. In order to ensure that the data was not corrupted with preconceived notions, the researcher was committed to reporting the data accurately for the purpose of reviewing the questions posed in the study. The researcher did so by providing open-ended questions along with survey

questions and ensuring that the questions were aimed at the target population (Lofland & Lofland, 2006).

Case study research is centered around the concept that the researcher wants to understand a social happening. Researchers examine the idea of gaining an understanding of social processes in context while also exploring the implications of those involved (Yin, 2009). For this study, the e-interviews provided a rich first-hand account of the context from the participants. Interpreting results are particularly vital to authenticity (Merriam, 2002). In order to ensure that the data analysis was void of inadequate interpretation, the researcher entered data collection with no set outcome or assumptions. Stake (1995) suggests that qualitative researchers interpret the data from the participants' perspectives rather than allowing the researcher to draw conclusions and make assumptions. Hence, the researcher collected multiple sources of data, which allowed for triangulation, to decrease threats to the credibility of the study (Merriam, 2002). Both the surveys and the e-interviewing technique served as member checks, (Merriam, 2002) which are a form of ensuring that the data collected is authentically interpreted (Merriam, 2002). There was no question of transcription error because responses to the e-interviews were typed by the participants. The researcher utilized an electronic coding data software, Atlas Ti, to assist in researcher error and allow for a more accurate analysis of the frequencies of codes. The researcher also engaged in critical self-reflection concerning assumptions, biases, and her relationship to the study in order to prevent unethical practices and discover authentic themes and patterns from the data (Yin, 2009).

Role of the researcher.

Stake (1995) defined case study methodology as an approach of inquisition in which the researcher conducts an in-depth investigation of a program, event, activity, or process of one or more individuals. Creswell (1998) added that the role of the researcher is one that involves a detailed outlook on a phenomenon in its natural setting. This query examined formative assessment practices and their impact on criterion testing, and the researcher aimed to ensure that the data collected provided a comprehensive view of how these eight middle school teachers performed in their natural setting. Since the researcher in a case study collects data in a variety of methods, which may involve both qualitative and quantitative analysis of the data (Stake, 1995), the researcher aimed to collect data that was both rich in explanation and involved empirical measures.

Mixed-methods were used to conduct the case study. Both the qualitative and quantitative data collection and analysis processes of the study were equally important in order to address the research question and establish reliability and validity. The quantitative element of the study reported the frequencies and mean scores of responses by the participants on the formative assessments survey and school climate survey that specifically addressed teaching practices. This quantitative data helped design probing questions for the qualitative component of the study to achieve a deeper analysis of the participating teachers' perceptions. The responses from the teacher interview questions were used as the primary data source for this study and included questions related to formative assessment practices, school climate, and student achievement. From the teachers' interviews, qualitative analysis occurred by examining themes and patterns that developed. Both the quantitative results from the formative assessment survey and school

climate survey were combined with the qualitative results from the teacher interviews in order complete a full analysis of the teachers' perceptions and beliefs of formative assessment practices. According to Greene, Caracelli and Graham (1989), the results from a mixed-method study can enhance the validly of the outcomes of a study. Thus, the researcher used this approach to support the validity of the results.

For this study, the qualitative analysis involved coding teacher interviews based on common themes and theme families. The interviews were conducted utilizing an e-interviewing method. These interviews were administered, transcribed, and placed into Atlas Ti, a qualitative software program used to code data electronically and analyze frequencies. The quantitative analytical approach involved reporting descriptors and frequencies of patterns displayed in the teacher formative assessment survey, climate survey and the student data. The formative assessment and school climate surveys were analyzed using Qualtrics, a quantitative software database program, while the student data was analyzed using SPSS, a database used to conduct statistical analyses. The researcher reported descriptive statistics, frequencies, themes and patterns of the data analyzed.

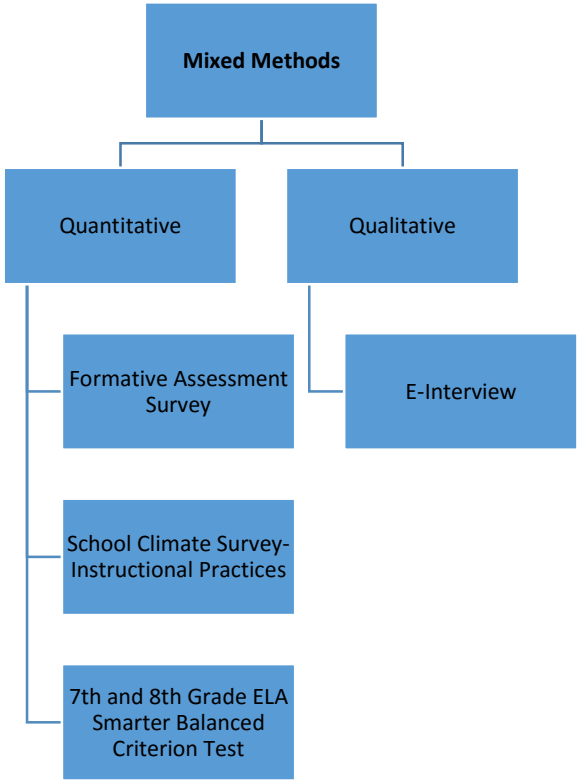

Figure 1. Examples of qualitative and quantitative data collected in this inquiry.

Quite often, case studies are constrained by both the amount of time, personal involvement and the type of undertaking of the study. The researcher in this study is a parent of a student in the same district as Vine Middle School. Hence, the researcher wanted to ensure that there was no personal involvement when analyzing the data collected. The researcher also has a strong bond and connection with the administration and staff at Vine Middle School; therefore, the researcher ensured that reflexivity was employed. Reflexivity is a method in qualitative research of examining oneself and the research so that there are no biases or emotional input by the researcher (Mauthner & Doucet, 2003). The researcher made certain that all positive opinions about the district were excluded from the analysis.

Setting and Participant Selection Procedures

Selection process.

In order to ensure that Vine Middle School was an effective site in which to conduct a case study on formative assessment practices, Yin's (2009) guidelines for effectiveness were utilized. Yin (2009) named five components of effective case study research design: 1) research questions; 2) propositions or purpose of study; 3) unit analysis; 4) logic that links data to propositions; and 5) criteria for interpreting findings. The most appropriate questions for this type of qualitative case study research were "how" and "why" forms of questions. Particularly, the researcher formed questions on the formative assessment survey and e-interview about the teachers' perceptions on the types of formative assessment practices, how they were used in their classrooms and how school climate affected these teachers' implementation of formative assessment instructional practices.

Based on the research question, the researcher's purpose was to examine how these instructors' formative assessments may have affected student achievement on a state ELA criterion test; this is called a causal link (Yin, 2009). The unit of analysis was identified as eight middle school teachers of core subjects. For this study, linking logic to the data (Yin, 2009) arose after the researcher developed a clear understanding of the literature depicting effective formative assessment practices. The first pattern to develop began during examination of the descriptive scores during the initial formative assessment survey. The mean scores were based on instructor responses on the Likert scale concerning formative assessments' purposes, definition and effectiveness in the classroom. The criteria for interpreting findings (Yin, 2009) involved ensuring that the data was coded prior to developing patterns and themes. Analyzing the quantitative

results helped measure how much change existed among the participants and allowed for a measurement in order to create consistency among the data (Yin, 2009). This analysis for quantitative data was then used to form in-depth interview questions about the teachers' perceptions of formative assessment practices.

The selection of Vine Middle School emerged from the researcher's interest of the effective use of formative assessment practices in an active learning environment. Vine Middle School's educational practices followed much of the research documented in the literature review concerning the impact of formative assessment practices on criterion-referenced testing outcomes. The review of literature demonstrated the need for teachers that utilize formative assessments to 1) draw a connection between formative assessment practices and the impact on student academic success; 2) determine if formative assessment practices can aid in closing the achievement gap; and 3) verify how a positive school climate can aid in successful implementation of formative assessment practices (Stiggins, 2005). Hence, the researcher designed a research strategy to explore these factors. Vine Middle School was identified as a school that consistently employs formative assessment practices in daily instruction. The unique characteristic of Vine Middle School was its commitment to active learning both inside the classroom and during outside expeditions. This commitment allowed for successful implementation of formative assessment practices.

Setting.

This study was conducted in a suburban public school in the Midwestern US. This school served 178 7th and 8th grade students and the breakdown of demographics included the following: 64% White, 28% Black, 4% Hispanic, 4% biracial, and 2%

Asian/Pacific Islander students. Thirty-eight percent of the students received free or reduced lunch (NCES, 2014-2015).

From the 1980s to late 1990s, Vine Middle School students struggled academically and had problems with retention; meanwhile, the school grappled with budgetary difficulties. These challenges gained attention from the school board and community that yearned for change and reform for the school district. By the beginning of the 21st century, Vine Middle School started to experience an increased academic and overall school performance. By 2002, Vine Middle School received state recognition for significant improvement in academic achievement. Two years later, the district received "Distinction in Performance" for receiving 100 points in the Annual Performance Report (APR). For the subsequent eleven years, Vine Middle School has consistently received awards and recognitions for academic success and improvement. Currently, the district earned a 98.2% APR, which represents a 9.6% increase from 2013(NCES, 2015). These accolades have garnered attention from both governmental departments and proprietors that have elected to provide various school improvement grants to Vine Middle School. These grants have helped fund local and statewide field trips, student laptop initiatives, alternative learning labs and various other educational efforts for learning.

The organizational structure of Vine Middle School is composed of eight core teachers in math, science, social studies and ELA for 7th and 8th grade students. The teachers are supervised by a building principal and vice principal. The district leadership of Vine Middle School includes a superintendent, assistant superintendent, eight school principals and vice principals. For the purposes of this study, the core teachers of Vine Middle School were of specific significance. The researcher examined their formative

assessment practices in relation to school expeditions and classroom strategies based on best practices to promote continuous student academic improvement.

School expeditions are particularly important in this study because Vine Middle School's mission is based on active learning. School expedition can vary from local school field trips to nationwide field trips. During these expeditions, teachers are expected to incorporate curriculum-learning standards during the process. The concept of "school as an expedition" was developed by the administration in approximately 2002 (Vine Middle School Principal, email communication, April 14th, 2016). This transformational approach to learning helped teachers implement formative assessment approaches to learning because they were charged with the responsibility of ensuring that learning took place both inside and outside of the classroom. School expeditions began as soon as school resumed from summer vacation. From the fall term to the end of the school semesters, the 7th and 8th students at Vine Middle School took over thirty school expeditions, which averaged about four expeditions a month. In addition to the expectation that each teacher should incorporate content matter, each expedition had a "focus of study." A few example of the focus areas included: team-building efforts, science content, ELA strategies, college planning and elements of Vine Middle Schools' school climate philosophies.

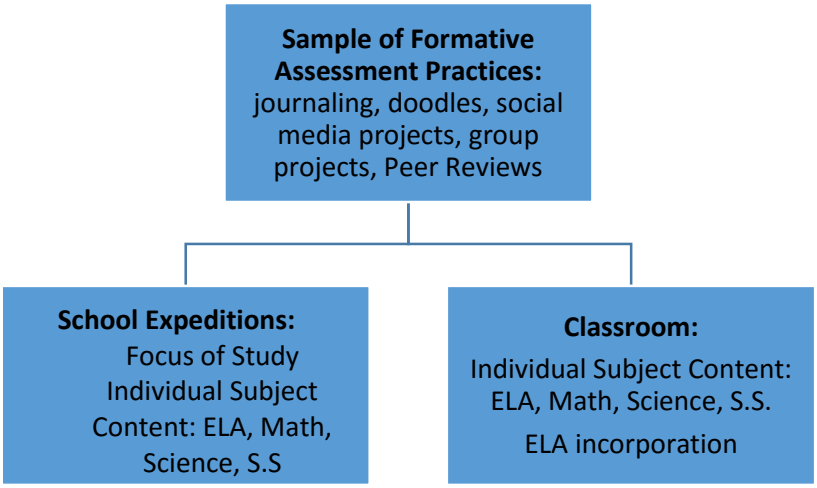

Figure 2. Formative assessment strategies used at Vine Middle School.

The classroom ratio for the 2014- 2015 school year at Vine Middle School was about 16 pupils to every classroom instructor. The small classroom setting contributed to the effective use of differentiated instruction because teachers can focus on individual learning patterns and make effective use of the active learning approach (Graue, Hatch, Rao & Oen, 2007). Implementation of formative assessment practices take place both inside of the classroom setting and on actual school expeditions as well as in collaboration of the two. For example, a class might engage in a group discussion about a focus area while on a school expedition that includes course content matter, followed by a classroom project that addressed both elements.

Participants.

The researcher selected eight core instructors of the 7th and 8th grade students as the participants in this study. The method of selection was purposeful sampling. Patton (2005) defined purposeful sampling as sampling techniques that are based on the judgment of the researcher. This sampling is best utilized when the researcher selects this

population based on their characteristics. This process ensured that the researcher was able to address all components of the research question (Patton, 2005).

For this study, the participants had a wide variety of teaching experience. Their teaching experience in the district ranged from one year to seven years. Participants in this inquiry included one teacher in each of the following content areas from both 7th and 8th grade: ELA, math, science, and social studies. In order to maintain confidentiality, the building principal assigned a number ranging from 1 to 8 for each of the eight core teachers. This number was used when the participating teachers took the formative assessment survey, answered questions on the instructional practices portion of the climate survey, and responded to the online e-interview. Table 1 lists the characteristics of participants in this study.

Table 1

Teacher Demographics

Teacher Number	Subject Taught	Gender	Race	Years in Middle School
Teacher 1	8th Science	M	W	7
Teacher 2	7th Math	F	W	1
Teacher 3	8th Math	F	W	4
Teacher 4	7th Science	M	W	5
Teacher 5	8th Social Studies	F	W	3
Teacher 6	7th ELA	F	W	5
Teacher 7	7th Social Studies	M	W	3
Teacher 8	8th ELA	F	W	4
Total 8				

Informed Consent and Participant Selection

Prior to conducting the research, the researcher obtained consent forms from each participant to participate in the research study. Full disclosure concerning the purpose of the study and the participants' role was shared. The researcher acquired the necessary documents and procedures dictated by Vine Middle School and the Institutional Review Board (IRB) in order to ensure full compliance with the university's policy on research. Once both parties granted permission, the researcher began the data collection process. Components of this approval included: 1) this study is voluntary; 2) the participants have

the ability to withdraw from this study at any time; 3) a statement about the purpose of the study and the data collection processes; 4) confidentiality statement; 5) statement to the risks of the study; 6) any anticipated benefits to the participants; and 7) a signature and date line giving permission to participate in the study (Creswell, 1998).

The final stage in the informed consent process involved the building principal providing a copy of all signed consent forms to all participants prior to delivering the survey and e-interview. The researcher instructed the participants to review both formative assessment survey and e-interview documents carefully and to ask questions if they did not understand any part of the documents. On the day the surveys and e-interviews were scheduled to open, the researcher again reviewed the documents and provided an opportunity for questions. A copy of the consent form, formative assessment survey, school climate survey, and e-interview is included in appendices of this document.

Confidentiality.

The researcher took every precaution to ensure the confidentiality of participants. Interviews were given electronically and therefore were transcribed accurately. The researcher used a coded system to report analysis of the participants' replies in order to further protect the identity of participants. No information used in this study divulged the true identity of the participants. Transcripts and survey results were destroyed at the completion of the study.

Data Collection

Quantitative measures.

Although the e-interview was the main source of data for this study, the researcher collected survey data on formative assessment surveys, reviewed school-administered climate survey sections on instructional practices, and reviewed student level 7th and 8th grade Language Arts school state test scores. The formative assessment results were analyzed prior to administering the e- interview; the results provided a foundation for the questions utilized in the e-interview (Creswell, 1998).

Formative assessment survey.

Eight core teachers were asked to complete a formative assessment practices survey. The survey, which measured the teachers' perceptions of formative assessment teaching practices used in the classroom, consisted of twenty agreement questions. All questions used a three point Likert scale. Number one on the Likert scale indicated the instructor *Agreed* with the statement; number two indicated the instructor *Disagreed* with the statement; and the number three indicated the instructor was *Unsure* with the statement. Survey questions were divided into three scales: Part I: What is Formative Assessment (included 3 questions); Part II: Instructional Practices (included 12 questions); Part III: Formative Assessments and Student Learning (included 5 questions (Appendix P). The surveys were administered utilizing Qualtrics, which is web-based software that allowed the researcher to place all survey information online and also analyze the content.

Establishing reliability of this measure was determined using Cronbach's Alpha (Cronbach, 1951). To validate the instrument, the eight teachers of core instruction in Vine Middle School were asked to complete the questionnaire for this study. Before they

completed the formative assessment survey, they were asked some questions to ensure that they understood the questions. All participants agreed that they understood the questions.

After participants completed the survey, the reliability of the formative assessment was evaluated by subjecting the data to the internal consistency/reliability in SPSS (Cronbach alpha reliability coefficient) for all variables. The data showed that, formative assessment survey has an overall reliability of $\alpha = 0.6$ in the 20-item. Although Kline (2013) suggested that level of .70 or above indicates good reliability, he also acknowledged that when dealing with some measures, values below .70 can be expected due to the assortment concepts being measured. Subscale 1; Definition of Formative Assessment (Q1, Q2, and Q3) had an undefined alpha level, because every participant agreed on the definitions of formative assessment practices. The second sub-scale; Instructional Practices (Q2.1-Q2.13) had a reliability level of 0.2 in the 12-line item. The last sub-scale; Beliefs About Formative Assessments (Q3.1- Q3.4) had a reliability level of 0.9 in this five item scale. Further discussion of these results will be addressed in Chapter 5.

Once the reliability of the measure was established, the researcher ensured validity. This was established using content validity. Content validity is a procedure often used in educational research and involves "the systematic examination of the survey content to determine whether it covers a representative sample of the behavior domain to be measured" (Anastasi & Urbina, 1997 p. 114). The researcher sought to ensure that the questionnaire possessed the areas of formative assessment practices outlined in the literature as determined by leading researchers in formative assessment practices (Bloom,

1968; Scriven, 1991; Stiggins, 2005). These questions were included in the first survey administered to the eight core teachers (N=8) and was administered between May 18th and May 22nd of 2015. The researcher received responses from all eight core teachers. Once the data was received, the researcher analyzed the data; the results were recorded and placed in a matrix for further analysis.

Climate survey.

Vine Middle School utilizes their own school climate survey based on the Teacher Climate survey from the National School Climate Center's National School Climate Council. All the scales from NCSSLE have been tested for reliability and validity (NCSSLE, 2015). Specifically, Vine Middle School has used a form of this test for more than ten years, which further established concurrent validity and test-retest reliability. Concurrent validity is a measure of how well a specific test correlates with a previously validated measure (Morisky, Green, & Levine, 1986). Test-retest reliability is a measure of reliability conducted by giving the same test twice over a period of time to a group of various people. The results from the school climate survey in Vine Middle School are correlated each year, and this assessment ensures the test's strength (Guttman, 1945).

The full questionnaire was composed of 48 questions that involved safety, relationships, teaching and learning practices, and the external environment. For this study, 21 questions related to instructional practices were utilized. The researcher made this determination due to the specific nature of this study and to avoid tester burnout (Schaufeli, Salanova, González-Romá, & Bakker).) The full test is given to all middle school instructors and staff twice a year. Hence, the researcher wanted to ensure that only responses from the specific teachers involved in this study were utilized. The survey was

sent electronically by the building principal and was sent via Qualtrics. (See Appendix C).

ELA state criterion test.

The researcher was given permission to review the 7th and 8th grade student population ELA results of the Smarter Balanced State Test. Using the school district's testing database system, the researcher pulled data only related to this study. Data for the Smarter Balanced State Test included 7th and 8th grade student coded personal information, grade level, gender, race and socioeconomic status. The reliability and validity of this test has not yet been established due its recent implementation. An SBAC memo dated September 12, 2014[5] indicates "evidence of adequate validity and reliability is not available to support administration of the SBAC in spring 2015 and interpretation of scores" (Post, February 6th, 2015).

> Tests that are valid and reliable are the only legally defensible tests that can be incorporated into any evaluation plan of students, teachers, and districts. Missouri's State Board of Education and Department of Elementary and Secondary Education (DESE) are responsible for ensuring that statewide assessments administered in Missouri are valid and reliable, yet, they committed Missouri as a governing member of the Smarter Balanced Assessment Consortium (SBAC) in April 2010,[1] before the test was developed, and even before the project manager for developing the pioneering assessment system was named..[2] In October 2013, DESE contracted with McGraw-Hill to administer tests aligned to the Common Core State Standards[3] despite restrictions . . . that

no funds shall be used to implement the Common Core Standards. (Smarter Balanced

Yet, Vine Middle School utilized a practice test.

Qualitative measure.

E-interview.

The study's participants gained access to the e-interview protocol on September 1st, 2015, and the interview document remained available to them until September 7th, 2015. All interviews were conducted utilizing the online survey system Qualtrics. The e-interview took approximately 20 to 40 minutes to complete. The first step in the e-interviewing process involved explaining the purpose of the study and their role in the study, expected benefits, and a review of the consent letter. The researcher also offered participants an opportunity to ask any questions or express any concerns regarding the interviewing process. This took place one week prior to the electronic launch of the e-interview.

Since qualitative research involves making meaning between experiences and data interpretations (Strauss & Corbin, 1994), the researcher compared the results from the formative assessment and climate survey to help guide patterns that emerged from the teachers' views on formative assessment practices. As Stake (1995) indicated, there is a place for document review and traditional quantitative analysis in case study design. The data was coded utilizing a dual approach. The first phase of the approach included coding with the primary researcher codes. In the second phase, the researcher reviewed the codes with a senior professor who also coded the data based on extensive qualitative research experience. The researcher then consulted both coded documents for

commonalities. From this document four emerging themes and nineteen codes were established, and the researcher reported the various themes and patterns as well as the frequencies in which these patterns emerged.

Content validity of the questions was established by ensuring that the questions were based on research grounded in formative assessment theories including scholars Scriven (1991), Bloom (1968), and Stiggins (2005). The basis for both the interview and survey questions served as constructs of what was needed to measure in the teachers' perceptions on formative assessment practices. Wiliam and Black (1999) included the following information for strong indicators for successful formative assessment practices: 1) Classroom discussions, classroom tasks, and homework to decide the present state of student learning/understanding, and necessary measure taken to increase learning/correct misunderstandings, 2) Rich feedback, with support on how to improve while the learning process is taking place, and 3) Ensuring that students develop self- and peer-assessment skills.

The researcher concluded that the interviews would be conducted electronically, utilizing the e-interviewing method, and provided two reasons to support this method of data collection. First, the researcher aimed to make the process of interviewing as smooth as possible for the participating teachers. The beginning of a school year can be the most difficult time of the school year, and ensuring an interviewing process that accommodates the participants' schedules and time allocation is key. Merriam (2009) discusses having rapport and relationship with the participants in your study as one of the most important factors in determining successful data collection. As a parent of a child in this school district, the researcher was able to develop a deep and strong rapport with each instructor

involved. Prior to the study, the researcher met with the teachers electronically and discussed the research agenda, leaving room for questions and concerns. The researcher also met extensively with the principal of the school, who was the point of contact and provided access to student data and school climate data for this study. Second, the researcher decided that e-interviewing would allow accuracy and precise feedback that helps avoid judgment and leading questions that are often present in face-to-face interviews. The researcher constructed questions that included probing questions to elicit deep conversations and encourage participants to reveal their personal thoughts and perceptions.

Although the questions were provided electronically, open-ended questions were utilized to foster reflection and yield thoughtful responses. The e-interview allowed participants to answer the interview questions during their downtime and also permitted an ideal environment without the pressure of a face-to-face meeting (Bampton & Cowton, 2002). While face-to-face interviewing techniques allow for more time with the participant, asynchronous interviewing may allow for more in-depth responses, allow for interviewing to take place regardless of time zone, and provide a more harmonious interview process (Meho, 2004). This method also eliminates time and errors associated with transcription (Meho, 2004). Most importantly, e-interviews may protect the integrity of the data. Meho (2004) asserts that e-interviews:

> Allows participants to construct their own experiences with their own dialogue and interaction with the researcher facilitates a closer connection with interviewee's personal feelings, beliefs, and values. Allows for the to be more

> focused on the interview questions asked, and the responses are more thought out before they are sent or have been considered. (p. 7)

The researcher considered this approach for this study and concluded that providing an electronic link via Qualtrics data system would provide participants the benefits suggested by Meho (2004).

In order to tackle some of the challenges that often arise when utilizing e-interviewing, for example, access to technology, inadequate time completion, and one dimensional data quality (Meho, 2004), the researcher made several preparations. The principal and researcher had several face-to-face meetings and correspondences prior to deployment of the interview in order to determine time and location in which the teachers would have access to the interview. Once this was established, an email was sent to the participating teachers explaining the interviewing process and allowed for feedback and questions. As indicated previously, due to the researcher's involvement with the district and long-standing relationship with many of the teachers, there was a strong rapport with these instructors. This ensured full participation and dedication to the integrity of the study, which Meho (2004) asserts can help combat simplistic responses.

The goal of this study was to convey how teachers made meaning from their experience with formative assessment practices and their influence on school climate and student achievement on state testing outcomes. The in-depth e-interviewing method connected the perceptions of the teachers' views of formative assessment practices and how they influenced the outcomes of students on their state Language Arts assessment. The eight teachers in this study, or "key informants" (Patton, 2005), were able to share

their expertise on formative assessments and provide first-hand insight as to why the practices are important.

From the e-interviews, the researcher collected information on the teachers' demographics, perceptions on formative assessment practices and their impact on the 7th and 8th grade Language Arts state assessment. During the e-interviewing process, the researcher utilized open-ended questions to allow teachers a chance to expound on many of their responses on the formative assessment survey. Once the interviews were completed and submitted through the Qualtrics database, e-interview results were downloaded to a Microsoft Word document and uploaded to Atlas Ti. Atlas Ti is an electronic computer software program that allows users to analyze qualitative data and provide frequencies of the codes provided. Open coding occurred while the transcripts were being analyzed.

Although a field test was not conducted prior to the administering of the interview protocol questions, the researcher provided the e-interview and formative and climate survey questions to the IRB and followed recommendations for improvement. The e-interview questions were linked with the research question and sub-components in order to ensure that the data would generate responses that would address the research question, which is illustrated in Table 2.

Table 2

Sample Research Connection Matrix

Research Question/Two specific components	Interview Question	Best Practices for Formative Assessment Based on Literature
How do middle school teachers of core subjects	In your own words can you elaborate on the purpose of using	Benefit of classroom discussions, classroom

use formative assessment practices to influence student performance of a ELA state criterion-referenced assessment?	formative assessments practices within your teaching and learning process?	tasks, and homework to decide the present state of student learning/understanding, and necessary measure taken to increase learning/correct misunderstandings
How does school climate impact the effectiveness of formative assessment practices?	Describe what school as an expedition means to you: a) How do you employ formative assessment practices on expedition? Please be explicit and provide a rich explanation.	Rich feedback, with support on how to improve while the learning process is taking place Benefit of classroom discussions, classroom tasks, and homework to decide the present state of student learning/understanding, and necessary measure taken to increase learning
How do formative assessment teaching practices affect the achievement gap?	In your experience, do formative assessment practices help close the achievement gap? Explain your reasoning.	Ensuring that students develop self- and peer-assessment skills

Data Analysis

Quantitative and qualitative data were analyzed separately because they were two separate types of data. However, after the researcher analyzed both the quantitative and qualitative data they were combined in order to support themes and patterns. The formative assessment and school climate surveys-instructional practices section were both analyzed using Qualtrics, a quantitative software database program. A total of eight teachers were used for this study. Overall item mean values were averaged from the participant's responses as well as an average overall item mean value of each section.

The student data was analyzed uses SPSS, a database that is used to conduct statistical analysis. A total of 168 students were used for this study. The researcher reported descriptives, frequencies, and themes and patterns of the quantitative data analyzed.

Since qualitative research involves making meaning between experiences and data interpretations (Strauss & Corbin, 1994), the researcher compared the results from the formative assessment and climate survey to help guide patterns that emerged from the teachers' views on formative assessment practices. The data was coded once with the primary researcher codes, referring back to the research questions and making evaluations on which individual responses or themes that warranted attention.

After revisiting the data from the formative assessment and school climate survey, the data were sorted to find connections by generating themes and patterns, and themes and sub-categories were combined. The data were then coded in order to bring meaning and placed into categories. Lastly, the data were interpreted to articulate meaning, making decisions regarding direct quotes and summaries of participants' words, while also reporting data considering the interest of various audiences. The major aim of collecting qualitative data was to evaluate overall mean data for teachers' responses on formative assessments practices on the survey. The researcher reviewed the codes with a senior professor who coded the data based on extensive qualitative research approach and then consulted the both coded documents for commonalities. From this document four emerging themes and nineteen codes were established. The researcher reported the various themes and patterns as well as the frequencies in which these patterns emerged.

Limitations

Limitations relate to the study's small sample size. The inquiry did not include other personnel such as curriculum coordinators, building principal, counselors or specialist instructors. The scope of this study was limited to one school district and the results of this study cannot be applied nor generalized to other schools. While the study broadly examined the effects of formative assessment practices on the achievement levels and included the demographics of the students, there was very little emphasis placed on discrepancies among students with disabilities and the general population.

The reliability of the formative assessment survey also proved extremely challenging for this study. Case studies are very difficult because of the small population, threats to external validity and often low reliability of measures. These limitations restrict the extent of the analysis and cannot provide a true relationship (Bennett & Elman, 2006). Hence, the findings will be limited to scope of this study alone.

Data collection for this study proved to be challenging. The initial research design of this study was purely quantitative, and the researcher planned to use a correlational research design to predict likely outcomes of the effects of formative assessment practices on students' abilities to on a state criterion test. The researcher sought to find a relationship of statistical significance between these two variables, and, if valid, it would become possible to predict an outcome score. Unfortunately, the researcher did not receive enough parental consent forms in the allotted time frame, so the research design was abandoned and the study was restructured to connect with the data collected.

The information collected in an interview can also be viewed as a limitation (Creswell, 2002) because this study was solely based on participants' perceptions and their experiences rather than quantifiable data. Much of the interview was dependent on

what the teacher was willing to share and how their perspectives created meaning for this study. Triangulation helped with this limitation, as well as the e-interviewing technique, which may help eliminate researcher error, interpretation, and bias.

Chapter 4: Results

Overview

The purpose of this study was to use descriptive case study methodology to examine the effects of school climate on middle school teachers' formative assessment practices and how these formative assessment practices were used to influence performance on state criterion-referenced tests. The primary research question I explored for this study was how did core teachers use formative assessments practices to influence student performance on a state grade 7 and 8 English Language Arts assessment? Related to the primary research question, I additionally researched: 1) How did school climate impact formative assessment practices? and 2) How did formative assessment practices influence the achievement among learners of varying socio-economic levels, ethnicity and gender?

Data collection tools included quantitative and qualitative measures. Quantitative data collection tools included a teacher formative assessment survey (specifically the instructional practices section), a teacher perception of school climate survey, and student results from the 2015 MO grade 7th and 8th English Language Arts assessment.

Quantitative Results

Descriptive results from the teacher formative assessment survey and results from the 7th and 8th grade student Smarter Balanced Test were examined to address the primary research question. Then teacher perception of school climate survey is discussed in order to address the sub-research questions.

Primary research question for quantitative results.

The primary question for this study explored: How did middle school teachers of core subjects use formative assessment practices to influence student performance of a state ELA criterion-referenced assessment? The following questions in the formative assessment survey addressed this question.

Teacher formative assessment survey.

Eight teachers completed the formative assessment survey at the case study site. The formative assessment survey was based on literature that defined the effective principles of formative assessment practices.

The formative assessment survey consisted of 19 agreement questions provided information regarding overall teacher perception about formative assessment instructional practices in the classroom and was divided into three parts: Part I: What is Formative Assessment; Part II: Instructional Practices; and Part III: Beliefs and Attitudes about Formative Assessments. These questions were included in the first survey administered to the eight core teachers (N=8). The mean, standard deviation, and frequency analysis for survey results by each scale follows. First I report overall mean scores and frequencies for each subscale. The subscales were divided by the three themes: What is Formative Assessments, Instructional Practices (relating to formative assessments), and Beliefs and Attitudes about Formative Assessments. Then the questions which there were great differences in responses by the teachers for demographics variables gender, grade level, and subject matter were reported and analyzed (See tables 3.1-5.2).

Sub scales- what is formative assessment.

As specified in the previous chapters, the perceptions of what teachers believed the definition of formative assessment practices is important. Therefore, I compared the means scores and reported frequencies for the questions in the section *What is Formative Assessment?* In this section there were three questions. The scale for this measure was *1= Agree, 2= Disagree, 3= Unsure*. In terms of the meaning of formative assessments, responses from teachers show that teachers are exceedingly familiar with the definition of formative assessment practices and their purposes, (M = 1.38, SD = *0.*49). This indicates that teachers can recognize formative assessment practices and demonstrate effective usage based on literature (Stiggins, 2005). See figure 3 for the frequencies of each question.

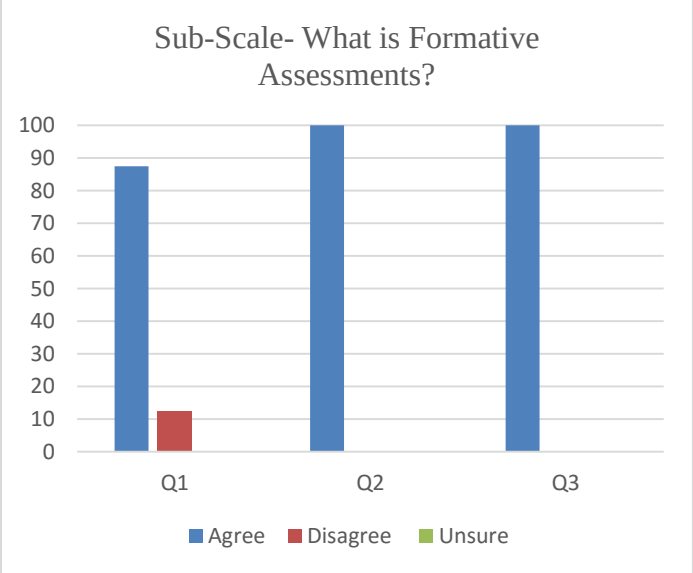

Figure 3. Sub-Scale What is Formative Assessments *Frequencies*

The mean scores only varied in the first statement: *Formative assessment learning are informal ways of checking for student understanding.* Although the 7th grade teachers all agreed that this was an accurate representation of formative assessment

practices, the 8th grade science teacher disagreed with this statement; (*M* = 1.13, *SD* = *0*.35). All instructors disagreed with 100% consensus that: *In Formative Assessment practices, a student will always get a grade indicating their understanding of the content;* total (*M* = 2.00, *SD* = 0.00). All instructors also agreed with 100% consensus that: *Successful Formative Assessment practices involve changing perspectives and enhancing current practices by providing significant, descriptive feedback to students; fostering greater student knowledge of learning goals; and appreciating the quality of student work over quantity*; total (*M* = 1.00, *SD* = 0.00). There were not large differences in mean scores among the teachers once divided by gender or the grade level they taught in Part 1: *What is Formative Assessment?* The individual tables are reported in the Tables 3.1 and 3.2.

Sub scales- instructional practices.

The second scale addressed formative assessment practices in the classroom: *Instructional Practices*. This scale had twelve questions/statements. According to Stiggins (2005), in order for formative assessments practices to yield the most effective results, instructors must implement them in a way that students will embrace the teaching. Hence, I ensured that the inquiry into their practice was examined closely. In terms of the instructional formative assessment practices based on the responses from these teachers their answers show that they share in recognizing which formative assessments strategies are effective in the classroom, how teachers use the information to guide their instruction and how these teachers use formative assessment practices to guide instruction on school expeditions (*M* = 1.23, *SD* = *0*.55). See figure 4 for the frequencies of each question.

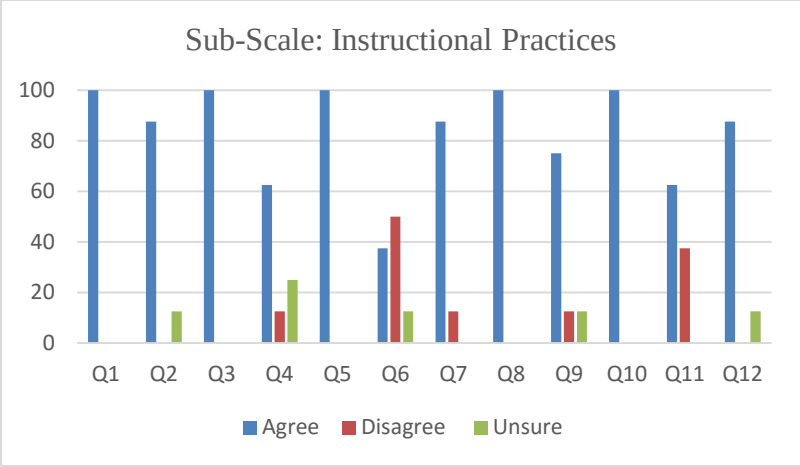

Figure 4. Sub-Scale *Instructional Practices Frequencies*

There were three questions in which differences were present by the subject instructors taught. Question #2 asked the instructor their view on the following: *I incorporate feedback that is both interactive and descriptive to my students when learning new objectives.* The greatest difference with this statement was among the ELA instructors. One 7th grade ELA instructor responded that she was unsure concerning this method. The mean score for the ELA instructors was (M = 2.00, SD = 1.41). All the remaining instructors agreed with 100% that they utilized this method of instructional practice.

The second statement that produced differences among mean scores according to subject taught was Question #4: *During school expeditions, I use the learning objectives to gage what students already know on the topic*. All ELA and math instructors agreed with this statement. The 8th grade Science instructor disagreed with this statement and the 7th grade Science teacher was unsure; (M = 2.50, SD = 0.70). The 7th and 8th grade Social Studies instructors were also split on this statement; (M = 2.00, SD = 1.41) The 8th grade Social Studies instructor agreed that utilizing learning objectives on school expeditions to

gage learning is included in their teaching practice. The 7th grade Social Studies teacher was unsure.

The third question with differences in mean scores among the instructors according to their subject taught was Question #6: *I regularly use student interviews in order to ensure that students can assess their own learning.* The ELA instructors disagreed with this statement. Both 7th and 8th grade Math instructors agreed to this teaching practice. The 7th and 8th grade Science instructors varied on this practice; (*M* = 1.50, *SD* = .70). The 8th grade Science teacher agreed to this practice and the 7th grade Science instructor disagreed to this practice. The 8th grade Social Studies teacher disagreed with this practice and 7th grade Social Studies teacher was unsure with this statement; (*M* = 2.50, *SD* =.70). Once the instructors were categorized by gender in *Part 2: Instructional Practices* of the survey, there were three questions with a high level of variance. Question #4: *During school expeditions, I use the learning objectives to gage what students already know on the topic*. The mean score for question #4 for the male instructors was (*M* = 2.00, *SD* = 1.00). The second question that varied among gender groups was Question #9: *I regularly use on-going classroom assessment methods to measure student understanding before a unit is complete*. The male instructors mean score was (*M* = 1.00, *SD* = 0.00) indicating full agreement with this statement. While the female instructors mean score was (*M* = 1.69, *SD* = 0.89). The last question that varied among gender was Question #12: *When I find that students are not achieving their learning objectives, I modify my teaching assessments.* All the female instructors agreed with this teaching practice; (*M* = 1.00, *SD* = 0.00). The mean scores for the male instructors was (*M*=1.67, *SD* = 1.15). There were not great differences in mean scores

among the grade levels in this portion of the survey. The results of these questions can be seen in Tables 4.1 through 4.3.

Sub scales- formative assessments and student learning.

The final scale of the survey addressed *Formative Assessments and Student Learning.* There were five questions/statements to address this concept. The tools used to administer formative assessment strategies in the classroom can determine success or failure for student learning (Stiggins, 2005). The overall mean scores for this scale indicate that the instructors agree that formative assessments have a strong impact on student learning (*M* = 1.13, *SD* = 0.43).

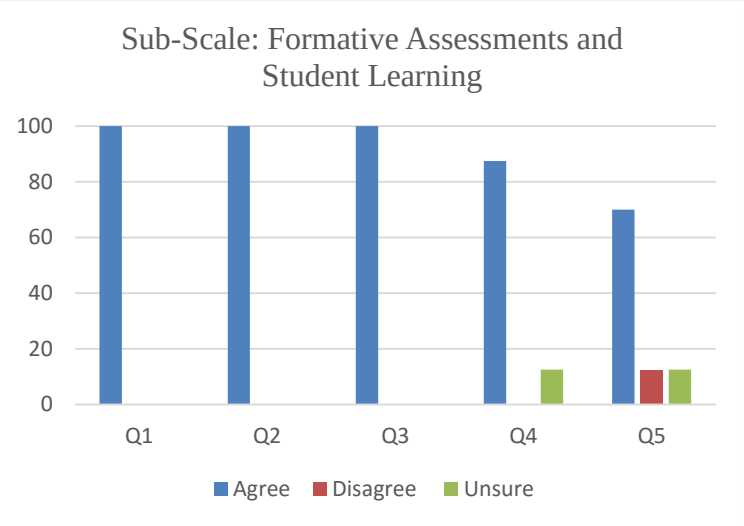

Figure 5. Sub-Scale *Formative Assessments and Student Learning Frequencies*

When the instructors' responses were divided by subject matter, only Question #4 revealed differences in mean scores. Question #4 stated *Formative assessment teaching practices can improve a classroom's climate.* The 7th grade Science instructor indicated that he was unsure about these types of formative assessments; (*M* = 2.00, *SD* = 1.41). All other instructors agreed to the use of these types of formative assessments. When the

instructors were divided by gender, again Question#4 revealed the greatest differences between the two groups. All the female instructors agreed *Formative assessment teaching practices can improve a classroom's climate.* The mean scores for the male participants was (*M* = 1.67, *SD*= 1.15). Finally, when the instructors were divided by grade level, again Question#4 showed differences between the two groups. All 8th grade instructors agreed to this statement. While the 7th grade mean score was (*M* = 1.50, *SD* = 1.00). The results of the five questions can be found in Tables 5.1 and 5.2.

Findings of the 7th and 8th grade English Language Arts Smarter Balanced assessment.

In the Spring of 2014, students in Vine Middle School took their first English Language Arts Smarter Balanced Assessment. This assessment consists of computer-generated questions in the area of Reading, Writing, Speaking/Listening, and Research. The results for of the 7th and 8th grade population will be reviewed according to their achievement level. The test is based on a four-point scale. Vine Middle School utilizes the following scale to measure achievement: Below Basic (Level 1) – minimal understanding, Basic (Level 2) – partial understanding, Proficient (Level 3) – adequate understanding, and Advanced (Level 4) – thorough understanding. The results of their ELA assessment are reported below.

The results from the Smarter Balanced Assessment revealed that overall 7th and 8th grade students at Vine Middle School achieved proficiency or higher on the ELA assessment. For the overall population of 7th grade students (*N* = 92) 62% of the students scored at a level of proficiency or higher; 28% Advanced level and 34% at proficiency. For the overall population of 8th grade students (*N* = 76) 60% of the students scored at a

level of proficiency or higher; 23% Advanced level and 37% at proficiency (See Table 5.1 and Figure 4). Hence, the scores for both grades exceeded the average of 58% of proficiency or higher in the state of Missouri ("Edsource", 2015).

Among the various demographic breakups, gender was the first to be analyzed. Among both 7th and 8th grade male and female students, the scores varied greatly. While 76% of seventh grade female students scored at proficiency or higher, only 53% of the male population did so. Similarly, in the 8th grade population, 70% of the female students scored at a proficiency or higher, while 48% of male students scored at a proficiency or higher (see Table 6 and Figures 10 and 11).

Racial demographics also varied among both grade levels. Among the seventh grade population, Whites were the highest achievers as 69% of this population scored at a proficiency level or higher, followed by 66% of Hispanics, 50% of mixed race population and 48% of African American 7th graders who scored at proficiency or higher. Similar results are reported for the 8th grade population. Sixty-six percent of the white population scored with proficiency or higher, followed by 50% of mixed race population, 45% of African American students and 33% of Hispanic students (see Table 8.1- 8.2 and Figures 11 and 12).

There were some surprising results among the students once sorted by their socioeconomics. There was not much variance among students who did not receive any assistance and those students who received reduced lunch. In the seventh grade population students who received reduced lunch had the highest percentage of proficiency. Seventy-five percent of this population scored at proficiency or higher, followed by 72% of students with unassisted lunch status and 46% of students who

receive free lunch. In the eighth grade population, 70% of students with unassisted lunch status scored at a proficiency level or higher, followed by reduced lunch at 60% and 36% of students receiving free lunch (see Table 9.1-9.2 and Figures 13 and 14)

Sub-research questions for quantitative results.

Sub-Research Question 1: How did school climate impact the effectiveness of formative assessment practices?

Sub- Research Question 2: How did formative assessment practices influence the achievement among learners of varying socio-economic levels, ethnicity and gender?

These two questions are addressed in the instructional practices portion of the school climate survey. The results are explained below.

Climate survey.

The second survey was a portion of a school climate survey offered to all of the instructors in the school district. The school climate survey was administered by the building principal and taken online. Aligned with the purpose of this study, only the responses to related to the instructional practices of the participants were analyzed. The school climate survey related to the instructional practices of the participants were analyzed for this study. There were 21 questions that related to instructional practices. The responses were based on a four-point scale 1 indicated *Strongly agree/True for all classes*; 2 indicated *Somewhat agree/True for most classes*; 3 indicated *Somewhat disagree/ True for only some classe*s; and 4 indicated *Strong disagree/True for no classes*. Frequency results of the climate survey follow.

The first observed outlier in the climate survey was Question#1: *Do you have access to the materials that you need to do your job effectively?* All eight instructors

responded with 100% certainty that they do have the materials necessary to do their job effectively. The reaming observed variance in frequency was Question #11: *My assignments are appropriately challenging for my students;* Question# 7: *The teacher evaluation process helps me to set goals and evaluate my own* work; Question# 10: *I make all students aware of how they are performing throughout each of my* classes; and Question# 13: *I have plenty of time to learn what I need to know for my classes.* Although 7 of the 8 instructors; 87.5% strongly agree or somewhat agreed with these statement one instructor indicated they somewhat disagree with this statement; 12.5% of the population. All other questions in the climate survey were met with a rating of strongly agree or somewhat agree (See Figures 6-8).

Qualitative Results

The second phase of the study included analyses of the e-interview questionnaire responses ($N = 8$). I utilized the results from the quantitative data of the formative assessment survey to formulate questions for the e-interview. The data results, which had the largest variances among the mean scores, were the questions that drove the queries for the e-interview. The e-interview was divided into five sections: Part I: What is Formative Assessment? Part II: Instructional Practices, Part III: Formative Assessment and Common Core Standards, Part IV: Achievement Gap, and Part V: Other (In order to allow the participants to address any questions or concerns they may have had). The responses from each question were reported in narrative format to address the research questions below. The raw data can be found in Appendices D-O.

The interview questions are referenced by the research question and sub-research questions. Interview questions 1-5 were aligned with the primary research question: How

did middle school teachers of core subjects use formative assessment practices to influence student performance of a state ELA criterion-referenced assessment? Interview questions 6-8 aligned with the secondary research question: How did school climate impact the effectiveness of formative assessment practices? Finally, the last interview questions 9-12 were aligned with the secondary research question: How did the use of formative assessment teaching practices impact the achievement gap? The questions were designed based on results from the formative assessment survey and the school climate survey. The formative assessment survey revealed that the teachers had a clear understanding of the definition of formative assessments and the positive affects these practices have on student achievement. Hence, the e-interview was designed to explore the teachers' deeper understanding of these practices.

Primary Research Question Qualitative Results

How did middle school teachers of core subjects use formative assessment practices to influence student performance of a state ELA criterion-referenced assessment? The first seven questions of the e-interview were guided by the primary research question.

The first e-interview question asked: 1) In your own words can you elaborate on the purpose of using formative assessments practices within your teaching and learning process?

Five of the eight participants noted how important *instructional improvement* was. Participant 2 stated, "To check in on where the students are and to see what they know/need help with...it allows me to then figure out what/how I need to teach moving forward." Participant 5 indicated, "…to understand what students already know… to

gauge where student learning is at the moment… to prescribe next steps in instruction." In addition, six of the eight participants stated the importance of *funds of knowledge* (FOK*).* The concept of funds of knowledge about diverse students is based on Vygotsky theory that people's life experience helps build on the knowledge they already have (Moll, Amanti, Neff, & Gonzalez, 1992). "Formative assessments inform my lesson content. For example, last week several students were not able to answer questions on range correctly. That informed me that I needed to reteach range and allow my students more practice" (Participant 2, E-interview, September 1, 2015).

"Formative assessments allow me to analyze and understand my students' knowledge and understanding of the topic they have been learning throughout a lesson or unit" (Participant 7, E-interview, September 1, 2015).

Appendix D provides a summary of the frequencies of each code noted for the purpose of formative assessment practices and individual teaching practices. The results showed that 62.5% of the participating teachers valued the need to change instructional practices based on the outcomes of formative assessments. The results also showed that 75% of participating teachers agreed that student prior knowledge (FOK) has a strong impact on the teaching and learning process. The results also demonstrated that 75% of participating teachers' recognized that formative assessments were given as feedback to the students.

The second question asked: 2) Describe how you implement formative assessment practices in your classroom: a) What do you do in your classroom to ensure the formative assessment practices you utilize are successful? b) Do you utilize peer-

assessments in your classroom? If yes, describe. c) Describe how you provide feedback to your students?

Seven of the eight participating teachers noted the importance of *self-assessment* as a tool for guidance for feedback. Participant 4 noted that self-assessment is "an internal process of self-correction while assisting others in seeing work from another perspective" (Participant 4, E-interview, September 1, 2015). "Formative assessments should be planned carefully along with content. I usually have some way to see the students perform the skill before having them do it again without me" (Participant 1, E-interview, September 1, 2015).

In addition, seven of the eight also valued the importance of *peer assessments*. Participants responses included the importance of cooperative learning, sharing information and viewing their work from a different perspective (Participants 6 & 7, E-interview, September 1, 2015). "…For example, for our journal work, students, peers, and a teacher would all use a scoring guide to assess the work in a journal and then compare and contrast the assessment to see where there are similarities and differences" Participant 6, E-interview, September 1, 2015).

Appendix E provides a summary of the frequencies of each code noted for the implementation of formative assessment practices in individual teaching practices. This table indicated that 75% of the participating teachers valued the FOK as measures to improve the teaching and learning process. In addition, 37.5% of the participating teachers included technology as an important tool to assist in the feedback process for students.

Question three asked: 3) Can you tell me which formative assessment practices work best when assessing Language Arts (writing and reading) standards?

As mentioned in Chapter 3, this question was asked to determine if all participating teachers considered the importance of Language Arts standards as a part of their curriculum. Responses for this question varied greatly as expected due to the individual content matter each participant is responsible for teaching; math, science, social studies and ELA. However, 87.5% of the participants indicated that they did regularly assess their students *writing and reading* in their instructional practices. The responses included incorporating writing and reading assessments structured as a journal entry, blog response or analyzing primary documents in order to gage student understanding. "I honestly struggle with this because I find it difficult to assess writing in a multiple-choice quiz or test" (Participant 8, E-interview, September 1, 2015).

Question four asked: 4) In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' classroom grades/performance improved?

Four of the participating teachers indicated that utilizing formative assessment practices have helped them become more *intentional in their instructional planning* as a result of the students' classroom grades/performance outcomes.

> I feel that it has helped me tremendously. I gain a clearer picture of students' knowledge when they explain what they know in a writing prompt or discussion, and with that, I can teach them more effectively. Last year, for example, I gave students a lot of time to write about and wrestle with literary terms and to see them in context. There were multiple exposures to content and I was able to

> monitor that progress so that on summative assessments I had a more accurate picture of their knowledge. (Participant 8, E-interview, September 1, 2015).

Another notable response among the participants included, "I have always used formative assessment but now it may actually be a part of their summative assessment" (Participant 4, E-interview, September 1, 2015).

Student progress was another theme in this question. Six of the eight participating embraced this concept. Participant 3 noted:

Due to the active learning model that we embrace at Vine Middle School, I have definitely seen student performance improve. I have had several students (from gifted to below grade level) who were underperforming in math, but with coaching and understanding that assessment is to help them get to proficiency they have 'bought in' to the idea of 'it's okay to be wrong,' if after feedback they can articulate what mistake(s) was/were made and show accuracy of computation or understanding after multiple attempts and feedback are proficient. (Participant 3, E-interview, September 1, 2015).

"…Since I have begun breaking down the concepts assessed to individual standards and removed all non-standards, performance has increased greatly" (Participant 6, E-interview, September 1, 2015).

Results in Appendix G indicated that 87.5% participants agreed that classroom grades/performance improvement have improved as a result of the formative assessment practices. Additionally, 50% of the participants noted that the effects of formative assessment practices have shaped their instructional practices.

Question 5): In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' state criterion testing scores increased?

All eight teachers agreed that utilizing formative assessment practices helped *improve* state criterion testing. “Yes, for the past two years, the same cohort of students' math scores has increased by more than 10% each year” (Participant 3, E-interview, September 1, 2015). Participant 4 indicated, “Yes. The activities that are utilized to practice skills and concepts allow students to retain and connect learning. Our scores have increased significantly” (Participant 4, E-interview, September 1, 2015). Meanwhile participant 7 noted, “Yes, I believe that our school's overall test scores have increased because of our expeditions, journaling, and one-to-one [laptop] classroom with technology. We are better able to connect with students through all of these means” (Participant 7, E-interview, September 1, 2015).

The results of Question 6) Describe what school as an expedition means to you: a) How do you employ formative assessment practices on expedition? Please be explicit and provide a rich explanation.

For Vine Middle School, expeditionary learning was more than a thematic expression, it was incorporated into the curriculum and school calendar. Participating teachers were expected to teach learning standards that are aligned with the Common Core State Standards. Seven of the eight participants indicated that *differentiated learning* was one of the most effective strategies to employ learning on a school expedition.

> School as expedition means that we give the students hands-on learning experiences. Sometimes this hands-on experience happens 500 miles away from [our city] in the Smoky Mountains, and sometimes it happens across the street at the school's garden.
>
> We did a unit that includes literature, writing, art, gardening, research, and community service last year. We read about community gardens both fiction and nonfiction, reflected in journals and created stories on this theme. We then worked with the art teacher and the school gardener to create seed packets that were shared with the Vine Middle School Library (Participant 6, E-interview, September 1, 2015).

Other important responses included the importance of scaffolding, opportunity to bridge the learning gap, providing opportunities to expand learning in all content areas and provide connection to real-world life connections and experiences. "Since expeditions rarely only relate to individual learning standards, they have the capacity to relate to many concepts beyond the intended learning targets and may help fill prior experience gaps" (Participant 4, E-interview, September 1, 2015).

Additionally, *student content learning objectives* was a common theme among the participants. The importance of ensuring that students not only had the experience of the school expedition, but applied it to their school curriculum was prevalent for four of the eight participating teachers.

> We make sure students do a feedback form that continues to connect their expeditionary activities to the learning we are doing in the classroom and the standards we are looking at. I make sure the vocabulary and the concepts are

> taught and reviewed before the expedition, and then used on it as well. I use examples from the expeditions during assessments. Participant 5, E-interview, September 1, 2015).

Results in Appendix I indicated that 87.5% of the participants valued differentiated learning on expeditionary field trips. While 50% of the participating teachers found that ensuring the content learning objectives were met, even when they were away from the traditional classrooms.

Question 7) Describe your impression/feeling about the MO Common Core State Standards/MO Learning Standards (Particularly as it relates to Language Arts).

This study focused on the Language Arts Standards primarily because the newly implemented CCSS. Six of the eight teachers focused on *CCSS as a common goa*l. However, not all participants addressed the specifics to Language Arts.

> I feel that, while the standards are more rigorous, they are teaching students how to think and not how to take a test. As an educator, I greatly appreciate this. I have students who may not always spell everything correctly, but can analyze and use higher level critical thinking skills. Those students performed better on the test this year than in the past because they were able to demonstrate their thinking abilities, not their ability to select an answer from a list (Participant 8, E-interview, September 1, 2015).

Other participant responses acknowledged how their content area is tied with ELA expectations,

While three other participants indicated that they were more familiar with the CCSS in their content area. "As a science teacher, I am much more familiar with the science

standards. I like the common core standards. I think they de-homogenize education, allow for local expertise, and focus on the skills rather than rote memory" (Participant 1, E-interview, September 1, 2015).

Sub-research question 1: How did school climate impact the effectiveness of formative assessment practices?

Questions 9 through 12 directly addressed the school climate and how it affected the implementation and success of formative assessment practices. Question 9) Can you tell me about your experiences with working alongside students who do not share the same cultural background as you? A) How has utilizing formative assessment practices helped you relate to all students?

The primary focus of this question was to examine the utilizations of formative assessment practices to help teachers relate to students that did not share the same cultural backgrounds. The most dominant code in this questions was *student-teacher relationship*. Four of the participating teachers noted a strong relationship can help develop rapport, trust, and strong communication. Participant 4 noted, "They can form a bridge in understanding as they create shared experiences and help build relationships through the learning." Participant 7 indicated:

> Building relationships with these students to build trust has helped more than formative assessments in relating to my students. Getting to know my students, where they come from, and their current situations have all helped build trust between my students and myself.

Question 10) How has your district help support your classroom efforts with technology? a) In your opinion, have these efforts help close the digital divide (The term

digital divide refers to the inequities among individuals who have access to technology and opportunities to learn information and technology skills (International ICT Literacy Panel, 2002)?

All eight participants acknowledged that the *One-One Laptop Initiative* has helped close the digital divide in the district. Participant 3 noted:

> …As far as closing a digital divide, I think our district continues to stay ahead of most districts because we are small and can move much quicker than a district with 10,000 students. I would offer that perhaps; we are a school that is making the gap larger because we are pulling away/above many other schools.

Other responses that added to this theory were concepts such as aiding at risk students with resources. This was the most prevalent theme in the entire questionnaire. See Appendix M.

11) How many years have you looped in your teaching career? a) In this school district? b) Describe how looping has effected the school climate? c)Describe how looping has effected the classroom climate? d) How has looping effected your implementation of formative assessment practices?

One of the most dominant code in this questions was *student-teacher relationship*. Participants suggested that looping aids in relationship building among teachers and student, but also among staff which aided in creating a positive school climate. Other response included looping helps aid in monitoring students strengthens and weaknesses.

Results in Appendix N showed that additional common themes revealed that strong relationships four of the eight participating teachers asserted that strong relationship among teacher and student helped the looping system. The most dominant

theme from the participating teachers was that a strong relationship was a crucial factor in the success of the looping system.

The final interview question 12) Is there anything else you would like to say, is examined in Chapter five, as it addresses future implications for this study.

Sub-research question 2: How did formative assessment practices influence the achievement among learners of varying socio-economic levels, ethnicity and gender?

The following questions were connected to the research question regarding student achievement and the varying levels of achievement among different genders, socioeconomics, and racial groups. 8) In your experience, do formative assessment practices help close the achievement gap? This questions were based on literature from Gay (2002) on CRC and the various theorists of formative assessment strategies on closing learning gaps (Stiggins, 2005; Black & Wiliam,1998; Scriven, 1961).

Four of the eight participating instructors indicated that incorporating *differentiated learning* was important to help close the achievement gap. "…I feel, once again, that the more you differentiate for students with assignments, topics, and assessments, then the more students you can reach. This includes the kids who fall into the 'achievement gap " Participant 5, E-interview, September 1, 2015).

Results in Appendix K indicated that 50% of the participants incorporated differentiated learning as a way to help close the achievement gap among different genders, socioeconomics, and racial groups. The other 50% would prefer to utilize other methods of closing the achievement gap. Other methods included monitoring, inquiry-based – provoking their higher-level thinking, and diagnosis.

Common Themes

Table 6 represented common themes that emerged from the e-interview with the eight participating instructors. Three or more responses to a question classified a code as a common theme. Once the code was recognized, they were devised into four categories. See table 6 for the break-up of the codes. For this study the emerging themes were: 1) Evidence-based Assessment (rubrics developed based on CCSS); 2) Standards-based and Inquiry-based Learning; 3) Learning Strategies; and 4) Students' Background Knowledge and Experiences. Each emerging theme was offered to be the primary focus of the interview and the total number of questions.

The results of the emerging themes for my primary research question: How did middle school teachers of core subjects use formative assessment practices to influence student performance on a state ELA criterion-referenced assessment? included three concepts. The first emerging theme was *evidence-based assessment*s. This emerging theme was derived from the following codes: Types of assessments, Summative Testing, Instructional improvement, Feedback, Practice, Progress, Rubrics. Stiggins (2009) indicated that one of the most effective components of formative assessment practices was to ensure an evidence-based outcome. The second emerging theme was *Standards-based and Inquiry-based Learning* which supported codes: Differentiated learning, ELA Standards, student content standard learning. Standards-based and Inquiry-based Learning was also an emerging theme that addressed my primary research question. This theme provided a foundation of ensuring that the student learning outcomes are met, which can in turn facilitate more academic success. The third emerging theme that materialized from the interview was *learning strategies*. The learning strategies for

ensuring that students achieve these goals by providing effective formative assessment practices is a theme that emerged from the participating teachers' interviews. These three themes derived from the participants' perception and beliefs on formative assessment practices may provide a relationship to student achievement and provide evidence for higher student scores on the MO Grade 7 and 8 ELA state assessment.

From the results of the two secondary research questions the emerging theme of *students' background knowledge and experiences* was developed. Black and Wiliam (1998), reported that in order to help close the achievement gap between low and high academic performers, formative assessments must create real-life meaningful connections. This concept was prevalent in this emerging theme. Several participating teachers shared specific attributes to the importance of real-life learning experiences and the importance of relationships among student and teacher. The common element of this theme in the experiences among the teachers was supported in the literature presented in chapter two, concluding that formative assessment practices may assist in student progress, motivation, and academic achievement (Black & Wiliam, 1998).

Mixed Methods Results

The results from the formative assessment survey and school climate survey aided in providing a foundation for the questions in the questions for the e-interview questionnaire. The combination of the three data sources provided a foundation for the findings in this study. An integrated summary of the closed-ended data; both the formative assessment and climate survey results (quantitative) and views and perceptions outlined in the open-ended data; e-interview (qualitative) helped to both validate the results, but also provided rich comprehensive data on Vine Middle School Teachers'

formative assessment practices (Yin, 2009). Since previous research indicated that defining formative assessment practices and implementing them correctly is key to success (Stiggins, 2005), the results of the formative assessment survey was a key factor in providing refined information and teacher perception. The teachers' agreed with 100% agreement that formative assessment practices were driven by providing feedback to aid in student achievement and drive instruction. This outcome was revealed in the formative assessment survey as well as a prevalent theme in the e-interview. Another example of similar patterns in qualitative and quantitative data was that the school climate survey revealed that teachers felt supported by administration and had 100% tools and resources necessary to implement instructional practices effectively. This factor was prevalent in the open-ended e-interview. The e-interviews provided strong insight into the unique approach of formative assessment practices at Vine Middle School. The themes such as self-assessment, intentional instructional planning, and importance of student-teacher relationship shed light on the questions asked in the two surveys.

In summary, this mixed methods study included quantitative and qualitative data required for a comprehensive understanding of these eight teachers' perceptions and beliefs on formative assessment practices. Analysis of the data has already demonstrated that there are effective formative assessment practices at Vine Middle School, due in part to knowledge of the practice, school climate, and instructional implementation. Chapter five follows and will include a summary of the study, findings, recommendations, and future implications.

Chapter 5: Summary of the Study, Recommendations, and Future Implications

Summary

A summary of the findings follow in this chapter. Additionally, in this chapter I will provide recommendations and future implications based on study results.

The purpose of this study was to examine the effects of school climate on formative assessment practices and how teachers utilized these practices to influence student achievement in the area of English Language Arts for 7th and 8th grade students. An exploratory case study design was chosen to collect and analyze multiple sources of data including teacher surveys related to formative assessment practices and school climate, teacher e-interviews, and student level state English Language Arts assessment data. Eight core teachers from an urban middle school in the Midwest served as study participants. The various forms of data provided added evidence that aided in reaching saturation for the qualitative analysis.

There were five major findings that I discovered in this study. Findings are presented in relation to the primary research question and two secondary research questions. The research questions that guided this study included: How did teachers use of formative assessments practices influence achievement in the area of English Language Arts for 7th and 8th grade students? The sub questions linked to the larger question included: 1) How did school climate impact the effectiveness of formative assessment practices? and 2) How did formative assessment practices influence the achievement among learners of varying socio-economic levels, ethnicity and gender?

Findings

Finding 1: Teachers have a clear Understanding the Definition of Formative Assessment Practices

The eight instructors at Vine Middle School had a clear understanding of the definition of formative assessment practices. The curriculum and structure of Vine Middle School was designed to allow students an expeditionary approach to learning in order to the support and expand student learning. This finding was evident in both the formative assessment survey and the responses from the teacher interviews.

The expeditionary learning at Vine Middle School was developed to support and challenge student learning through formative assessment learning practices. Vine Middle School regularly used field trips (expeditions) to develop and enhance the learning process. During these field trips, instructors were expected to incorporate learning objectives into the expeditionary experience. A review of the data analysis in Chapter IV confirmed the value of the identifying formative assessment practices in preparing students for learning inside and outside of the classroom. Formative assessment practices, as defined in this study, included giving students feedback in order to guide instruction and learning (Stiggins, 2005). The overall perception of the definition formative assessments practices did not vary much among the instructors. Eighty-seven percent of all of the instructors agreed that formative assessment learning were informal ways of checking for student understanding. All instructors agreed that successful formative assessment practices involved changing perspectives and enhancing current practices by providing significant, descriptive feedback to students; fostering greater student knowledge of learning goals; and appreciating the quality of student work over quantity. Because of the use of the varied level of teaching experiences and even subject matter, I

expected a large difference in perceptions and views of the definition of the formative assessment practices. However, analysis of the survey responses in the area of formative assessment definition did not show any differences among the eight teachers. Therefore, I concluded that among the eight teacher participants that took this survey, the definition of formative assessment practices was the same.

Overall, the instructors utilized the same types of formative assessment practices in their classrooms. Some of the practices were journaling, technology game and student/peer assessments. The type of formative assessment practice that varied greatly among the instructors was using classroom discussion, questions and activities to monitor student learning. In a study conducted by Wilkinson, Hennessey, & Alexander (2009), the researchers concluded that in order for classroom discussion to be effective, teachers must allow more student talk and collaboration rather than lecture style teaching. Vine Middle School encouraged hands-on expeditionary style learning. Hence, many instructors may shift from traditional classroom discussion forums and allow for group work and small peer discussions. This may account for the common understanding among the teachers to use peer and student assessments.

Research supported the above findings. Stiggins (2005) found that current trends in formative assessment practices which are student driven can promote learning and yield positive academic achievement. Ensuring that formative assessment practices were utilized to provide feedback to students is considered one of formative assessments most effective usage (Black and Wiliam, 1998). Valuable feedback from instructors cannot only help students identify learning gaps and seek opportunity to increase learning outcomes, but it can encourage personal learning responsibility. The importance for

effective feedback in Vine Middle School was supported by the instructors' responses to the second question this section; Part II: instructional practices used in the classroom. Seven of the eight participants agreed that self-assessment was among the most important types of formative assessments. The instructors described developing self-assessments like rubrics, self-grading, and technological tools such as Google docs in order to receive real-time feedback and provide comments or provide responses to the instructor. The effectiveness of this type of formative assessment should not be underestimated. Student self-assessments provided students the ability to become better critical thinkers, identify progress towards a target performance, and students could choose goals in order to improve learning (McMillian and Hearn, 2008).

Instructors described effective use of student and peer assessments as one of the most beneficial classroom instructional tools. During the interviews, 7 of the 8 participants cited the use of self-assessments as being effective. I consider this significant because all agreed that this formative assessment practice enhanced student learning. The instructors reported that their students increased in confidence and became more self-motivated learners. Both of these skills were important in order to attain effective learning.

The last question in this section questioned utilizing formative assessments for the purposes of assessing ELA standards. The responses to this question was important relevant to the newly implemented CCSS because ELA standards are integrated into all content areas. Seven of the eight participants described the use of reading and writing strategies as a method to measure ELA success. Not only did participants find these strategies effective, participants used these strategies to introduce or summarize new

objectives to the students. Writing and reading strategies for the purpose of incorporating ELA objectives into any subject matter is an effective way of meeting student outcomes. Whether the reading or writing is in an actual ELA classroom or mathematics it was referred to by the participants as an important part of learning.

Finding 2: School Climate Impacts Formative Assessment

The eight instructors at Vine Middle School had a positive outlook on the school climate as it relates to instructional practices. The findings of the climate survey were connected to the sub-research question: How did school climate impact the effectiveness of formative assessment practices? The climate survey given in Vine Middle School incorporated four aspects of school culture. These areas were safety, relationships, teaching and learning, and the external environment. While I acknowledge that all four areas were extremely important when evaluating school climate, for the purpose of this study, I concluded that I would examine only the teaching and learning practices of the eight instructors involved. I made this determination based on the premise that examination of learning environments and determine the school culture and help improve instructional practices (Freiberg, 1999).

The formative assessment survey sub-scale indicated that the test for reliability in this area was very high ($\alpha = 90$). This level of reliability indicated that the questions in this section of the survey could provide an accurate representation of what the teachers believed formative assessments practices were (Streiner, 1989). This was also evident in the school climate survey. There were 21 questions in this portion of the school climate survey. Questions for this measure can be found in Appendix C. The teachers' responses demonstrated that the overall perceptions of school climate relating to instructional

strategies. The eight surveyed participants showed a high rate of agreement measuring their perceptions of favorable school climate environment as it relates to classroom instruction. All eight instructors agreed that they have the proper materials to do their job.

As a researcher, these findings suggested that the instructors had the materials to implement formative assessment instructional strategies. This was extremely important, because instructors that do not feel empowered and have access to the necessary tools cannot practice effective formative assessment methods (Stiggins, 2005). The outliers in the climate survey involved if assignments are challenging enough, teacher evaluation, student performance and time allowance to perform job functions. Even these outliers did not yield much variance. Cohen et. al (2009) concluded that a positive school climate must be met with effective teaching practices in order to yield the highest academic outcomes for students. Teachers implementing formative assessment teaching practices must be supported by building principals and district in order to be effective. Based on the responses of the eight instructors in Vine Middle School, this clearly appeared to be the case.

Finding 3: Teachers Develop Strategies to Aid in Student Learning for All Students

The eight instructors at Vine Middle School recognize the learning gap of varying socio-economic levels, ethnicity and gender and take measure utilizing formative assessment practices to help close the gap. There were three questions that addressed the achievement difference at Vine Middle School. The participants primarily agreed that in order to help close the achievement gap, teachers must foster a good relationship with their students. All of the teacher participants reported having been affected by the learning gap. I expected the results from this section. Vine Middle School has undergone

many changes relating to student population. While the majority of the students are white students, due to changes in local failing districts, Vine Middle School has received an influx of urban students. Hence, the challenge of helping these students. According to a study conducted by Causey, Thomas, and Armento (2000), ensuring that teachers are aware of the cultural differences and provide differential learning for students that have recently migrated into suburban can aid in successful learning.

Ensuring that teachers develop a strong rapport with their students is key to a successful learning environment. Relationship transparency was important to these participants. Finding ways to connect to the students' cultural backgrounds was of significant importance to these teachers. Six of the eight instructors agreed that differentiating instruction was a key factor in building relationship and trust among students. This environment was conducive to providing a learning environment that allowed students to accomplish learning objectives. Teachers that value their student's culture and find ways to build relationships help to influence the outcomes of the students' success (Delpit, 1998). Incorporating formative assessment practices that used students' cultural knowledge, prior experiences, and diversified learning styles was evident at Vine Middle School (Gay, 2002). Overall, this finding in this study suggests that a shared understanding of student culture will improve instruction and help all learners increase academically

Finding 4: Teachers Acknowledge the Importance of Formative Assessments on Academic Success

The eight instructors at Vine Middle School concluded that effective formative assessment practices have a tremendous impact on student academic achievement. This

study was developed in order to examine if formative assessment practices can impact the outcomes on state criterion test scores. While it is impractical to use the student test scores to make a direct correlation between formative assessment practices and student achievement, all eight teachers agreed that formative assessment practices could have a substantial impact on student achievement. For Vine Middle School this was particularly important because classroom instructors used formative assessment to improve learning outcomes for all students, especially those struggling with learning disabilities and those not proficiently mastering standards (Stiggins, 2005). Research showed that formative assessment practices help promote effective instructional practices (Black & Wiliam, 1998). Moreover, federal laws, like ARRA in 2009, in addition to newly implemented state policies using the CCSS have supported the use of formative assessment practices in schools as a method to closing learning gaps and increasing student outcomes. The results of this study showed that the majority of the participating teachers valued the need to change instructional practices based on the outcomes of formative assessments.

The teachers indicated that utilizing formative assessment practices have helped them become more intentional in their instructional planning as a result of the students' classroom grades/performance outcomes and all participants agreed that classroom grades/performance improvement have improved as a result of the formative assessment practices (Stiggins, 2005). The fact that these teachers collectively agreed about formative assessment practices played an important role in student achievement is evident in their responses to both the survey and in their interview. Formative assessments helped students learn better and more effectively. Utilizing formative

assessments on expeditions was significant in how teachers effectively ensured learning content was met both inside and outside of the classroom.

The impact of formative assessment on expeditions was an example of how important the interviewing process was in this study. Without interviewing the teachers, it was difficult in knowing to what extent the teachers felt formative assessments impacted outcomes. All teachers expanded on the positive effects and gave examples of how learning develops over time as a result of using formative assessment strategies. The results of their efforts in using formative assessment strategies was attributed to the outcomes of the student achievement scores on the ELA Smarter Balanced Assessment. The students in this study exceeded the state average of proficiency in the area of ELA for the year 2014-2015.

Finding 5: "School as an Expedition" contributes to the Success of Formative Assessment Practices

An active learning environment is a crucial element of Vine Middle School's approach to learning. According to the teachers in this study, "School as an expedition" allowed them to utilize formative assessment practices that expanded beyond the classroom. Vine Middle School's expeditions promoted learning on camping outings, field trips to local organizations, and outreach programs encouraged students' participation and accountability for their learning through formative learning practices (Bonwell & Eison, 1991). Teachers at Vine Middle School collectively agreed that active learning activities such as collaborative work in student groups and peer assessments helped contribute to higher academic gains and aided in providing real life learning experiences (Springer et al., 1999).

Vine Middle School's foundation of a "school as an expedition" is based on the principal that students can attain academic success both inside and outside of the classroom. The teachers revealed in their interview that the school expeditions enhance learning, provide intentional learning, and provide a genuine sense of formative practices. According to these teachers, Vine Middle School expeditionary learning principles foster self-discovery, encourages diversity, and collaboration. Expeditionary learning allowed Vine Middle School's teachers to provide evaluation of student learning, assess academic progress utilizing formative assessments practices which are a vital aspect of these teachers' instructional practices.

Summary of Findings.

The findings from this study contribute to existing knowledge on formative assessments and the impact of formative assessment practices on student achievement. The emergent qualitative themes and the descriptive statistics may provide insight into how instructors define formative assessment, how they influence their instructional practices, and how they help students academically. These themes helped address the primary and secondary research questions on the impact of formative assessment and academic achievement, how school climate impacts formative assessment teaching practices, and how formative assessment practices can help close the achievement gap.

The results may be useful for administrators, teachers, students/parents, and curriculum designers.

Limitations to Findings.

The findings from this study should be treated with great restraint. First, the formative assessment survey utilized in this study was a pilot survey. When tested for

reliability the Cronbach alpha fell below the typical level of .70 thought to be the standard of reliability (Kline, 2013). More importantly, when the survey was divided by subscales, two of the three areas held considerably low levels of reliability. Hence, the questions on this survey should be revisited. Items from this measure may have needed to be deleted by running a factor analysis and determining the consistency of each question. Yet it is important to note that the .70 level of reliability is often disputed. The alpha level is dependent not only on the extent of the correlations among the questions, but also on the number of items in the sub-scale (Streiner, 1989). In some cases, a scale can look more consistent and reliable by adding additional items. Additionally, if alpha is too high, then it may imply item redundancy which can also skew data results (Streiner, 1989).

The study's quantitative data was also triangulated with the qualitative data. I used multiple sources data to ensure that consistency of findings was produced by different collection methods. The data was collected at different times using different methods. I also utilized a senior researcher to assist with analyzing the data.

The small sample size is not representative of all teachers' perceptions and therefore cannot be generalized. Moreover, the sample was not controlled for gender, race, language, and socio-economic status (SES).

Implications

Stainback and Stainback (1989) concluded that implications are present in a study in order to ensure that the reader is aware of unexpected findings or patterns that emerged from the data. The following implications are to give a synopsis of evidence to support the findings I presented above. I found that the following implications are relevant to the study findings for various stakeholders to follow.

Administrators

Administrators in middle school settings could benefit from this information in understanding the importance of formative assessment practices in the classroom. Observing the teaching and learning that takes place with formative assessment practices and the influence they have on student outcomes can make known what instructors need for teaching in their discipline. The administration could use the formative assessment practices that work effectively to guide instructional practices for new teachers and during professional development. Administration could better understand how to use these practices to help implement the new CCSS. Scriven (1991) concluded this in his evaluation of implementing formative assessment practices. He asserted that formative evaluation is conducted during the development or improvement of a program or product. Stiggins (2005) applied this same concept to improving state testing. He claimed there is evidence to conclude that formative assessment practices will yield remarkable test gains (2005). Thus, it is essential for the administration to monitor the effectiveness of the formative assessment practices on achieving learner outcomes and provide any necessary resources to instructors.

Vine Middle School administrators in particular may find these conclusions helpful when quantifying their federally funded programs such as 1:1 laptop. The instructors in this study concluded that this technological program has increased student access to technology and helped close the digital divide. Administrators could use this information to provide a story to the funders concerned about the effectiveness of this program. This same concept can be applied to the funding received to support the expeditions that take place out of state and at various costly venues. This would inform

the parents and the community that learning takes place on these excursions and the expense is worth the expenditure.

The findings of this study is unique to Vine Middle School because of their "school as an expedition" approach to learning. Vine Middle School demonstrated that formative assessments in an active learning environment challenges traditional methods of measuring academic success. Although summative testing is an important aspect of student success, students that are engaged learners and participate in the feedback process have a better chance of retaining knowledge and demonstrating critical thinking skills (Prince, 2004). The formative assessment practices utilized in Vine Middle School may help administrators evaluate their teachers' instructional patterns and assess the effects on their students' learning.

Instructors

The implications that this study holds for instructors can highlight the formative assessment methods that they used in order to increase student learning. The eight instructors that were the voices of this study distinctly exhibited their appreciation for formative assessment practices in order to meet the needs of their students and improve learning. Their level of dedication to the practice was displayed in the various ways that they differentiated their instruction, provided multiple ways to succeed, and offered constant feedback to their students. Other instructors could benefit from these findings by sharing their instructional practices and determine which formative assessment practices would most effectively provide students with the highest level of achievement gains. Some examples of the formative assessment practices that Vine Middle School

teachers found most effective were practices such as journaling, classroom doodles, group projects, peer reviews, and social media projects.

Instructors could also benefit from these findings by exploring the measures these eight instructors took to help close the achievement gap. The findings suggest these eight instructors believe that formative assessments practices can help close the achievement gap by delivering versatile instruction, developing relationship and trust among students, and ensuring that students have the necessary resources for success.

Instructors could review this study and determine what formative assessment practices are most effective on expeditions and field trips in order to maximize learning for the students. Education is very data driven. It is imperative to demonstrate how students achieved gains based on instructional practices. This is especially difficult to provide evidence when outside of the traditional classroom. Based on the information these eight instructors provided, their practices can be replicated and observed to ensure effectiveness.

Students

Students could benefit from this study as it could help them quantify their learning practices and even individualize their own learning experience. Students should own their learning experiences as they prepare to move into an emerging world in which expectations of college readiness takes place on the elementary level. Just as teachers are responsible for outcomes and should develop measures to track their progress students should do the same (Stiggins, 2005). Students should insist that instructors help they learn critically and develop the most effect ways to master skills.

Research Community and Policy Makers

Educational studies on educational practices can allow for additional research and influence of political policy. Independent research, that is not government driven can be the foundation for think-tanks, provide creative solutions and even drive new policy reform (Kerlinger,1977). Student success and outcomes is the primary goal of educational reform and policy. Providing evidence that formative assessment practices impact student achievement may provide foundations for stakeholders to invest in change. The unique characteristics of Vine Middle School that demonstrate exemplary examples of learning and using their programs to ensure equality for all learners is a goal of the US educational system.

Curriculum Designers

A curriculum designer may find the outcomes of this study helpful in determining how to incorporate formative assessment practices into the curriculum mandates. For example, curriculum designers may find it helpful to include more writing assignments in mathematics in order to meet ELA standards and increase chances of college readiness. If the consult with teachers utilizing formative assessment curriculum designers could provide better resolutions to bridging the achievement gap and raising test scores.

Recommendations

This study found that there is considerable benefit in utilizing formative assessment practices. Thus, teachers need to spend time evaluating how their practices impact classroom learning and academic achievement gains. The following recommendations are presented by the researcher based on each of the above-mentioned study findings.

Recommendation 1: Vine Middle School should continue to provide expeditionary learning to the students as this study suggests it provides rich learning and allows for effective use of formative assessment practices. These expeditions are specifically designed to expose students to learning objectives outside the classroom. The instructors can quantify these excursions by continuing to provide students with tangible learning opportunities based on content objectives tied to summative tests.

Recommendation 2: The types of formative assessment practices discussed by the participating instructors should continue as methods to increase state test scores and maximize learning. Administrators should determine which formative assessment practices have to greatest impact on learning and replicate this method throughout the district. Chappuis and Chappuis (2007) conclude consistent evaluation of formative assessment practices will allow instructors to ask W*here am I going? Where am I now?* and *How can I close the gap*? Ensuring that formative assessment practices are evaluated for effectiveness will confirm their importance.

Recommendation 3: Vine Middle School should continue to provide technology to all students as this increases their chances for academic success. As 1:1 laptop schools provide opportunities to students who may not otherwise have the financial ability to purchase computers, therefore aiding in closing the digital divide in education. Results from results found similar studies have been noted in regards to the importance of technology access and improving student achievement (Shapley et al., 2009).

Recommendation 4: Vine Middle School should continue to assess their school climate and address any concerns that would affect formative assessment practices. For example, some participating teachers asked for additional time in classroom preparation.

Recommendation 5: Vine Middle School should provide professional development on the effective use of formative assessments and its impact on summative testing scores.

Future Studies

The need exists for future studies examining the relationship between formative assessment practices and student achievement. Future studies should be made to increase the population size, changes to the variables and measurements used in this study. Specific recommendations are listed below.

Recommendation 1: Conduct a follow-up mixed-method study within a year for a period of at least three years in order to measure the effectiveness of formative assessment practices on the Smarter Balanced Assessment in both ELA and mathematics. Ideally this study should be done with the same teachers in order to develop reliability. This longitudinal data was not available to the researcher in this pilot study.

Recommendation 2: Conduct a quantitative study with a year to examine student achievement in the classroom and compare the academic results to their Smarter Balanced Assessments. This study should include student surveys in order to determine their viewpoints on the effectiveness of formative assessment practices.

Recommendation 3: Conduct a longitudinal study in five to ten years to examine newly implemented formative assessment practices and their effectiveness on student achievement as measured by state criterion tests.

Recommendation 4: Conduct a study about expeditionary learning and how it guides formative assessment practices and impacts student achievement. Because expeditionary learning was such an important element in Vine Middle School, examining

the foundations of this learning can help determine which factors impact student learning. The principles of expeditionary learning are guided by formative assessment practices and therefore can help determine its significance. Ideally this study should be a mixed method study in order to ensure a rich and deep understanding of a "school as an expedition".

Reflections

The formative assessment practices utilized at Vine Middle School definitively exemplify the type of teaching and learning that takes place. In the article, *From Formative Assessment to Assessment FOR Learning: A Path to Success in Standards-Based Schools*, Stiggins (2005) concluded that in order to raise scores on summative exams, instructors can utilize the content of a summative test in formative ways. Using formative assessment practices will allow instructors to identify gaps and adjust their teaching accordingly. Through this study, I learned that in order to deliver effective formative assessment teaching practices, teachers must first build relationships with their students. This includes invoking prior knowledge and experiences, understanding cultural norms and practices, and developing trust through authentic engagement. At first glance, it would appear that this development is a natural part of teaching. However, I found that formative assessments must be relatable and real to the students in order for them to make a connection to the content (Scriven, 1991).

With the participating teachers in this study, I anticipate a push to implement more formative assessment practices in order to connect the classroom learning of content objectives to testing outcomes. Instructors need to understand how formative assessment practices fit into their overall teaching philosophy. These participating

instructors may not necessarily have a shift in their instruction, but they may reflect on how they deliver their formative assessments strategies and how students gain from it.

These instructors thrive on accomplishing their teaching goals and objectives, but have also displayed the desire to ensure student academic success. In my study, the instructors' use of formative most effective when used to provide student feedback and develop a measurement for gaging knowledge. Stiggins (2005) included these methods as exemplary formative assessment practices and will help assist in student achievement outcomes.

The newly implemented CCSS demanded a shift in student learning. These standards require more critical thinking skills. The instructors concern was to prepare students for these new the 21st Century standards. In order to do so, instructors must be prepared to look beyond traditional teaching methods and reach outside the classroom. Vine Middle School is able to do this with their expeditionary learning. This formative assessment practices work best when student learn how to pass on those skills they learned in the classroom to real-life situations. This is the goal of CCSS.

I also learned significantly from performing an exploratory case study that employed mixed methods for data collection and analysis. I initially sought to complete only a quantitative study. I did not receive the amount of data needed to determine statistical significance. Hence, I abandoned my initial design. However, the exploratory case study methodology using mixed methods added a rich element to the study that allowed me to interview the teacher participants concerning their perceptions and views on formative assessment practices. This design offered a richer level of data that survey

data could not provide. However, for future studies I will ensure that the data needed to conduct a full quantitative analysis will be available for review.

Agenda for Future Research

This study has highlighted interest for future research. Formative assessment practices need quantifying on a global scale. Although I realize that every teaching environment is not the same, there could be extreme benefits to examine which formative assessment practices are needed for what teaching environment. I would like to investigate this inquiry. I am also interested in the levels professional development for districts utilizing formative assessment practices. I would also like to conduct a comparison study for schools that utilize formative assessment practices compared to a school, which is more traditional in their approach to summative outcomes.

Vine Middle School has exhibited many unique ways of incorporating formative assessment practices in their school and it would be interesting to analyze a comparison. In particular, their foundation of expeditionary learning is a distinctive way of implementing formative assessment practices and need further examination. Expeditionary learning is a new concept, but the model is increasingly becoming more popular to aid in inclusionary learning among diverse populations (Ikpeze, 2013). Vine Middle School should expand research on their expeditionary model to examine how their service learning projects, community partnerships and cooperative learning strategies directly impact academic achievement gains.

In conclusion, the data from this study allows to me conclude that these eight instructors utilizing incorporate formative assessment practices are better prepared to

help student succeed academic, better prepared to assist in increasing learning among all students, and value student rapport and a positive school climate.

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Appendices

Appendix A

Division of Teaching and Learning

One University Blvd.
St. Louis, Missouri 63121-4499
Telephone: 314-516-5791
Fax: 314-516-5348
E-mail: ysfgd@mail.umsl.edu

Participant _____ HSC Approval Number _____

Principal Investigator Yolanda Alovor PI's Phone Number 314-3278659

1. You are invited to participate in a research study conducted by doctoral candidate Yolanda Alovor and supervised by Dr. Natalie Bolton. The purpose of this study is to examine the relationship between classroom formative assessment in English Language Arts (ELA), student ELA classroom motivation, school climate, and student performance on the 2015 grade 8 Missouri (MO) ELA assessment. Approximately twenty instructors may be involved in this research study.

2. a) Your participation will involve the following activities:

You will be asked to complete a survey and an interview related to how you implement formative assessment. The survey is a multiple choice questionnaire and the interview is an open-ended format. Items will assess (1) your definition of formative assessment, (2) how you implement formative assessment, (3) formative assessment strategies, and (4) your beliefs and attitudes about formative assessment.

b) The amount of time involved in your participation will be a maximum of 25 minutes for the formative assessment survey and approximately 50 minutes to complete your interview. Both your survey and interview will be coded by a number. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about formative assessment practices and student performance on the 2015 grade 8 MO ELA assessment. The outcome of this study may help society understand the how the use of formative assessment practices can influence academic outcomes in ELA.

5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. If you want to withdraw from the study, you can contact me at: ysfgd@mail.umsl.edu or 314-327-8659. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your data. In addition, all data will be stored on a password-protected computer and/or in a locked office.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Yolanda Alovor at (314)-327-8659 or the Faculty Advisor, Dr. Natalie Bolton at (314) 5165787 or the Office of Research Administration at (314) 516-5897.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature	Date	Participant's Printed Name
Signature of Investigator or Designee	Date	Investigator/Designee Printed Name

Appendix B

University of Missouri - St. Louis

Application for Full Review by the Institutional Review Board

Please supply (on numbered additional pages) the information requested below. Use the same Roman Numerals and capitalized key words to identify each section. Your responses should be concise.

I. Introduction

Briefly describe the GENERAL PURPOSE of the study.

List the SPECIFIC AIMS and HYPOTHESES or RESEARCH QUESTIONS.

The purpose of this non-experimental quantitative study is to examine the relationship between classroom formative assessment teaching practices, student ELA classroom motivation, school climate, and the MO state assessment of the Grade 8 English Language Arts (ELA) that uses the Common Core State Standards (CCSS). This study will be conducted at a public school in the metropolitan area of St. Louis, MO. The significance of this relationship may inform teachers, administrators, parents and students how formative assessment practices and classroom motivation in ELA, and school climate influence large-scale criterion testing outcomes.

The hypotheses of this study are:

H1: Grade 8 ELA students that positively perceive formative assessment teaching practices, are positively motivated with ELA, and positively perceive their school climate will have higher scores on the MO Grade 8 ELA state assessment.

The higher the student mean scale score on the Student Formative Assessment survey, the higher the student mean scale score on the Student ELA Motivation survey, and the higher the mean scale score on the student Maplewood/Richmond Heights Climate survey, the higher the student mean scale score on the grade 8 MO ELA measure of the CCSS.

H2: Teachers of grade 8 ELA students that report effectively using formative assessment teaching practices and positively perceive school climate will have higher scores on the MO Grade 8 ELA state assessment.

The higher the teacher mean scale score on the Teacher Formative Assessment survey and the higher the teacher mean scale score on the Teacher's Maplewood/Richmond Heights Climate survey, the higher the student mean scale score on the grade 8 MO ELA measure of the CCSS.

II. Methods

Describe the EXPECTED GROUP(S) (control, experimental, etc.) to be used.

This is a non-experimental study. Data will be collected from grade 7 and grade 8 students. Grade 7 students (*n* = 70) will serve as a sample to pilot student measures to check for reliability

and validity of the student measures. Grade 8 students (*n* = 100) will serve as the sample for the non-experimental study. Additionally, grade 7 and 8 teachers will make up the sample. Due to the small sampling size, it may be difficult to find statistically significant relationships from the data. However, this limitation will be discussed as a limitation in the final write up of the study.

The proposed study aims to examine: (1) student and teachers' perception of the use of formative assessment teaching practices; (2) examine student and teacher perception of school climate; (3) examine student motivation in ELA; and (4) examine their impact on the MO Grade 8 ELA assessment of the CCSS. This study supports practices currently used at the school and does not interfere with the school's instructional practices. This study complements existing efforts at the school to quantify their formative assessment practices, student motivation in ELA, and school climate. This school currently administers climate surveys to students and teachers regularly and conducts professional development training on the importance of formative assessment practices with teachers, and the school and teachers collect data on the use of formative assessment strategies and student motivation in ELA instructional area as a part of regular classroom instruction.

Give the NUMBER OF SUBJECTS anticipated for inclusion in each of the above groups.

The research will be conducted at Maplewood Richmond Heights Middle School in Maplewood, Missouri. The subjects will be one hundred eighth grade English Language Arts learners, seventy 7th students, twenty 7th and 8th grade Middle School teaching staff. The school administration has agreed to conduct the research at the site. I have attached an agreement letter from the school to participate in the study once study is approved from the UMSL IRB committee.

Outline the INCLUSION CRITERIA for subjects (justify the involvement of any of the special groups listed in the General Application, questions 5 or 6). Include how subjects will be recruited.

The inclusion criteria for the teacher subjects in this study are all 7th and 8th middle school teachers at Maplewood Richmond Heights Middle School in Maplewood, Missouri that teach students that will take the MO state assessment of the ELA at grade 7 or grade 8.

The inclusion criteria for the student subjects in this study are 7th and 8th middle school students at Maplewood Richmond Heights Middle School in Maplewood, Missouri that will take the MO state assessment of the ELA at grade 7 or grade 8.

All participants will be enrolled as a middle school student at MRH Middle School or as an instructional staff member. The participants will be given a consent form; general consent for the instructional staff and a parental and an assent form for the students. Their participation is voluntarily.

Describe the ROLE OF SUBJECTS, including what they will be asked to do and whether deception will occur.

The role of the instructional subjects will be asked to complete one survey. This survey will measure the formative assessment teaching practices in the classroom. This survey will take a maximum of 25 minutes to complete. The researcher will examine a second scale concerning school climate at MRH Middle School. This data is existing data administered by the school district.

The Middle School Principal will be asked to submit the test score results of the Grade 8 ELA measure of the CCSS for the Spring of 2015.

The seventh and eighth grade students will be asked to fill out survey about formative assessment practices such as journaling, expeditions, peer/self-assessments and group discussions in their ELA classes and a motivational survey for learning in ELA. These two surveys will take a maximum of 45 minutes to complete.

The researcher will examine a third survey related to student perspective and school climate at MRH Middle School. This data is existing data administered by the school district.

Additionally, the researcher will review the student level Grade 8 MO ELA scores and student demographic data.

There is no deception involved in this study.

Describe all MEASUREMENT PROCEDURES. Attach copies of any questionnaires, measurement instruments, or interview protocols to be used.

The following measures will be utilized for the purpose of this study:

1. Student Motivation Survey- This is a four point Likert scale assessing the current mindset of the students concerning their motivation for learning in the classroom. There are 24 items on this survey.
2. Formative and Summative Assessment Practices-Students- This is a four point Likert scale assessing student's value of formative assessment practices. There are 14 items on this survey.
3. Formative Assessments-Instructor- This is a multiple choice questionnaire that assesses teachers' definition of formative assessment practices, implementation of instructional practices, various forms of formative assessments, and teachers' beliefs and attitudes about formative assessments. This are 27 items on this survey.
4. MRH School Climate Survey- This survey is a thorough assessment of Maplewood Richmond Heights' Middle school climate including safety, relationships, teaching and learning, and the school culture. This survey is administered to students and teachers for the 2014-015 school year.
5. 2015 MO ELA Grade 8th assessment- State Criterion test aligned with the Common Core State standards (CCSS) in ELA utilized to assess 8th grade students' critical thinking skills, problem solving skills, communication and real life

application skills. The test will administer performance tasks in which students will be charged to analyze information, determine evidence and demonstrate knowledge they have amassed during the school year. This assessment replaces the former Missouri Assessment Program (MAP) criterion test. The MO Department of Secondary and Elementary Education have partnered with Smarter Balanced to assess the MO CCSS. (This measure is not available for review)

Describe the EXPECTED DURATION of the subject's participation.

The expected duration of the subject's participation is six months.

III. Risk/Benefit Assessment

Describe any RISKS TO THE SUBJECT that might arise from participation in the study. Subjects should be protected against injury and invasion of their privacy, and their dignity should be preserved. Risks fall under the following categories: physical, psychological, social, economic, legal, and other.

No study involving human subjects is without its potential risks. In studies of this kind the chief areas of risk are confidentiality/privacy rights and dignity.

Describe STEPS TAKEN TO MINIMIZE RISK.

In this study, I will be looking at student and teacher attitudes and beliefs about formative assessment practices and student and teacher perspective of school motivation/climate and how they influence performance on a state level criterion referenced assessment. Many people are not comfortable with others knowing their grades or their specific responses on tests. Additionally, many people are sensitive about beliefs that they might be asked to convey on a survey.

Consent forms will be given to teachers and parents. Assent forms will be given to students. I will share a summary of teacher, parent and student consent and assent forms with the building principal. In order to protect the privacy of the participants, coding of student and teacher identity will take place prior to my review of the data.

The students are provided with a student identification number by the district upon entering school. I will give the assent and consent forms to the building principal to generate signatures from both the students and their guardians. The school principal will give me a copy of the consent and assent forms of the participants who agree to the study for my records. Once the participants have been identified, the building principal will de-code these students by their student number. The building principal will distribute the two student surveys, in which the students a place to type their student number. I will identify each student by their student identification number. This will be used to correlate their survey responses with their smarter balanced test results.

A similar process will take place to protect the privacy of the teachers' survey. The teacher survey will be administered by the building principal with an assigned number on the survey. This number will replace the teacher's name therefore protecting their identity.

Great care will be exercised to protect the privacy of the teacher and student participants. Specific measures will be taken to ensure confidentiality, voluntary participation, and the right to withdraw from the study at any time. The delivery of information about the nature of the study and the precautions will help minimize these risks. Once attained, the data will also be stored in a locked container and discarded upon completion of the study.

Describe the POSSIBLE BENEFITS TO THE SUBJECT.

MRH School district takes great pride in their formative assessment teaching practices and assessing school motivation/climate. They utilize many innovative pedagogical approaches to positively impact student achievement. It is my hope that this study may help quantify their practices and provide feedback on the importance formative assessments and school motivation/climate on a state level criterion assessment.

Describe the POSSIBLE BENEFITS TO SOCIETY.

The significance of this relationship may inform teachers and administrators of how formative assessment practices and school motivation/climate influence state level criterion testing outcomes.

IV. Debriefing Statement (if project involves deception)

Attach a copy of the debriefing statement explaining the deception. Deceptive techniques must be justified by the study's prospective scientific, educational, or applied value, and the investigator should explore equally effective alternative procedures that do not use deception. Investigators should not use deception when it would affect the subjects' willingness to participate (for example, deception regarding physical risks, discomfort, or unpleasant emotional experiences).

N/A

V. Subject/Parental Consent Form (s)

Attach all consent forms **(on University or agency letterhead)** and indicate how they will be maintained. The research investigator is responsible for retaining all signed consent documents for at least three years past the completion of the research activity.

See attached documents.

VI. Assent Form (must be included if project involves minors)

Attach all assent forms **(on University or agency letterhead)** and indicate how they will be maintained. The research investigator is responsible for retaining all signed assent documents for at least three years past the completion of the research activity.

See attached documents.

MODIFICATION REPORT

It is the policy of the UMSL IRB that all investigators submit a **Modification Report** if there are changes to an approved protocol. This form must be submitted through IRBNet. If this protocol is within 3 months of its annual review you may also simultaneously apply for **Annual/Continuation review**. Protocols can be renewed a maximum of four times. If this study has already been renewed four times and new subjects are to be recruited, the protocol must go through a new review.

Project Title: Formative

Protocol Number: 695324-3

Principal Investigator: Yolanda Alovor **Department/College: Education**

Phone:314-327-8659 **Email:** ysfgd@mail.umsl.edu

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1. **Modification to Study Protocol**

☒Yes ☐ No **Are you adding or deleting any measure(s)?**

If Yes, explain the changes including any new risks or benefits,

My initial study included students of 7th and 8th grade Language Arts and their core instructors. I did not receive my targeted consent population from the student body and decided to focus on the teacher population. Instead of my initial quantative design, my study will now be qualitative in nature. This case study will examine the

relationship between core teacher (math, science, social studies, and English Language Arts) classroom formative assessment teaching practices, school climate, and results on the 2015 MO state assessment of the Grade 7 and 8 English Language Arts (ELA). The MO ELA grade 7 and 8 assessment is aligned to the ELA Common Core State Standards (CCSS). Data will be collected from grade 7 and grade 8 core teachers (math, science, social studies, and English Language Arts). Descriptive statistics of survey and test data will be reported and qualitative analysis of the interview data will be employed. Additionally, grade 7 and 8 state assessment data will be analyzed. The building principal has granted permission to review this data. There are no new risks. The benefits of a case study will add depth to a the traditional quantative study and assist in allowing the participants to develop a sense of action and allow for an accurate portrayal of their perceptions.

Include a copy of any new measure(s) along with this form.

☒ Yes ☐ No Is there a change in the recruitment of subjects (such as revised subject number, place of recruitment, recruitment ads)?

If Yes, explain the changes.

I will no longer seek survey data from students, but rather analyze the data collected from grade 7 and grade 8 core teachers (math, science, social studies, and English Language Arts). All transcriptions will be coded for themes and patterns. The same identifiers used on the formative assessment interview will be used on the transcriptions. I have included the revised consent form and the interview protocol to reflect the change.

Include a copy of any new advertisement(s) along with this form if needed.

2. **Changes in Personnel**

☐ Yes ☒ No Will new personnel will be added to the protocol?

If yes, all new personnel will have to document IRB training. Describe role of new personnel

☐ Yes ☒ No Will personnel will be leaving the protocol?

If yes, describe reason(s) why personnel are leaving

☐Yes ☒ No Will a new principal investigator will be added to the protocol?

If yes, describe new principal investigator

3. **Are there any other changes to the original protocol?** ☒Yes ☐ No

If yes, explain these changes.

In place of a full review, requiring consent from both students and their parents, I have amended an updated consent forms from the eight instructors I am working with. A case study of eight teachers from a metropolitan middle school in the Midwest will be the research method used for the study. Data will be collected from grade 7 and grade 8 core teachers (math, science, social studies, and English Language Arts). Descriptive statistics of survey and test data will be reported and qualitative analysis of the interview data will be employed. Additionally, grade 7 and 8 ELA state assessment data will be analyzed. The building principal has granted permission to review this data. The letter in the initial protocol reflects this approval.

4. **Do any of these modifications require a change to the consent form?**

☒Yes ☐ No

If yes, include a revised consent with this form with changes highlighted.

If this protocol is within 3 months of its annual review you may also simultaneously apply for continuation review by completing the following questions.

1. **How many times has this protocol been renewed?**

☒ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

2. **Total number of subjects approved for this study:** 178

Total number of subjects enrolled thus far in the study: 32

Explain any discrepancies (such as the number of enrolled subjects exceeds the approved or if no subjects enrolled) in these numbers.

My initial study included students of 7th and 8th grade Language Arts and their core instructors. I have a total of 32 participants including the student population, but will no longer utilize the student data due to the small population. Therefore, I will conduct a case study among the 8 core instructors.

If there is a discrepancy, are there changes in the potential risks (e.g. fewer subjects may impact confidentiality) or benefits (e.g., changes odds for drawings) that require a change in the consent?

As mentioned, the benefits of a case study will add depth to a the traditional quantitative study and assist in allowing the participants to develop a sense of action and allow for an accurate portrayal of their perceptions. There are no new potential risks.

3. **Have any serious or adverse events occurred in subjects since the last continuing review?** ☐ Yes ☒ No

   If yes explain.

4. **Has there been any additional or new information related to this study which may affect a subject's willingness to continue participation or that may need to be given to new subjects (such as complaints, unknown risks, recent literature)?** ☐

   Yes ☒No

   If yes, explain.

Appendix C

School Climate Survey- Instructional Practices

This writing portion of your e-interview is complete. Thank you for your valuable responses. The following questions are taken from your school climate survey. The questions selected are dealing ONLY with instructional practices. Please provide your responses. Once complete, your interview is over. You may press submit. Thank you again for your time and input. I will provide a copy of my analysis to your principal once finalized.

Q1 1. I am responding to this question as a:

- ❍ Middle School Teacher
- ❍ I teach Middle School and High School

Q2 Do you have access to the materials that you need to do your job effectively?

- ❍ Yes
- ❍ No

Q3 I have established clear learning targets for each of my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q4 My assignments are appropriately challenging for my students.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q5 I keep class interesting by using a variety of activities to help students learn.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q6 I have time set aside to help students who are having difficulty with assignments.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q7 I differentiate for students of varied readiness levels within my class.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q8 The curriculum I teach is important and valuable for my students' futures.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q9 I have established clear learning targets for each of my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q10 at this school, we are learning by doing; not just by sitting and listening.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q11 I actively help students learn thinking and problem solving skills.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q12 I help students evaluate their own work and make suggestions on how they can improve.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q13 The teacher evaluation process helps me to set goals and evaluate my own work.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q14 I make all students aware of how they are performing throughout each of my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q15 Students have plenty of time to learn what they need to know for my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q16 I require students to do quality work and have a system for revisions to achieve quality.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q17 I feel well prepared and competent in the subject that I am teaching.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q18 Student indicate that I am clear in my instruction and easy to understand.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q19 My students are actively engaged and on task in my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q20 I have plenty of time to learn what I need to know for my classes.

- ❍ Strongly agree/ True for all classes
- ❍ Somewhat agree/ True for most classes
- ❍ Somewhat disagree/ True for only some classes
- ❍ Strongly disagree/ True for no classes

Q21 Is there anything else you would like to say about the learning experience at MRH?

Appendix D

Interview Raw Data Matrix: Question 1: In your own words can you elaborate on the purpose of using formative assessments practices within your teaching and learning process?

Sample Excerpt from Individual Instructor	Code
Teacher1: Formative assessments inform my lesson content. For example, last week several students were not able to answer questions on range correctly. That informed me that I needed to reteach range and allow my students more practice.	Instructional improvement Feedback Practice Differentiated Instruction Funds of Knowledge
Teacher 5: To understand what students already know to gauge where student learning is at the moment To prescribe next steps in instruction.	Diagnosis Funds of Knowledge Instructional improvement Feedback Differentiated Instruction
Teacher 6: I use formative assessments to provide info about the progress that my students are making in class. The use of	Feedback Types of assessments Reteach

different formative assessments shows me what the students have learned or not learned and what potentially needs to be retaught or reviewed. It also helps me make decisions about what I should teach in the future.	

Frequency of Codes:

Question 1: In your own words can you elaborate on the purpose of using formative assessments practices within your teaching and learning process?

Code	Percentage
Feedback	75%
Instructional improvement	62.5%
Funds of Knowledge	62.5%
Diagnosis	50%
Differentiated Instruction	50%
Types of Assessment	25%
Ongoing student learning	12.5%
Student Content Comprehension	12.5%
Reteach	12.5%
Monitor	12.5%
Practice	12.5%

Appendix E

Interview Raw Data Matrix: Question 2: Describe how you implement formative assessment practices in your classroom: a) What do you do in your classroom to ensure the formative assessment practices you utilize are successful? b) Do you utilize peer-assessments in your classroom? If yes, describe. c) Describe how you provide feedback to your students?

Sample Excerpt from Individual Instructor	Code
Teacher 4: I do not worry about the success of my formative assessment practices. They are to inform me of student learning and growth. I make sure students have many opportunities to demonstrate learning. b. I often have students look at other's work and make safe judgements about what they see. This allows students to practice the internal process of self-correction while assisting others in seeing work from another perspective. Looking at notebook entries, for example. I wand want students to respond to short prompts in their notebooks by forming a thesis and supporting with details in second and third sentences. This skill is ongoing process of	Feedback Instructional Improvement Funds of Knowledge Self-assessments Peer Assessments Feedback

development. Teacher input can have a chilling effect on student fluency and thoughtfulness. c. Most feedback on formative assessments is verbal or written but not scored. This helps students avoid the trap of "now that its graded its permanent"	
Teacher 5: Unit Pre-Tests which are tied to curriculum standards. Descriptive feedback is given as soon as possible. At times I do utilize peer-assessments for formative work, but only if I can guide their feedback loops. I provide verbal feedback, written comments on short quizzes, explanations of grades, and comments on Google Documents.	Student Content Comprehension Feedback Summative test Peer assessments Types of assessments
Teacher 6: I use a variety of formative assessments in class. Each one provides some information about what and how students are learning. I use a variety of them to also make sure that I am differentiating and tapping into each type of learner. Activities such as observations, questioning, discussions, exit slips, cooperative learning activities, peer reflections all	Types of Assessments Differentiated Instruction Self-assessment Technology Feedback Funds of Knowledge

play a role in my formative assessment process. I use peer-assessments at times. I usually use them to give the students a different perspective on a piece. For example, for our journal work, students, peers, and a teacher would all use a scoring guide to assess the work in a journal and then compare and contrast the assessment to see where there are similarities and differences. I provide feedback by commenting on an assignment, sending emails, commenting on scoring guides, shared Google Docs, one-to-one conversations, writing conferences, etc.	
Teacher 7: Throughout a unit I am constantly assessing students to measuring their understanding of the content. If a topic needs to be readdressed, I can do that in the moment, or soon after, if there only a couple of students who are not on the "same page." Journaling, or do-nows, also help in giving me feedback in my students understanding of a specific topic. b) Yes, when we have cooperative learning projects, students are often given a peer-review sheet after	Types of Assessments Differentiated Instruction Technology Feedback Funds of Knowledge Self-assessments

a person or group has presented their work. It explains the criteria that students are asked to meet when sharing the information, they have learned or gleaned from their research. There is also a place for students to write their own feedback. c) Feedback is formal and informal. It is given when students ask questions, write in their daily journals, in quizzes, on projects and on tests. Informal feedback is more immediate and aids a student in understanding in the moment, whereas formal feedback in given during projects or papers and involves more in depth showing of understanding by the student and I can give more detailed information back to him or her.	

Frequency of Codes:

Question 2: Describe how you implement formative assessment practices in your classroom: a) What do you do in your classroom to ensure the formative assessment practices you utilize are successful? b) Do you utilize peer-assessments in your classroom? If yes, describe. c)Describe how you provide feedback to your students?

Code	Percentage
Feedback	100%
Self-Assessment	75%
Funds of Knowledge	75%
Types of Assessments	75%
Funds of Knowledge	62.5%
Peer-Assessment	37.5%
Technology	37.5%
Differentiated Instruction	37.5%
Instructional improvement	25%
Intentional Planning	12.5%
Student Content Comprehension	12.5%
Summative Test	12.5%
Rubric	12.5%

Appendix F

Interview Raw Data Matrix: Question 3: Can you tell me which formative assessment practices work best when assessing Language Arts (writing and reading) standards?

Sample Excerpt from Individual Instructor	Code
Teacher1: I formatively assess through quick quizzes, labs, homework, and classwork. Getting a regular routine is the best so that students get in a habit.	ELA standards- reading and writing
Teacher 7: Students spend some time reading and analyzing historical texts for understanding, so when writing a paper, they reference those primary and secondary sources. Having students referencing primary and secondary sources allows me to assess whether or not they are understanding the texts they read. When students write a paper, essay, or short answer question on a test, I analyze their writing to make sure it shows understanding of the question, text they were to reference, and how the answer is structured. Do they answer all	ELA standards- reading and writing Student Content Comprehension Feedback

questions asked? How is their essay or paper written? Do they reference the primary and/or secondary sources? Are there an introduction, body, and conclusion paragraphs? I also make sure their paper or essay meet the rubric requirements.	
Teacher 8: I like to start off with a writing sample of some sort, like a blog post or constructed response question. From there, I can see where there may be holes or where there are strengths. I honestly struggle with this because I find it difficult to assess writing in a multiple choice quiz or test.	ELA standards- reading and writing Student Content Comprehension

Frequency of Codes:

Question 3: Can you tell me which formative assessment practices work best when assessing Language Arts (writing and reading) standards?

Code	Percentage
ELA Standards- writing and reading	75%
Student Content Comprehension	37.5%
Feedback	12.5%
Technology	12.5%

Appendix G

Interview Raw Data Matrix: Question 4: In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' classroom grades/performance improved?

Sample Excerpt from Individual Instructor	Code
Teacher1: Absolutely. Students can make mistakes in formative assessments, get feedback, and no longer make those mistakes.	Feedback Progress Student Content Comprehension
Teacher 2: Yes, bc [because] if done well you're able to tailor your teaching and reach their needs that you notice as you move thru content instead of at the end when it's all done/taught and then noticing where they're confused/stuck/etc.	Progress Instructional Improvement Student Content Comprehension
Teacher 6: I try to provide opportunities and a variety of assessments so that my students can show me progress and growth. What I mean by this is that students show their growth and progress in different ways, so it is up to me to give them different ways to show what they have learned.	Funds of Knowledge Differentiated Instruction Progress

Teacher 8: I feel that it has helped me tremendously. I gain a clearer picture of students' knowledge when they explain what they know in a writing prompt or discussion, and with that, I can teach them more effectively. Last year, for example, I gave students a lot of time to write about and wrestle with literary terms and to see them in context. There were multiple exposures to content and I was able to monitor that progress so that on summative assessments I had a more accurate picture of their knowledge.	Intentional planning Student Content Comprehension Summative Testing Progress Instructional Improvement

Frequency of Codes:

Question 4: In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' classroom grades/performance improved?

Code	Percentage
Student Content Comprehension	87.5%
Progress	75%
Instructional improvement	50%
Intentional Planning	50%
Funds of Knowledge	37.5%
Feedback	25%
Summative Assessment	25%
Monitor	12.5%
Peer-Assessment	12.5%
Self-Assessment	12.5%
Technology	12.5%
Differentiated Instruction	25%

Appendix H

Interview Raw Data Matrix: Question 5: In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' state criterion testing scores increased?

Sample Excerpt from Individual Instructor	Code
Teacher 3: Yes, for the past two years, the same cohort of students' math scores has increased by more than 10% each year!	Test Gains Student Content Comprehension
Teacher 4: Yes. The activities that are utilized to practice skills and concepts allow students to retain and connect learning. Our scores have increased significantly.	Test Gains Student Content Comprehension
Teacher 5: We experienced a measurable increase in test scores just this last year, yes.	Test Gains Student Content Comprehension
Teacher 6: Yes, my scores have increased. There seems to be gains made each year. Some yearly gains are more significant than others, but overall there are gains as a cohort and gains made by year.	Test Gains Student Content Comprehension

Frequency of Codes:

Question 5: In your experience utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.), have your students' state criterion testing scores increased?

Code	Percentage
Test Gains	100%
Student Content Comprehension	100%
Diagnosis	12.5%

Appendix I

Interview Raw Data Matrix: Question: 6. Describe what school as an expedition means to you: a) How do you employ formative assessment practices on expedition? Please be explicit and provide a rich explanation.

Sample Excerpt from Individual Instructor	Code
Teacher1: The expedition could be the formative assessment or the summative assessment. In a few weeks, we will be on expedition climbing trees. We will use the expedition to collect leaves and study the amount of chlorophyll in different leaves. This will reinforce the parts of the cell and the similarities and differences in plant and animal cells.	Differentiated Instruction Types of Formative assessments Summative Assessments
Teacher 5: We make sure students do a feedback form that continues to connect their expeditionary activities to the learning we are doing in the classroom and the standards we are looking at. I make sure the vocabulary and the concepts are taught and reviewed before the expedition, and then used on it as well. I use examples from the expeditions during assessments.	Differentiated Instruction Self-assessment Student content comprehension

Teacher 6: School as expedition means that we give the students hands-on learning experiences. Sometimes this hands-on experience happens 500 miles away from St. Louis in the Smoky Mountains, and sometimes it happens across the street at the school's garden. We did a unit that includes literature, writing, art, gardening, research, and community service last year. We read about community gardens both fiction and nonfiction, reflected in journals and created stories on this theme. We then worked with the art teacher and the school gardener to create seed packets that were shared with the XYZ Library.	Differentiated Instruction Student Content Comprehension Funds of Knowledge
Teacher 7: Because every expedition is intentional, we have prepared for a variety of scenarios. Most expeditions are structured so that students can guide themselves and each other to their own learning and understanding. All instructors are actively involved on expeditions and can redirect students when necessary. When students are confused or have questions, we ask open-ended questions that will hopefully lead to students developing their own	Funds of Knowledge Self-assessments Intentional planning Types of Formative assessments Differentiated Instruction

questions and inquisitiveness about their own question. In other words, we help students work through their questions, so they know exactly what they are asking and get to a better understanding.	
Teacher 8: School as expedition means that rich, meaningful learning takes place when students have experiences on which to hang the content. By providing common experiences to all students, then I am helping to bridge the opportunity gap and am better able to reach all students. On expeditions, I try to gauge what students comfort level or experience level is before we go out. Then, while there, they are given opportunities to practice with the content. For example, on a math expedition, they had been learning about rate and speed in class. Before they went, they had been practicing and the teacher had a good idea of where students understanding was. Then, on the expedition, they had another opportunity to demonstrate their understanding in an environment other than the classroom and when the material was presented a different way.	Funds of Knowledge Self-assessments Intentional planning Types of Formative assessments Differentiated Instruction

Frequency of Codes:

Question: 6. Describe what school as an expedition means to you: a) How do you employ formative assessment practices on expedition? Please be explicit and provide a rich explanation.

Code	Percentage
Differentiated Instruction	87.5%
Self-Assessments	50%
Student Content Comprehension	50%
Funds of Knowledge	37.5%
Types of Formative Assessments	37.5%
Intentional Planning	25%
Collaboration	12.5%
Scaffolding	12.5%
Peer Assessments	12.5%
Summative Assessment	12.5%
Feedback	12.5%
Monitor	12.5%

Appendix J

Interview Raw Data Matrix: Question 7: Describe your impression/feeling about the MO Common Core State Standards/MO Learning Standards (Particularly as it relates to Language Arts).

Excerpt from Individual Instructor	Code
Teacher 4: I am not very familiar with the Common Core standards for ELA. I feel like they strengthen the use of ELA in the content areas by focusing reading and writing skills on application. If they are like the NGSS, they have a more integrated treatment of the standards and how they relate between strands. I do not know at all how they compare to the previous GLEs.	Student Content Comprehension CCSS as a common goal
Teacher 5: I think we did well. I think that we worked hard to prepare our students for the content, the skills, and the format of the Common Core test we took last year.	Student Content Comprehension CCSS as a common goal
Teacher 6: I like the idea of different states coming together to have common, shared standards. There was some anxiety prior to the test because no one really knew what to expect.	Student Content Comprehension CCSS as a common goal

I like that the standards are more rigorous. Some of them are a little vague though and it is hard to know exactly what is expected.	

Frequency of Codes:

Question 7: Describe your impression/feeling about the MO Common Core State Standards/MO Learning Standards (Particularly as it relates to Language Arts).

Code	Percentage
CCSS as a common goal	87.5%
Student Content Comprehension	87.5%
Progress	12.5%
Differentiated Instruction	12.5%

Appendix K

Interview Raw Data Matrix: Question 8: In your experience, do formative assessment practices help close the achievement gap? Explain your reasoning.

Sample Excerpt from Individual Instructor	Code
Teacher 2: Any way that you can reach struggling kids or kids that are needing more time on a concept or some extra re-teaching...stuff that you can learn in the midst of teaching by utilizing formative assessments I would assume you are working to close that gap. However, it's also important to keep teaching those doing well on formative assessments too (enrichment etc.). So... I don't know if closing the gap is the right term. If a teacher is reaching all students where they need (not just reaching the struggling/lower students), then they're all making gains. If everyone's making gains the gap will remain. However, hopefully those that are lower/struggling will close the gap of where they are and where they "would ideally be" (at grade level, not sure how to word this). The key seems to be utilizing formative assessments, and many other	Instructional Improvement Feedback Differentiated Instruction

means of best practice, to not let these gaps develop in the first place (lower grades, early childhood education, etc.).	
Teacher 3: On the whole, I try to push all of my students to think deeper and dig for reasoning; not to be satisfied with a basic explanation. This pressing for understanding frustrates all students regardless of achievement level, and calls them to self-assess and find reasoning behind mathematical concepts - not simply computational or procedural processes. Formative assessment implores students to think beyond and the teacher to understand concepts "inside and out."	Progress Funds of Knowledge Self-assessments Monitor Inquiry-based – provoking their higher-level thinking
Teacher 8: I believe that formative assessments give teachers the tools that they need to begin to close the achievement gap. The problem cannot be solved without a rich understanding of the students, and formative assessments provide that. However, if the differentiated tools and resources are not in place to help reach students of different levels, then the assessment is not a factor because it identified a problem but did not solve it.	Differentiated Instruction Progress

Frequency of Codes:

Question 8: In your experience, do formative assessment practices help close the achievement gap? Explain your reasoning.

Code	Percentage
Differentiated Instruction	50%
Self- Assessment	25%
Feedback	25%
Student Content Comprehension	25%
Progress	25%
Inquiry Based- provoking their higher-level thinking	12.5%
Diagnosis	12.5%
Student-Teacher Relationship	12.5%
Monitor	12.5%
Instructional improvement	12.5%
Funds of Knowledge	12.5%
Practice	12.5%

Appendix L

Interview Raw Data Matrix: Question 9: Can you tell me about your experiences with working alongside students who do not share the same cultural background as you? A) How has utilizing formative assessment practices helped you relate to all students?

Sample Excerpt from Individual Instructor	Code
Teacher 3: Through my cultural lenses, education is a major priority and will help one achieve dreams and goals to be a successful, learned adult. It has been challenging to work alongside students who do not have the same drive for education and learning as I grew up with for a variety of reasons. Despite our differences and "the way" I grew up doing school, I have been able to set that aside (for the most part) and embrace other modes of assessment and understand that motivation also looks different for many. It has been a challenge personally to "think outside the box," but I have grown exponentially as an educator and I truly believe that my students have reaped the benefits. Students are able to show their learning and proficiency many different ways and it is vital that we, as educators,	Motivation Student-Teacher Relationship Instructional Improvement Progress

adapt our practices to include these. We cannot limit a child's thinking or creative capacity, we need to learn how to help them filter it into productivity.	
Teacher 4: They can form a bridge in understanding as they create shared experiences and help build relationships through the learning.	Collaboration Student teacher relationship
Teacher 8: Formative assessments help to change how I view my students. When I have a data or scores that I am using to make educational decision, I am accountable to those scores to make sure that I am teaching my students what they need to know. I cannot (or should not) allow bias to seep into my educational decisions. As hard as you work as an educator, bias is a possibility, whether based on race, past performance, classroom behaviors, etc. But when I am looking at a document that clearly and precisely explains what my students know, it is much easier to make instructional decisions and to do so in an unbiased way.	Differentiated Instruction

Frequency of Codes:

Question 9: Can you tell me about your experiences with working alongside students who do not share the same cultural background as you? A) How has utilizing formative assessment practices helped you relate to all students?

Code	Percentage
Student-Teacher Relationship	75%
Differentiated Instruction	50%
Collaboration	25%
Monitor	25%
Progress	25%
Instructional Improvement	12.5%

Appendix M

Interview Raw Data Matrix: Question 10: How has your district help support your classroom efforts with technology? a) In your opinion, have these efforts help close the digital divide (The term digital divide refers to the inequities among individuals who have access to technology and opportunities to learn information and technology skills (International ICT Literacy Panel, 2002)?

Sample Excerpt from Individual Instructor	Code
Teacher 2: We definitely give access to tech for all students. However, I think our school needs a technology class or technology teacher to truly teach some of these important skills. Otherwise, the teachers themselves need more pd for teachers and TIME to teach all of these skills.	Technology Access 1:1 laptop Initiative Professional Development
Teacher 6: We have been a one-to-one school for almost a decade now. The district is very open to teachers trying out new ideas and new technology in class. We are encouraged to be innovators in teaching with technology. The district provides many supports and much PD to help us be successful with our technology. I believe that this helps close the digital divide. Some students come to us from other districts not knowing as much about	Technology Access 1:1 laptop Initiative Technology

technology and basic skills, but for the most part, the more knowledgeable students and teachers tutor them and get them caught up to speed pretty quickly.	
Teacher 7: Each student in my school has a laptop and access to the internet at school. If they do not have access to the internet at home, they have other resources to gain use of the internet, whether through the school's library or another resource. The ability for every student to have a laptop has closed the digital divide to almost zero because, regardless of a student's family situation, that student is not prevented from using a computer to complete homework.	Technology Access 1:1 laptop Initiative
Teacher 8: Our district is always willing to give technology to students and teachers in order to help us become better teachers and learners. I feel that the 1:1 program in particular helps to close the digital divide. Students are given the opportunity to learn 21st century skills as they learn educational content. It doesn't have to be a separate course. When the skills are embedded into the classroom, students are gaining multiple skill sets simultaneously.	Technology Access 1:1 laptop Initiative

Frequency of Codes:

Question 10: How has your district help support your classroom efforts with technology?

a) In your opinion, have these efforts help close the digital divide (The term digital divide refers to the inequities among individuals who have access to technology and opportunities to learn information and technology skills (International ICT Literacy Panel, 2002)?

Code	Percentage
1:1 laptop Initiative	100%
Technology Access	100%
Technology	25%
Professional Development	12.5%

Appendix N

Interview Raw Data Matrix: Question 11: How many years have you looped in your teaching career? a) In this school district? b) Describe how looping has effected the school climate? c) Describe how looping has effected the classroom climate? d) How has looping effected your implementation of formative assessment practices?

Excerpt from Individual Instructor	Code
Teacher1: I am a new hire this is my first year. I am beginning with the 8th graders and will start a new loop next year. b) Teachers really get to benefit from relationship building with the students. Everyone knows everyone. c) I have looped with students previously, I can be more relaxed with the students, and I am better able to anticipate student needs. d) Looping has informed my formative assessments; some groups may need more some may need less. Some groups may be found of a particular type (skits, cartoons, etc.) and I can lean on that strength.	Student teacher Relationship Instructional Improvement Feedback Types of formative assessments
Teacher 5: This is my second year of a loop. I enjoy the greater degree of knowledge about my students and their learning. I like to watch them achieve more. I believe students are more comfortable with us as the	Instructional Improvement Feedback

years go on, so we can all achieve more together. It is easier to implement more assessment techniques because they already know many of my methods	

Frequency of Codes:

Question 11: How has your district help support your classroom efforts with technology?

a) In your opinion, have these efforts help close the digital divide (The term digital divide refers to the inequities among individuals who have access to technology and opportunities to learn information and technology skills (International ICT Literacy Panel, 2002)?

Code	Percentage
Instructional improvement	87.5%
Feedback	75%
Student-Teacher Relationship	50%
Types of Formative Assessments	12.5%

Appendix O

Interview Raw Data Matrix: Question 12: Please explain anything else you would like to say.

Excerpt from Individual Instructor	Code
Teacher 4: I have really changed my assessment practices with standards based grading. I think this can be transformative for students. In the past students would take a test where they demonstrated mastery in 6 standards and did not master another. They would get a D on the test. With SBG the same student would have 6 proficient and 1 area they needed to focus on. This helps students to capitalize on their ability rather than seeing aggregate failure.	Instructional Improvement Feedback Progress

Frequency of Codes:

Question 12: Please explain anything else you would like to say.

Code	Percentage
Progress	25%
Instructional improvement	12.5%
Feedback	12.5%

Appendix P

Formative Assessment Survey for Instructor

Instructor ID Number

Ethnicity

- ❍ African-American
- ❍ Asian
- ❍ Bi-Racial
- ❍ Latino
- ❍ Other
- ❍ White

Gender

- ❍ Male
- ❍ Female

Subject matter taught:

Grade Level Taught

- ❍ 7th
- ❍ 8th

Select the best answer to the following multiple choice questions about YOUR opinion on formative assessment learning.

Part 1: What is Formative Assessment?

Q1 Formative assessment learning are informal ways of checking for student understanding:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q2 In Formative Assessment practices, a student will always get a grade indicating their understanding of the content:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q3 Successful Formative Assessment practices involve changing perspectives and enhancing current practices by providing significant, descriptive feedback to students; fostering greater student knowledge of learning goals; and appreciating the quality of student work over quantity:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Part 2: Instructional Practices

Q1 I commonly review lesson objectives to students so that they can understand what is expected of them and are able to articulate how these objectives will be measured:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q2 I incorporate feedback that is both interactive and descriptive to my students when learning new objectives:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q3 During school expeditions, I use methods other than checklists and summative assessments to check for understanding:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q4 During school expeditions, I use the learning objectives to gage what students already know on the topic:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q5 In my classroom, I offer suggestions on how my students can advance their current learning to the next level:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q6 I regularly use student interviews in order to ensure that students can assess their own learning:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q7 I regularly use rubrics in order to ensure that students can assess their own learning:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q8 I regularly use modeling in order to ensure that students can assess their own learning:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q9 I regularly use on-going classroom assessment methods to measure student understanding before a unit is complete:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

- ❍ Q10 When I find that students are not achieving their learning objectives, I modify my teaching approach:
- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q11 When I find that students are not achieving their learning objectives, I modify my teaching curriculum:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q12 When I find that students are not achieving their learning objectives, I modify my teaching assessments:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Part 3: Types of Formative Assessments

Q1 Formative assessment teaching practices are a valuable part of the learning process:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q2 Formative assessment teaching practices are necessary in order for students to achieve academic success:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q3 Formative assessment teaching practices compliment summative assessment measures:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q4 Formative assessment teaching practices can improve a classroom's climate:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Q5 Formative assessment teaching practices are necessary in order to encourage collaborative teaching:

- ❍ Agree
- ❍ Disagree
- ❍ Unsure

Appendix Q

E-Interview

Part I: What is Formative Assessment?

1) In your own words can you elaborate on the purpose of using formative assessments practices within your teaching?
2) Describe how you implement formative assessment practices in your classroom:
    a) What do you do in your classroom to ensure the formative assessment practices you use are successful?
    b) Do you use peer-assessment in your classroom? If yes, describe.
    c) Describe how you give feedback to your students?
3) Which formative assessment practices work best when assessing Language Arts (writing and reading) standards?

Part II: Instructional Practices

3) In your experience, since utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.) have your students' classroom grades/performance improved?

4) In your experience, since utilizing formative assessment practices (i.e., journaling, field trips, media and electronic projects, etc.) have your students testing scores increased?
5) Describe what school as an expedition means to you:
    a) How do you employ formative assessment practices on expedition? Please be explicit and provide a rich explanation.

Part III: Formative Assessment and Common Core Standards

6) Describe your impression/feeling about the MO Common Core State Standards/MO Learning Standards:

a) How have you implemented used formative assessment practices with the MO Common Core State Standards/MO Learning Standards?
b) Has your approach to teaching changed since the implementation of the MO Common Core State Standards/MO Learning Standards?
c) What is the most effective way you ensure that your students are proficient or higher on the Smarter Balanced Assessment in English Language Arts?

Part IV: Achievement Gap

7) Do formative assessment practices help close the achievement gap? Explain your reasoning.

    a) Tell me about your experience with working with students who do not share the same cultural background as you.

b) How has utilizing formative assessment practices helped you relate to all students?

a) How has your district help support your classroom efforts with technology?

i. Have these efforts helped close the digital divide (**The term digital divide refers to the inequities among individuals who have access to technology and opportunities to learn ICT skills (International ICT Literacy Panel, 2002)**?

b) Using your formative assessment practices, what can you do to improve test scores for students at risk?

8). How many years have you looped in your teaching career? In this school district?

a) Describe how looping has affected the school climate?

b) Describe how looping has affected the classroom climate?

c) How has looping affected you implementing formative assessment practices?

Part V: Other

9). Please explain anything else you would like to say.

Table 3.1

Formative Assessment Survey for Instructors Part 1: What is Formative Assessment?

Total, Gender, and Grade Level

Total, Gender, Grade	Q#1		Q # 2		Q #3	
	Mean	SD	Mean	SD	Mean	SD
Total (*N*=8)	1.13	0.35	2.00	0.00	1.00	0.00
Male (*n*=3)	1.33	0.58	2.00	0.00	1.00	0.00
Female (*n*=5)	1.00	0.00	2.00	0.00	1.00	0.00
7th (*n*=4)	1.00	0.00	2.00	0.00	1.00	0.00
8th (*n*=4)	1.25	0.50	2.00	0.00	1.00	0.00

Table 3.2

Formative Assessment Survey for Instructors Part 1: What is Formative Assessment?

Subject Taught

Subject Taught	Q#1		Q # 2		Q #3	
	Mean	SD	Mean	SD	Mean	SD
ELA (*n*= 2)	1.00	0.00	2.00	0.00	1.00	0.00
Math (*n*= 2)	1.00	0.00	2.00	0.00	1.00	0.00
Science (*n*= 2)	1.50	0.70	2.00	0.00	1.00	0.00
Social Studies (*n*= 2)	1.00	0.00	2.00	0.00	1.00	0.00

Table 4.1

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Total and Gender

Gender	Q#1		Q # 2		Q #3		Q #4		Q #5		Q #6	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total (*N*=8)	1.00	0.00	1.25	0.71	1.00	0.00	1.63	0.92	1.00	0.00	1.75	0.71
Male (*n*=3)	1.00	0.00	1.00	0.00	1.00	0.00	2.00	1.00	1.00	0.00	1.67	0.58
Female *n*=5)	1.00	0.00	1.40	0.89	1.00	0.00	1.40	0.89	1.00	0.00	1.80	0.83

Table 4.1 *(cont.)*

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Total and Gender (cont.)

Total and Gender	Q#7		Q # 8		Q #9		Q #10		Q #11		Q #12	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total (*N*=8)	1.13	0.35	1.00	0.00	1.38	0.74	1.00	0.00	1.38	0.52	1.25	0.71
Male (*n*=3)	1.33	0.58	1.00	0.00	1.00	0.00	1.00	0.00	1.67	0.58	1.67	1.15
Female (*n*=5)	1.00	0.00	1.00	0.00	1.60	0.89	1.00	0.00	1.20	0.44	1.00	0.00

Table 4.2

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Grade Level

Grade Level	Q#1		Q # 2		Q #3		Q #4		Q #5		Q #6	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
7th (*n*=4)	1.00	0.00	1.50	0.00	1.00	0.00	1.25	0.50	1.00	0.00	1.75	0.50
8th (*n*=4)	1.00	0.00	1.00	0.00	1.00	0.00	2.00	1.15	1.00	0.00	1.75	0.95

Table 4.2 *(cont.)*

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Grade Level (cont.)

Grade Level	Q#7		Q # 8		Q #9		Q #10		Q #11		Q #12	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
7th (*n*=4)	1.00	0.00	1.00	0.00	1.50	1.00	1.00	0.00	1.50	0.58	1.00	0.00
8th (*n*=4)	1.25	0.50	1.00	0.00	1.25	0.50	1.00	0.00	1.25	0.50	1.50	1.00

Table 4.3

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Subject Taught

Subject Taught	Q#1		Q # 2		Q #3		Q #4		Q #5		Q #6	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ELA (*n*= 2)	1.00	0.00	2.00	1.41	1.00	0.00	1.00	0.00	1.00	0.00	2.00	0.00
Math (*n*= 2)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Science (*n*= 2)	1.00	0.00	1.00	0.00	1.00	0.00	2.50	0.70	1.00	0.00	1.50	0.70
Social Studies (*n*= 2)	1.00	0.00	1.00	0.00	1.00	0.00	2.00	1.41	1.00	0.00	2.50	0.70

Table 4.3 (*cont.)*

Formative Assessment Survey for Instructors Part 2: Instructional Practices. Subject Taught

Subject Taught	Q#7		Q # 8		Q #9		Q #10		Q #11		Q #12	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ELA (*n*= 2)	1.00	0.00	1.00	0.00	2.00	1.41	1.00	0.00	1.00	0.00	1.00	0.00
Math (*n*= 2)	1.00	0.00	1.00	0.00	1.50	0.70	1.00	0.00	1.50	0.70	1.00	0.00
Science (*n*= 2)	1.50	0.70	1.00	0.00	1.00	0.00	1.00	0.00	1.50	0.70	2.00	1.41
Social Studies (*n*= 2)	1.00	0.00	1.00	0.00	1.50	0.70	1.00	0.00	1.50	0.70	1.00	0.00

Table 5.1

Formative Assessment Survey for Instructors Part 3: Types of Formative Assessments.

Total, Gender, and Grade Level

Total, Gender, Grade	Q#1		Q # 2		Q #3		Q #4	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total (*N*=8)	1.00	0.00	1.00	0.00	1.00	0.00	1.25	0.71
Male (*n*=4)	1.00	0.00	1.00	0.00	1.00	0.00	1.67	1.15
Female (*n*=4)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
7th (*N*=4)	1.00	0.00	1.00	0.00	1.00	0.00	1.50	1.00
8th (*N*=4)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00

Table 5.2

Formative Assessment Survey for Instructors Part 3: Types of Formative Assessments.

Subject Taught

Subject Taught	Q#1		Q # 2		Q #3		Q #4	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ELA (*n*=2)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Math (*n*=2)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Science (*n*=2)	1.00	0.00	1.00	0.00	1.00	0.00	2.00	1.41
Social Studies (*n*=2)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00

Table 6

Smarter Balanced Results for English Language Arts- Grade Level

Grade			Frequency	Percent
7th (*n*=92)		Advanced	28	28.9
		Proficient	33	34.0
		Basic	18	18.6
		Below Basic	13	13.4
		Total	92	94.8
	Missing		5	5.2
	Total		97	100.0
8th (n=76)		Advanced	18	22.2
		Proficient	30	37.0
		Basic	24	29.6
		Below Basic	4	4.9
		Total	76	93.8
	Missing		5	6.2
	Total		81	100.0

Table 7.1

Smarter Balanced Results for English Language Arts- Gender/Grade Level

Grade/ Gender			Frequency	Percent
7th Male		Advanced	11	19.0
		Proficient	20	34.5
		Basic	14	24.1
		Below Basic	10	17.2
		Total	55	94.8
	Missing		3	5.2
	Total		58	100.0
7th Female		Advanced	17	43.6
		Proficient	13	33.3
		Basic	4	10.3
		Below Basic	3	7.7
		Total	37	94.9
	Missing		2	5.1
	Total		39	100.0

Table 7.2 (*cont.*)

Smarter Balanced Results for English Language Arts- Gender/Grade Level

Grade/ Gender			Frequency	Percent
8th Male		Advanced	7	16.3
		Proficient	14	32.6
		Basic	14	32.6
		Below Basic	4	9.3
		Total	39	90.7
	Missing	System	4	9.3
	Total		43	100.0
8th Female		Advanced	11	28.9
		Proficient	16	42.1
		Basic	10	26.3
		Total	37	97.4
	Missing	System	1	2.6
	Total		38	100.0

Table 8.1

Smarter Balanced Results for English Language Arts- Race/Grade Level

Grade/ Gender			Frequency	Percent
7th African		Advanced	2	7.4
American		Proficient	11	40.7
		Basic	6	22.2
		Below Basic	7	25.9
		Total	26	96.3
	Missing		1	3.7
	Total		27	100.0
7th Hispanic		Advanced	2	66.7
	Missing		1	33.3
	Total		3	100.0
7th White		Advanced	23	35.9
		Proficient	22	34.4
		Basic	11	17.2
		Below Basic	6	9.4
		Total	62	96.9
	Missing		2	3.1
	Total		64	100.0
7th Mixed Race		Advanced	1	50.0
		Basic	1	50.0
		Total	2	100.0
7th Asian	Missing		1	100.0

Table 8.2 *(cont.)*

Smarter Balanced Results for English Language Arts- Race/Grade Level

Grade/ Gender			Frequency	Percent
8th African		Advanced	1	4.5
American		Proficient	9	40.9
		Basic	10	45.5
		Total	20	90.9
	Missing	System	2	9.1
	Total		22	100.0
		Advanced	1	33.3
8th Hispanic		Basic	2	66.7
		Total	3	100.0
		Advanced	16	32.0
8th White		Proficient	17	34.0
		Basic	11	22.0
		Below Basic	3	6.0
		Total	47	94.0
	Missing		3	6.0
	Total		50	100.0
		Proficient	2	50.0
8th Mixed Race		Basic	1	25.0
		Below Basic	1	25.0
		Total	4	100.0
8th Asian		Proficient	2	100.0

Table 9.1

Smarter Balanced Results for English Language Arts- Lunch Status/Grade Level

Grade/Lunch Status		Frequency	Percent
7th Grade Unassisted	Advanced	24	43.6
	Proficient	16	29.1
	Basic	8	14.5
	Below Basic	5	9.1
	Total	53	96.4
Missing		2	3.6
Total		55	100.0
7th Grade Reduced	Proficient	3	75.0
	Basic	1	25.0
	Total	4	100.0
7th Grade Free	Advanced	4	10.5
	Proficient	14	36.8
	Basic	9	23.7
	Below Basic	8	21.1
Total		35	92.1
Missing		3	7.9
Total		38	100.0

Table 9.2 *(cont.)*

Smarter Balanced Results for English Language Arts- Lunch Status/Grade Level

Grade/Lunch Status			Frequency	Percent
8th Grade		Advanced	16	31.4
Unassisted		Proficient	20	39.2
		Basic	12	23.5
		Total	48	94.1
	Missing		3	5.9
	Total		51	100.0
8th Grade Reduced		Advanced	1	20.0
		Proficient	2	40.0
		Basic	2	40.0
		Total	5	100.0
8th Grade Free		Advanced	1	4.0
		Proficient	8	32.0
		Basic	10	40.0
		Below Basic	4	16.0
	Total		23	92.0
	Missing		2	8.0
	Total		25	100.0

Table 10 *Emerging Themes from e-interviews*

Emerging Themes	Codes
1. Evidence-based Assessment	Types of assessments Summative Testing Instructional improvement Feedback Practice Progress Rubrics
2. Standards-based and Inquiry-based Learning	ELA standards-reading and writing Differentiated Instruction
3. Learning Strategies	CCSS as a common goal Expeditionary activities Informational technology skills - Technology

	Intentional Planning Peer-assessment Self-assessment
4. Students' background knowledge and experiences	Motivation Funds of knowledge Student Content Comprehension Student Teacher Relationship

Figure 6

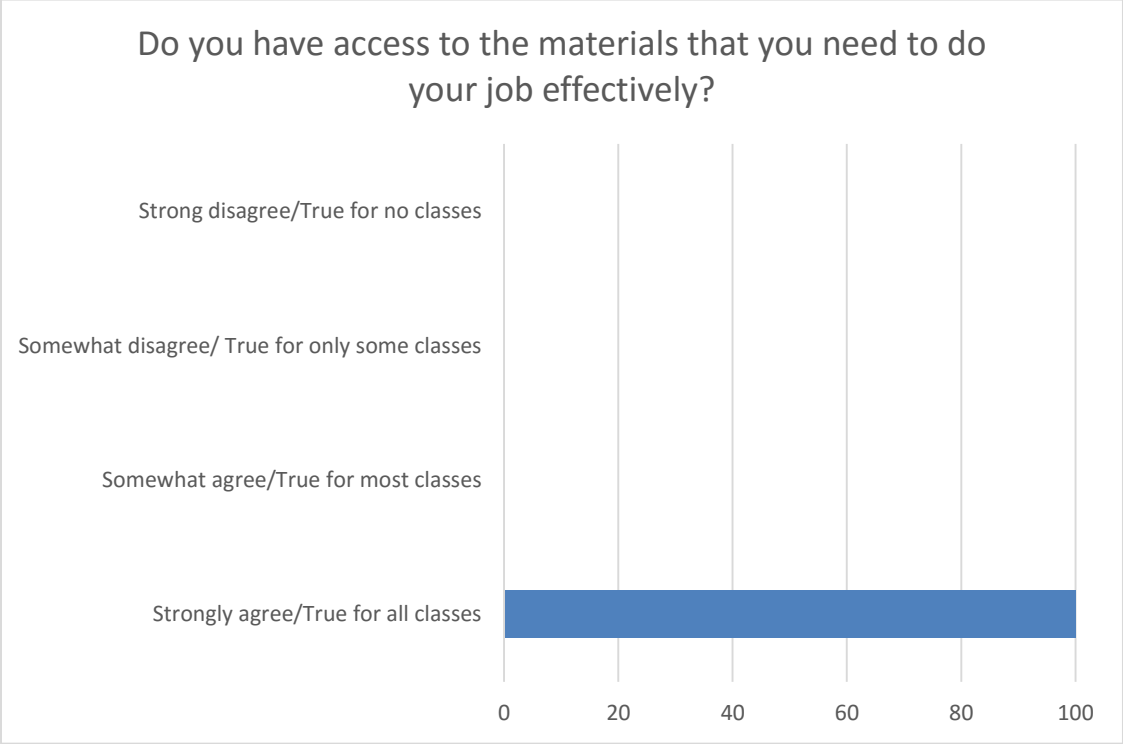
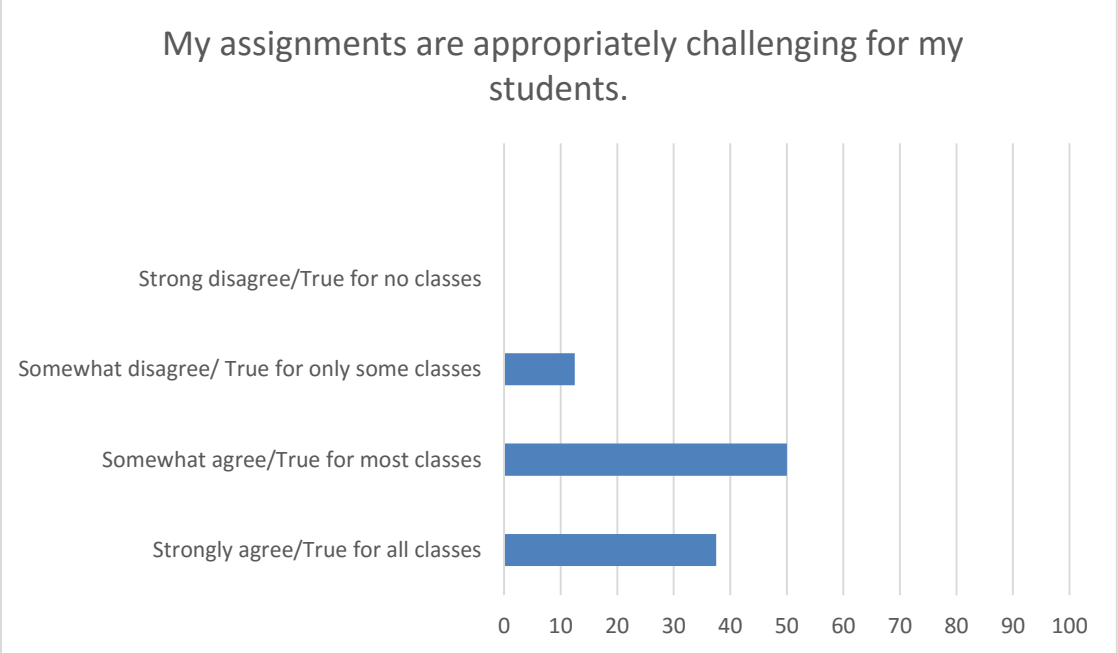


Figure 7



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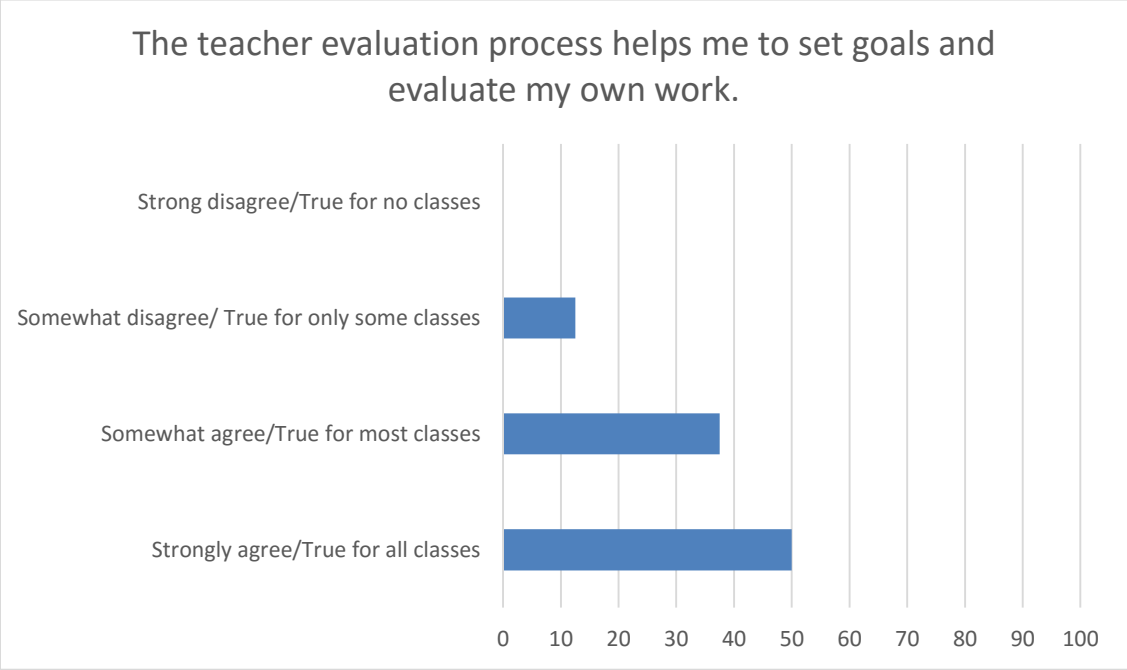

Figure 9

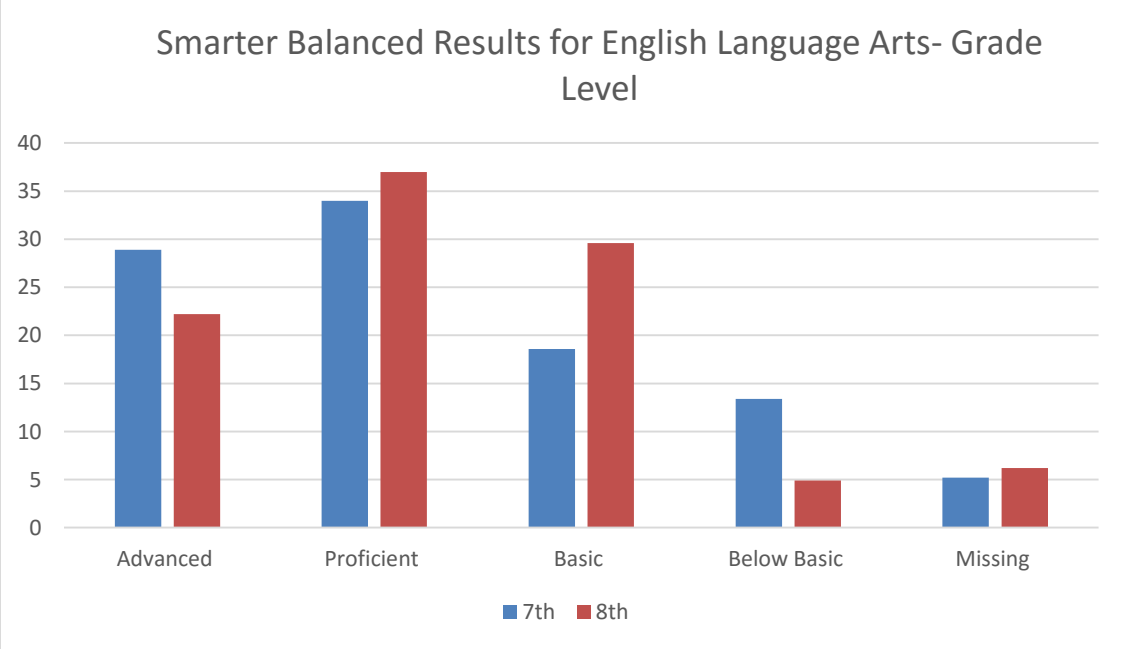

Figure 10

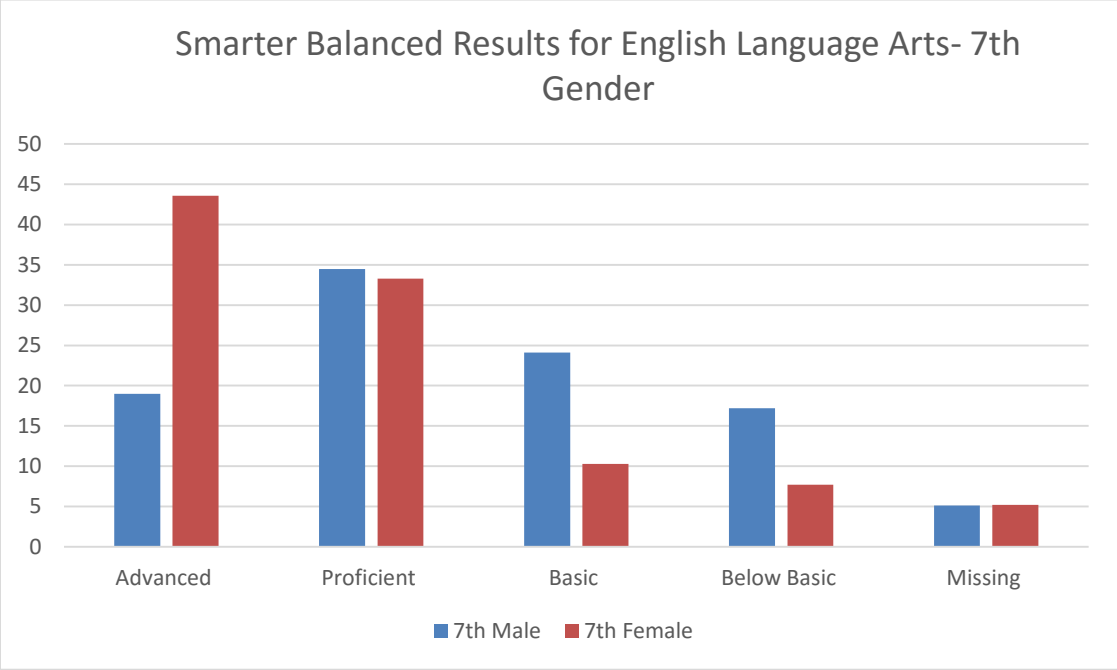

Figure 11

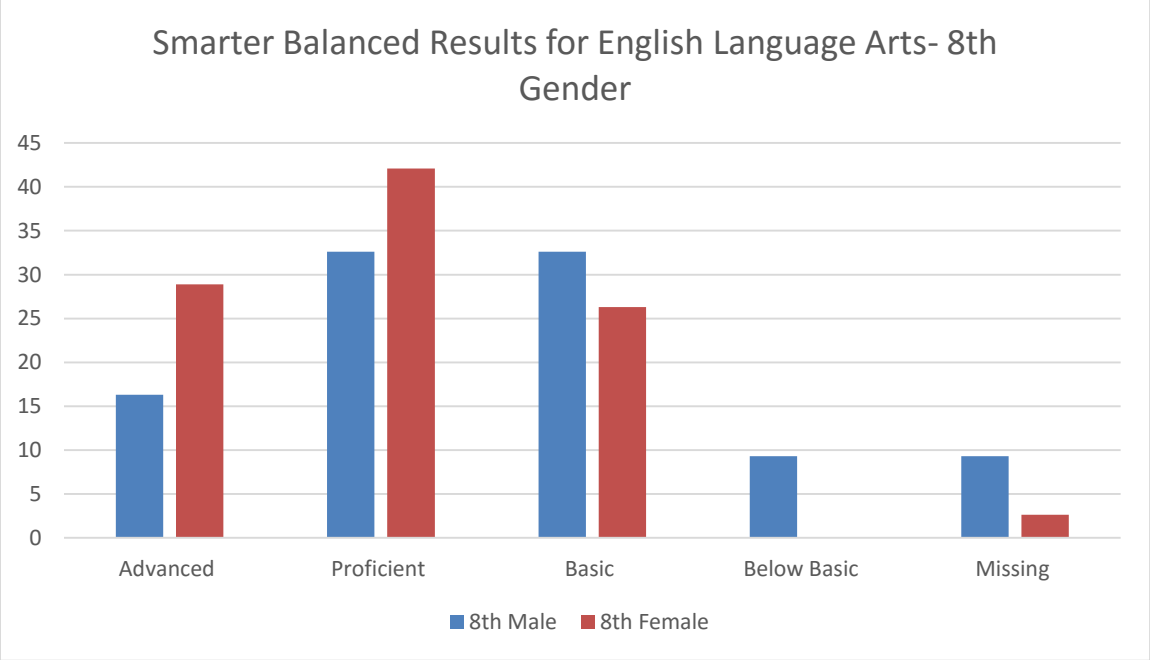

Figure 12

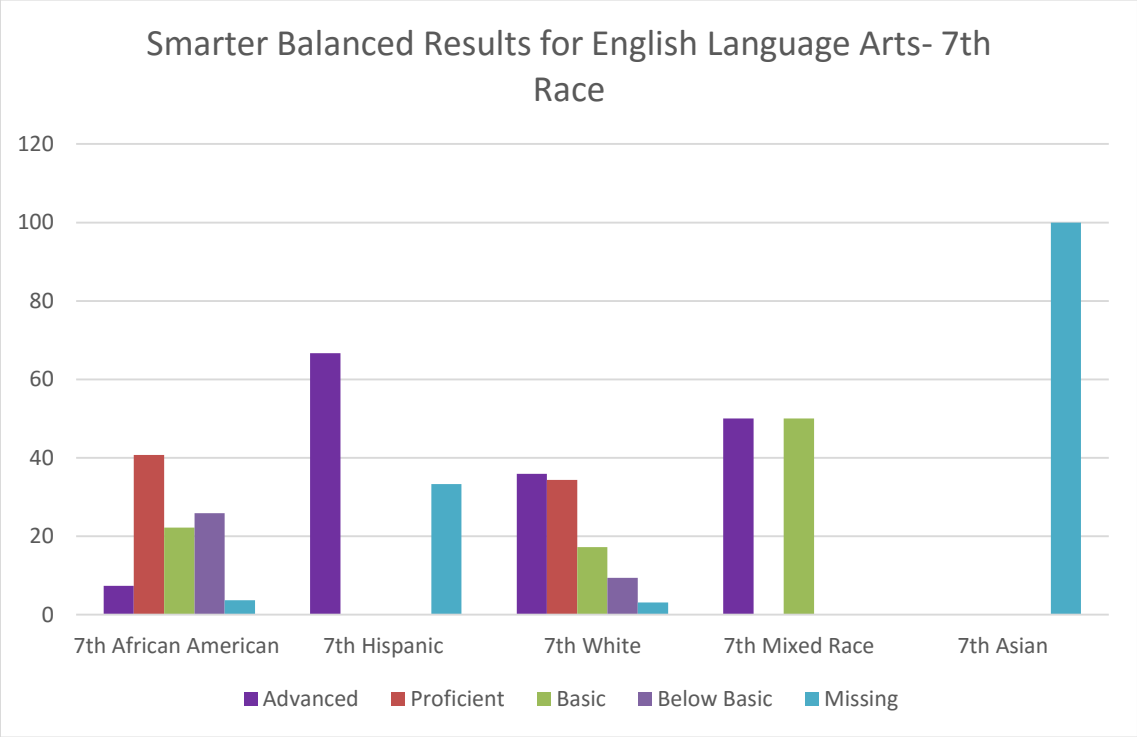

Figure 13

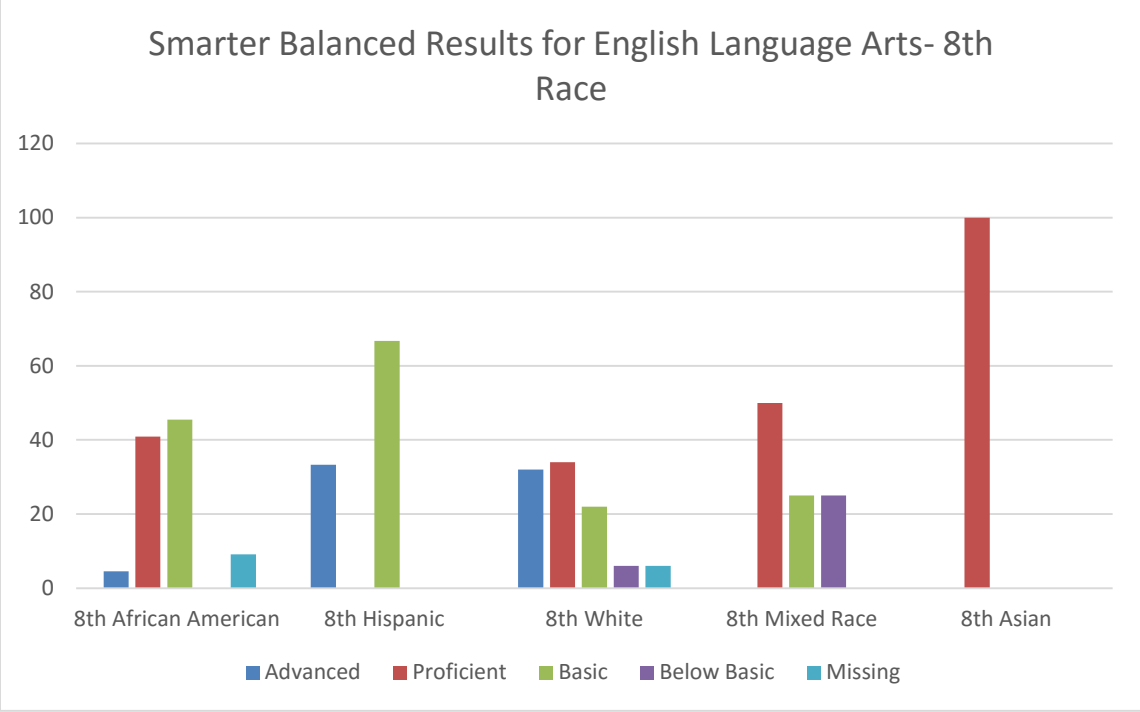

Figure 14

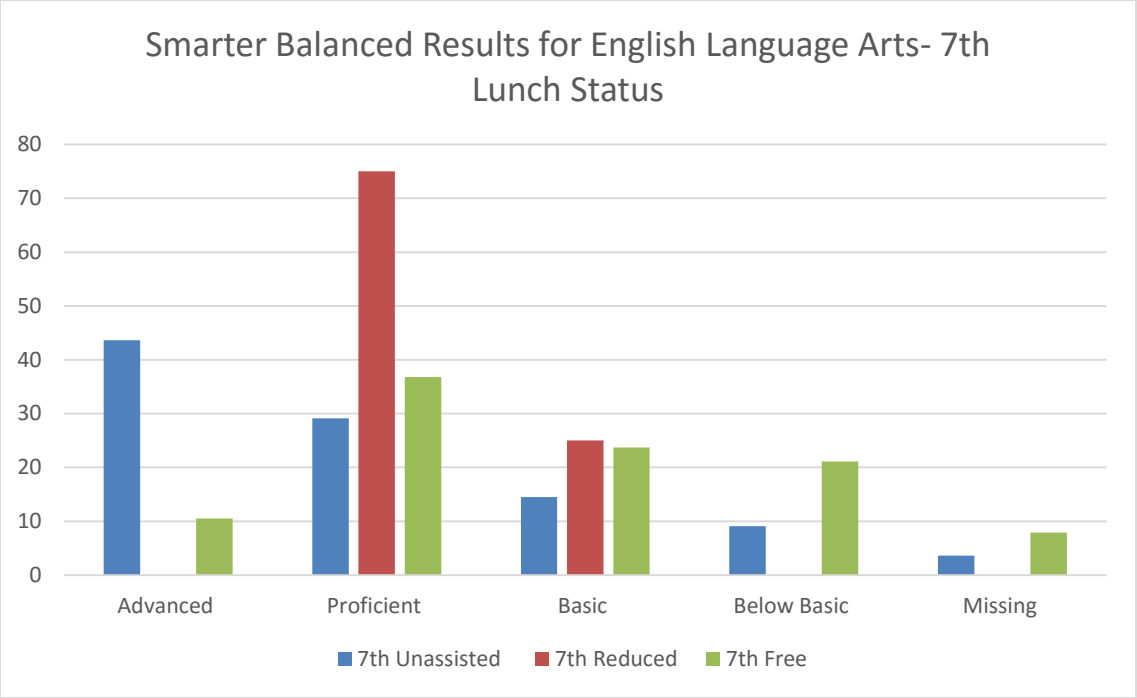

Figure 15