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# Middle School Teachers' Perceptions of Project Based Learning as It Impacts First Year Implementation

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MIDDLE SCHOOL TEACHERS' PERCEPTIONS OF PROJECT BASED LEARNING AS
IT IMPACTS FIRST YEAR IMPLEMENTATION

by

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# DEDICATION

This dissertation is dedicated to my parents James (Butch) and Mildred Cunningham.  With nothing more than high school diplomas, you both taught me the value of an education.   Good was never celebrated, if I could do better.   For your constant and unwavering love, support and encouragement, I thank you.

To Tiye and Jay, still my best work, this is for you.  I hope that I have provided a model of determination, commitment and stick with-it-ness that you can carry into adulthood.   Thank you for your patience on all the weekends spent at home, so that I may write.  Tiye, set goals and let nothing stop you from achieving them. Jay, marry and support a woman that does the same.

Lastly to my husband, partner, and friend, Sundiata.  You have been my biggest critic and greatest support. Without you I don't know that I could face this life with courage and grace.  You make everything so much harder and so much better at the same time. The task of this dissertation came at a time when I was at my weakest and you have been my strength throughout it all.  Thank you for making me a better me. On with the rest of our lives.

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ABSTRACT

Current education expectations require teachers to meet federal and state standards as well as develop 21$^{st}$ century skills like collaboration, critical thinking and problem solving. Preparing students for state testing while also preparing them to be successful in a global society can present an instructional dilemma. Project-based learning has been identified as a possible solution to this problem. Although researchers agree that integrating 21$^{st}$ century skills in daily instruction is necessary, many teachers and administrators have shied away from implementing a project-based learning curriculum (Hmelo-Silver, Duncan, & Chinn, 2007). The identified problem of practice for this present action research study centers on the perceptions of four teachers as they implement a project-based learning curriculum at a high poverty, middle school in central South Carolina. Data was collected over a 10 week period during the first year of a newly developed, project-based learning magnet program. The data collected from two administrations of the Stages of Concern Questionnaire, classroom observations and semi-structured interviews indicate that although teachers had positive perceptions of project-based learning, implementation was hindered by factors beyond teacher control. The action plan developed as a result of this study suggest changes to planning time, assessment expectations, as well as embedded and ongoing professional development.

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CHAPTER 1

RESEARCH OVERVIEW

**Introduction**

"For the things we have to learn before we can do them, we learn by doing them."

(Aristotle, trans. 1908).

Teachers have always been critical to the process of student learning. The essence of the teacher-student relationship is the successful transfer of knowledge and concern from a learned adult to a trusting student. Learning, at its best, is about feeding your curiosity and inspiring critical thinking in students to gain a deeper knowledge of the subjects they are studying and therefore improve student achievement. For 21st century learners, strategies that help students become more proficient collaborators, communicators, creators, and critical thinkers have superseded mastery of the traditional "Three Rs" (reading, writing, and arithmetic). Traditional 3R skills, as evidenced by standardized testing, are still very relevant in today's educational system, however; we live in a globalized culture of discovery, innovation, and rapid change. An increasing number of employers and educational policymakers are urging (p-12) schools and colleges to develop 21st century skills such as teamwork, problem-solving and self-management (Hilton, 2015). Teachers today, work in the profession with understanding that they must adapt and adopt new practices that acknowledge the rapidly changing landscape for

student learning. With the unique needs, interest, learning styles, and abilities of every student in mind, teachers must implement practices that support increased capacity in every learner. With the desire to prepare students for a competitive, global society and meet the accountability mandates of the current day testing, leaders in curriculum and instruction must find strategies to deliver content and develop necessary lifelong skills simultaneously.

Some educators will agree the foundational literacies of reading, writing, mathematics, and research must be explored in ways that engages students in active and responsive learning. Learning is a natural process that is supported when students are allowed to explore real-world problems and challenges while developing cross-curriculum skills and working in small collaborative groups. Project-based learning is an instructional method where students work on a project over a period of time that engages them in solving a real-world problem or answering a complex question.  They demonstrate their knowledge and skills by developing a public project or presentation (Buck Institute for Education, 2018).

Regrettably, some educators have continued to package learning in ways that were popular in the 20th century for creating surface learners and not deep learners. In traditional classes, teachers do the questioning, planning, and researching and present all the material to the students. Then, students are assessed or asked to develop an artifact to represent their learning. In my experience as a teacher, assistant principal, and principal project-based classrooms get students involved in the inquiry process from the very beginning. Students are immersed in an inquiry experience that gets them thinking about and questioning the topic. Then students work with their teacher to come up with strong,

driving questions about the topic and what they want to learn. Together they plan how they are going to go about answering their questions, and then dive together into their research. Not only are students learning content and concepts, but they are also gaining skills and zeroing in on what they want to do with what they are learning. At that point, students work with their teacher to plan a project that they will create—one that often extends beyond the classroom.

Most educators are no strangers to shifts in curriculum reform, however the gap between reform in theory and its implementation in the schools continues to present major concern (Zhenyu, 2012). Successful educational change depends on what teachers think and do (Fullan, 2001). If educational reform like project-based learning (PBL) is to be successful, it requires the endorsement of teachers to be enacted in the classroom (Wurdinger, Haar, & Bezon, 2007).

## Statement of Problem

The problem of practice in my Dissertation in Practice (DiP) comes from the mandate of federal, state and local school regulations to develop the necessary 21st century skills in our students while many teachers are still using 20th century passive learning tools and strategies. In order for teachers to prepare students to thrive in a globalized society beyond high, there must be a shift in teacher focus and instructional practices. Continuing to provide teacher-centered instruction that does not allow students to apply learning to real-life situations is not fair to students that will leave k-12 classrooms and enter the real world. Solving the highly complex problems of our present and future workplace requires that students have both fundamental skills (reading, writing, and math) and 21st century skills (teamwork, problem-solving, research

gathering, time management, information synthesizing, communication, creativity and utilizing high tech tools).  In our current society, our students compete globally for entrance into college and the job market.  Although it may seem like a relative novice idea, the push for 21st century skills is not a new concept.  Setting high expectations, honing in on student needs and making education more relevant has evolved over time (Kaufman, 2013). Despite the need and desire to integrate 21st century skills in daily instruction, teachers have avoided using strategies such as project-based learning for several reasons to include the fear that all required standards will not be addressed, increased difficulty in managing student behavior, and loss of control over instruction (Hmelo-Silver, Duncan, & Chinn, 2007; Scogin, Kruger, Jekkal & Steinfeldt, 2017). The desire of educators and educational policymakers to create an educational system that is both effective for all learners and accepted by all stakeholders has proven basically impossible.

John Dewey was the first to promote the idea of "learning by doing." Dewey stated:

> The teacher is not in the school to impose certain ideas or to form certain habits in the child but is there as a member of the community to select the influences which shall affect the child and to assist him in properly responding to these…. I believe, therefore, in the so-called expressive or constructive activities as the centre of correlation. (Dewey, 1897).

Dewey's original thought of learning by doing has developed over time into the concept of project-based learning.

The basic tenets of project-based learning (PBL) is that opportunities are provided for groups of students to investigate meaningful questions, over a period of time, that require them to gather information, think critically and to produce some type of artifact or project (David, 08; Galvan & Coronado, 2014; Przybysz-Zaremba et al., 2015). Project-based learning implemented correctly has the capacity to answer the call for developing 21st century skills and answer the accountability requirements of standardized testing that "No Child Left Behind," and its successor "Every Student Succeeds Act," has established. However, if teachers are expected to deliver instruction that will meet the expectations of so many mandates they must feel adequately prepared and invested.

> Education is a human enterprise. The essence of successful instruction and good
> schools comes from the thoughts and actions of professionals in schools. So, if
> one is to look for a place to improve the quality of education in a school, a
> sensible place to look is the continuous education of educators- that is, PD.
> (Glickman, Gordon, & Ross-Gordon, 2004 p. 370)

In 1983 *A Nation at Risk* introduced the idea that education had to become more accountable (Gosmell-Lamb, O'Reilly, Matt, 2013). Over the next few years, the move towards accountability leads to more education regulations. The adoption of No Child Left Behind (NCLB) in 2002 ushered in a time in education reform in which p-12 schools were judged heavily by standardized tests that provided little insight to student actual learning or real knowledge about the student (Gosmell-Lamb et al. 2013). The reauthorization of the Elementary and Secondary Education Act (ESEA) in Every Student Succeeds Act (ESSA) gave some leeway to assessments and assessment schedules but did not relieve schools of mandated standardized testing and accountability

requirements. In addition to maintaining strong assessments, ESSA added requirements for developing 21st century skills in p-12 schools. The requirement for reforming our curriculum is evident, however implementing change in our practices still challenges many teachers and schools.

Many educators will agree that teaching 21st century skills such as critical thinking is necessary. They may also agree that instructional methods such as project-based learning are highly favored by teachers, administrators, and students. However, the overwhelming support for PBL has not translated into widespread implementation. One very big concern is that PBLs are difficult to implement. Rotherman and Willingham (2009) cite teacher concerns as one of the main reasons PBLs are not more prevalent in schools. The researchers state that classroom management of behaviors, a need for a broad range of knowledge from teachers, a lack of quality professional development and little time to collaborate with colleagues are all reasons that teachers shy away from an instructional strategy they support.

## Purpose Statement

As the saying goes, if you keep doing the same thing you will continue to get the same results. Although the need for change may be obvious, actually implementing the change is difficult and gaining the desired results too often does not happen (Hall, 2013). There are many reasons why an implementation of new programs is halted, or the programs fail to yield the promised outcomes. One key factor in the successful implementation of innovative programs in teacher attitude (Rogers, Cross, Gresalfi, Trauth-Nare & Buck, 2011; Hall, 2013). Often, teachers come to the implementation of

new programs with varying levels and kinds of experiences, their own teaching orientation, and feelings about the proposed program.  These teacher concerns may have an impact on the overall implementation of the program.

This qualitative study will explore teacher attitudes towards the change in the curriculum during the early implementation of project-based learning.  Specifically, this action research will investigate if teacher perceptions of the implementation of project-based learning influences their instructional practices.  This action research is guided by the research question: How do teacher perception towards project-based learning impact implementation of project-based learning curriculum?

**Research Question**

An underlying strength of qualitative inquiry is its reflective process.  The research question becomes the overarching starting point for research as the researcher strives to develop, ask and answer questions of why and how humans interact (Agee, 2008).  In many qualitative studies, the development of the research question does not take place until the research has begun (Agee, 2008). With the tenets of qualitative inquiry in mind the study strives to examine:

How do teacher perception towards project-based learning impact implementation of a project-based learning curriculum?

**Rationale**

There is a profound gap between the knowledge and skills a student learns in school and the knowledge and skills that they need to live and work in a 21$^{st}$ century community and job market (Learning for the 21$^{st}$ Century, 2002).  The world around us has forced the way people work and live to change.  The changes and rate of change

continue to accelerate. Although most educators will agree that we live in a dynamic society, we have failed to completely change the way we educate our students.  Our best attempts at addressing 21$^{st}$ century skills fall to the need of meeting federal and state testing mandates.  Our fear of underperforming on standardized assessments has led us back to business as usual and a 20$^{th}$ century way of teaching. Teachers often find themselves interested in a new strategy that may have the potential to yield better academic performance; however, implementing, growing and sustaining implementation often times presents its own set of hurdles to leap.

There are a substantial number of research studies defining project-based learning (Blumenfeld et al., 1991; Moylan, 2008; Sutinen, 2008; Bell, 2010; Tamim & Grant, 2013) and discussing the proposed benefits of PBL (Grier, et al., 2008; Chu et al., 2011; Kaldi, Filippatou, Govaris, 2011; Richardson, 2012; Stefanou et al., 2013; Hill, 2014; Yin, 2015; Holmes & Hwang; 2016).  Much of the research is geared towards why an institution or teacher should adopt PBL as the primary instructional method.  A more careful look at the research surrounding PBL yields research studies about the logistical challenges teachers face during implementation, however, the research examining a teacher's attitude towards the instructional model or the personal growth that takes place throughout the implementation process is limited.  This research seeks to provide insight into how teacher concerns impact implementation and change over time.

**Theoretical Framework**

The constructivism model, progressivism, and teacher efficacy provide the three-prong framework for this action research. These theories and theorist are discussed in greater detail in Chapter Two's review of related literature.

The move towards a student-centered, constructivism approach has emerged as the answer to present day educational struggles, with some criticism. Constructivism is not believed to be a unified theory (Krahenbuhl, 2016). Constructivism does not put forward a hypothesis to be tested; constructivism is considered an epistemology or philosophical explanations striving to determine how we learn (Savas, 2016). In a constructivism approach to learning the teacher moves from the sage on the stage to the guide on the side. Students become the center of the class, building new knowledge upon prior knowledge by changing and rejecting ideas, the learning is a result of experiences and ideas, (Savas, 2016; Krahenbuhl, 2016). A constructivism approach to education not only centers on the student but it includes problem-solving, asks the student to interpret and elaborate, respects the student's prior knowledge, encourages interaction socially and with the environment, and believes that errors are simply opportunities to learn (Schcolnik, Kol, & Abarbanel, 2016).

Although it is widely believed that skills developed in a constructivism model are beneficial to all learners, there are some epistemological assumptions that must be considered. In the constructivism model reality is dependent on the perceiver, reason or logic are not the only means of understanding reality and knowledge of truth is subjective (Krahenbuhl, 2016). Although valid concerns to be addressed the ubiquity of constructivism often leaves these concerns unearthed.

The progressivism movement presented a belief that education should focus on the whole child rather than the content of the teacher. The progressivism philosophy established a student-centered, experimental approach with the intent that it would lead to deeper learning (Condliffe et al., 2017). This educational philosophy of progressivism

stresses that students should test ideas by experimenting. Learning is rooted in the questions of learners that arise through interacting with the world. This progressive movement was inspired by the work of John Dewey (1902), Piaget (1973), Vygotsky (1978) and furthered by William Heard Kilpatrick's project method (1918). Project-based learning is rooted in the progressivism model and has strong ties to the constructivism model.

Teacher efficacy was originally discovered by the RAND organization in the late seventies and has been defined as the extent to which the teacher believes he or she has the capacity to affect student performance or the belief that they can influence how well a student learns regardless to how difficult the situation (Tschannen-Moran, Hoy & Hoy, 1998). Teacher efficacy is context specific, in that it can only be understood within the context of actual teaching demands (Wang, Li, Tan & Lee, 2017). Research published by Bandura in 1977 saw teacher efficacy as an element of the construct self-efficacy (the ability to perform at a certain level) that addressed effort. How much effort a teacher was willing to exert, how long they would stick with a task, how many failures they were willing to withstand and how much stress they would endure were determining factors of their teacher efficacy (Tschannen-Moran, Hoy & Hoy, 1998). Although teacher efficacy is a measure of a teacher's believed competence and not actual competence research has suggested that it has a huge impact on performance. Teachers with a strong sense of efficacy are open to new ideas and are more willing to implement innovative practices to meet the needs of their students (Tschannen-Moran & McMaster, 2009).

Although some investigations have found that even though many teachers and administrators support the concept of PBLs, they are not widely implemented (David,

2008; Krahenbuhl, 2016; Przybysz-Zaremba et al., 2015). Some of the concerns of implementing a PBL are the time constraints of planning and instruction, lack of prior knowledge of students, lack of teacher training, an absence of a clear learning focus and well-planned opportunities for problem-solving (David, 2008). Teachers must also fully understand the concepts embedded in their projects so that they will be able to model thinking and problem-solving strategies effectively. With the urge from policymakers to develop 21st century skills and the desire to make learning relevant and engaging, project-based learning with its many concerns appears to be the avenue to academic success for many students.

## Action Research Methodology

Action research was first introduced as a methodology in early 1950 through the work of Kurt Lewin and later defined to include the researcher as a participant by Stephen Cory through his work at the Teacher's College of Columbia University (Adelman, 1993). Action research has gained popularity in the last twenty years with the teacher quality movement (Nolen & Putten, 2007). The interest in action research coincides with the growing belief that teaching is a practice centered on inquiry. Teacher action research should not be confused with traditional scholarly research intended for broad dissemination (Lee, Sachs & Wheeler, 2014). One of the main foci of action research is a reflection on one's own practice with the intent of making that practice better. Because of the reflective nature of action research, the research can be an ongoing effort that is never truly complete. I have chosen to use the cyclical design described by Mertler (2014) that includes the four stages of planning, acting, developing and reflecting.

As a school administrator, one of my primary job responsibilities is to facilitate change in instructional methods when they are necessary. After many attempts to implement programs and instructional methods that evoked a student-centered environment, our school-wide data did not reflect that the methods were successful. A careful review of classroom observations notes over a period of two semesters revealed that teachers remained the center of instruction. During collaborative planning meetings, teachers shared their frustration with planning learning experiences that provided opportunities for students to become fully engaged and covering the necessary content. One teacher even expressed a fear of not teaching the content in lieu of activity because she could not be certain that students would get it. During the planning phase of my action research, I reflected upon this recurring issue of the unsuccessful student-centered classroom and our return to direct instruction. I had tried to lead this change for a couple of years now. I returned to our district's continuous quality improvement model of Plan, Do, Study, Act. Was I asking too much? Did I not properly share my vision, or did my staff just not buy into it? Were the changes I desired to make, worth the struggle? My reflection led to me reframing my thoughts and approach. My research question comes out of this reflective practice. In phase two, the acting phase, this study assessed the concerns that four middle school teachers in the early implementation phase of a PBL program faced. All four teachers completed the 35 question Stages of Concern survey before project implementation. One of the teachers was provided my assistance in developing, managing and assessing their PBL, while the other teachers did not receive the additional support. All four teachers completed the survey again after the first nine weeks of implementation. Phase three consisted of reviewing observational notes, survey

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responses and, project plans. An action plan was developed to address concerns revealed during data collection. Phase four of reflection included a careful review of the research process and the need for further research. It also includes an opportunity to share the research results. As a building level administrator, the opportunity to discuss happenings in one area of the school with the full staff is always present. Perhaps a discussion of this research project with the entire professional learning community will spark additional research.

One of the key values of action researchers is an abiding respect for people's knowledge and their ability to understand and address the issue confronting them (Brydon-Miller, Greenwood and Maguire, 2003). Brydon-Miller, Greenwood and Maguire (2003) go on to affirm that action research can produce valid results because expert research knowledge and local knowledge are combined, and the interpretation of the design and actions based on the results all involve the stakeholders. It is because the research question derives from a concern that I grapple with and the research conducted will help to promote change in an area that is personally relevant then it is these cited reasons which will help to make the research valid. Much of validity in action research comes from whether the data collected is accurate and appropriate for the purpose in which it was collected (Mertler, 2014). By aligning my research to the action research methodology and reflecting throughout the process it will maintain internal validity features. The very choice of conducting an action research project as opposed to a traditional research study stems from the fact that I, the researcher and practitioner seek to find a solution to a problem that exists in my daily practice (Campbell, 2013). By using an action research methodology, I am able to use participants that are readily

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accessible and fit the participant criteria, collect data that will inform my practice and changes in practice. Action research, in its strictest form, is research that is a cyclical, an action-reflection model that allows the investigation to lead to a change in the researcher's practice (Campbell, 2013).

This action research is centered on teacher perceptions. To gather data, I will administer the Stages of Concern Questionnaire twice, once at the beginning of data collection and once at the end of the data collection cycle. Teacher-participants will also have at least two unannounced classroom observations and participate in a semi-structured interview. Field notes from the classroom observation, questionnaire answers and interview responses will all be analyzed for the findings.

**Conclusion**

My problem of practice centers on teacher perceptions of the implementation of project-based learning to both develop 21st century skills and ensure that students perform academically. My research sought to answer the question: How do teacher perception towards project-based learning impact implementation of a project-based learning curriculum? The state of South Carolina has developed "The Profile of a South Carolina High School Graduate." This profile largely incorporates 21st century skills. However, the state also places high demands on student achievement through standardized testing. Perhaps project-based learning will equip the middle school aged student to be successful at both. The following chapters are outlined as such: Chapter two will include a detailed review of related literature to project-based learning, its origins, theories in support of, pitfalls to its widespread implementation and the impact of teacher attitude. Chapter three will outline the action research methods followed to conduct this research. A

detailed description of the setting and participants as well as a description of the data

collection process and analysis of data.  Chapters four and five will include a rich

discussion of findings and results as well as an opportunity to reflect and a plan to share

the findings.

CHAPTER 2

REVIEW OF LITERATURE

**Introduction**

What does it mean to be college and career ready for the 21$^{st}$ century in a time where educators are still held accountable to produce student performance results measured by test scores? What has changed for educators, if we are still guided in what to teach by state standards and federal mandates? The need to prepare students for annual statewide exams has been a requirement for many years. However, now k-12 educators are also asked to develop 21$^{st}$ century learning skills in all students. Many believe that teachers are asked to balance the scales between what appears to be two conflicting goals (Holmes, 2012). On one side of the scale is increased accountability for students to demonstrate minimal competency through mastery of state standards assessed by standardized testing. On the other side of the scale is the framework for 21$^{st}$ century learning skills that provides guidelines for the skills students should acquire to be successful in the 21$^{st}$ century (Holmes, 2012). If teachers are asked to prepare students for both, how can we ensure that the two are not in opposition with each other? How do we ensure that our teachers have both the time and skill to ensure that all students know enough content to be successful on state exams while also providing them adequate time to collaborate, think critically, be creative, communicate in a variety of ways and research? Seeking a resolution for this conflict, schools and school districts are

Implementing instructional models that have the potential to do both simultaneously. Believing that learning should be student-centered as well as effective in standards mastery and 21st century skill development but observing mostly traditional, teacher-centered classes focused only on testing material, project-based learning is adopted as a solution.

## Statement of Problem

The problem of practice in my Dissertation in Practice (DiP) presents itself as curriculum leaders strive to meet the mandate of Federal, State and local school regulations to develop the necessary 21st century skills in our students while still using 20th century strategies such as teacher lectures, textbook guided instruction and written assessments. Solving highly complex problems requires that students have both fundamental skills (reading, writing, and math) and 21st century skills (teamwork, problem-solving, research gathering, time management, information synthesizing, utilizing high tech tools). However, developing these skills in students requires a change in both the mindset and instructional practices of teachers.

This study will explore the implementation of project-based learning in one high poverty middle school. Specifically, this action research will investigate how teacher attitudes towards project-based learning as an instructional model impacts the implementation of the program. This action research is guided by the research question: How does teacher perception towards project-based learning impact the implementation of a project-based learning curriculum?

## Definitions of Terms

**21st Century Skills:** 21st Century skills are skills students need in order to be successful

in the modern workforce. The Partnership for 21st Century Skills (Partnership for 21st Century Skills, 2011) has developed a framework that defines these skills in several components including the learning and innovation skills, specifically creativity and innovation, critical thinking and problem-solving, communication, and collaboration; life and career skills; and information media and technology skills.

**Action Research:**  Any systematic, participatory form of inquiry.  Carried out by teachers, administrators, and counselors, with the goal of finding practical solutions to pressing issues concerning those that conduct the research (Miller, Greenwood and Maguire, 2003; Lee, Sachs & Wheeler, 2014).

**Constructivism:** A theory -- based on observation and scientific study -- about how people learn. Constructivism is the belief that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences(www.thirteen.org/edonline).

**Inquiry**: A seeking or request for truth information or knowledge.

**Multiple Modalities:** Multiple Modalities is an instructional practice used to improve student engagement. It involves providing diverse presentations, and experiences of the content so that students use different senses and different skills during a single lesson. Often multiple modalities address different learning styles. Teachers using multiple modalities may use visuals, music, objects, experiences, collaborative work, poetry, writing, and/or other modes to teach content. (http://www.acpsk12.org)

**Project-based Learning**: Project-based learning is an educational approach that places students in an authentic problem scenario where they work in a team using problem-solving and research skills to find solutions. A driving question guides the multi-

disciplinary inquiry, as does the teacher who serves as facilitator and advisor. Often, real experts from the field are asked to present or share information and technology tends to be a valuable tool in the learning process

(Barell, 2010; Bender, 2012; Larmer, 2009).

**Problem-based Learning**: Problem-based Learning, though similar to project-based learning typically involves one content area (as opposed to several in project-based learning). The approach comes out of the medical tradition and because of this may mean the learning experience has specific, prescribed steps or looks for a specific solution (Larmer, 2013; Neufeld & Barrows, 1974).

**Student-Centered:** A type of learning/teaching method, which places the student first in the teaching and learning process. This pedagogical method takes students to a higher level of thinking through engagement and active learning (Elen, Clarebout, Leonard, & Lowyck, 2007; Hockings, 2009).

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**Purpose of the Literature Review**

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Machi and McEvoy (2016) explain that the purpose of the literature review is to present a logically argued case that is based on a complete understanding of current research. The case should develop a convincing answer to the study's question. For this dissertation in practice, the research will delve into the history of project-based learning. How it was born out of early learning theories and the theorist behind the basic concepts. It will define project-based learning as it is used in current curriculum practice, explore its efficacy in developing 21$^{st}$ century skills while preparing students for required standardized testing and teacher perceptions of PBL.

The research for this literature review began with me exploring what project-based learning was. Many of the research studies, articles and texts led me to study student-centered learning as a theory. Much of the information about student-centered learning was directly linked to the work of theorists Dewey, Vygotsky and Piaget. After carefully studying the theorist linked to project-based learning I went back to formulate a succinct definition of what it was, what it wasn't and the role of the teacher in the student-centered model.  I then turned my attention to the areas of concern for this action research study.  I reviewed the historical aspect of standardized testing and the role it plays in current k-12 schooling.  I then sought to understand 21st Century Learning Skills, by defining them and identifying what students must demonstrate for mastery.  I researched studies that were based on the experimental implementation of project-based learning.  Studies varied including those that measured project-based learning impact on student achievement, development of 21st century skills and unintended benefits gained. Lastly, I review research that studies the impact of teacher perspective on implementation. The research discussed in this chapter is essential to understanding the research question in this study, the results, interpretation and discussion.

**History of Project-Based Learning**

> *"I hear and I forget, I see, and I understand, I do, and I remember."*
>
> - Ancient Chinese Proverb

As long as public education has been provided for the citizens of this country, it has been the product of constant change and debate. The founding fathers found themselves at odds about the most effective way to educate the citizens of America. Thomas Jefferson believed that a smaller decentralized government, and a public

education system, was best.  He supported an educational system led by the local government giving the citizens a sense of participation and therefore a desire to defend their liberty (Carpenter, 2013).  He also supported access to basic education for all, minus slaves, but strongly believed that the more elite citizen should be afforded a more enlightened education (Carpenter, 2013). While Alexander Hamilton believed that education should be the business of the government and that all individuals regardless of class should have access (Isenberg, 2010).  Early theorist also struggled with the best course of education to ensure success for all students.   As early as the 18th century Jean-Jacques Rousseau discussed the development of young children in *Emile.*  Rousseau felt that children were naturally good and curious and that intrinsic motivation along with rich experiences was needed to facilitate growth (Schiro, 2007).  Schiro (2007) states that Rousseau believed a child's learning should be developmentally appropriate and proceed from direct experiences with nature to experiences on to more abstract ideas. Rousseau's support of physical learning, as opposed to a bookish teaching style, has been attributed to being a foundational belief for the progressivism movement (Salvastru, 2012). A belief that learning should be both physically active and intellectually engaging while allowing the learning to gain from the experience of both pleasure and pain was the cornerstone of Rousseau's theory (Mintz, 2012).

Early in the 20th century, theorist John Dewey (1902) argued in *The Child and Curriculum* that the curriculum should not be focused solely on the subject matter leaving the child to be an inactive participant.  Dewey (1902) wrote, "the child is simply the immature being who is to be matured; he is the superficial being who is to be deepened" (p. 13).  He went on to discuss the education of the child in his 1938 publication

*Experience and Education.* Dewey believed strongly that experience was the cornerstone

of education. In chapter two, He explained that experience was both educative and mis-

educative and that the role of the educator was to develop educative learning experiences.

Dewey (1938) supported the concept of freedom of intelligence. He felt that teachers

should allow movement but understand that outward movement did not constitute

progressive learning. Teachers should get to know their students to discern individually

who needed the freedom of movement. Movement was seen as a means, not an end. The

goal was to allow students to observe and reflect. Vital to the student-centered theory of

learning was the development of a purpose. Dewey (1938) felt that students must feel a

purpose for their learning to avoid mental slavery. Ultimately, *Experience and Education*

was in support of an experienced-based model of education (Sutinen, 2008). One in

which a student's learning of new information had to find a way of integrating with the

student's ordinary life and previous experiences. It was the responsibility of the educator

to build upon the students' diverse backgrounds to develop an infinite number of learning

experiences. Given the work of John Dewey and his position on experienced-based

learning, it is completely understandable that he is mentioned in much of the research

conducted on project-based learning and is considered the father of this model of

instruction (Bell, 2010; Blumenfeld et al., 1991; Sutinen, 2008).

Beyond Dewey, Jean Piaget's work on how children build knowledge of the

world around them provided more theoretical validation for project-based learning

(Piaget, 1973). According to Piaget's work, children come to understand the world by

undergoing several stages of development and do so by being actively engaged with their

environment. The work of Lev Vygotsky was strongly supportive of the experienced-

based model of John Dewey.  Vygotsky (1978) introduced the concept of zone of proximal development (ZPD).  ZPD is the difference between what a child can do without help and what he or she can do with the help of a more capable individual. Vygotsky's work affirmed the concept that project-based learning is student-centered, and the teacher becomes more a facilitator or guide rather than the keeper of knowledge.

**Theoretical Framework: Learner-Centered Ideology**

Early theorist such as Dewey, Kohl and Rousseau (Anderson & Fenty, 2013; Ozar, 2015; Lowery, 2016) suggested that authentic learning happened through the learners' personal interactions with their environment and that the focus of said experience should be focused on the child, thus the concept of a learner-centered ideology.  Schiro (2013) define Learner-Centered Ideology (LCI) as one in which the focus is on the needs of the individual not society or academic disciplines.  The goal of LCI is for the school to be an enjoyable place where individuals develop naturally with respect to their own unique intellectual, social, emotional and physical characteristics. The aim of a learner-centered education is for the learning to be personalized, it can happen anywhere at any time, students must take ownership, learners are active and have input into what and how the learning will take place (Brackenbury, 2012; Schiro, 2013). It is essential that the learners' needs take priority and they are allowed to grow at their own pace (Hansen & Stephens, 2000).

While theorists argued the need for students to experience learning, a teacher-led classroom was still prominent in most classrooms around the world (Brackenbury, 2012). In a teacher-led class the teacher is the keeper of the content, controls the pace and maintains order.  The social concerns of the past century demanded a need for students to

develop work-related skills.  Events such as The Great Depression and World War II dictated that schools ensured students were ready to be contributing citizens and had skills that would earn a living wage (Schiro, 2013).   Brackenbury (2012) suggests that the constructivism approach does not deny that learning cannot take place through direct transmission, but the learning that is constructed by the learner is more complex, meaningful and enduring.  The shift from teacher centered to learner centered has been slow, but teachers are beginning to give away control, develop more purposeful learning experiences and encourage students to take responsibility for their own learning (Brackenbury, 2012).

Out of the work of progressive theorists such as John Dewey, Jean Piaget and Lev Vygotsky, a constructivist approach to education was born. Dewey's experimental learning theory and Piaget's concept of assimilation and conformability both stressed the need to learn through experiences and assimilating new knowledge with previous experiences (Jia, 2010).  This kind of learning is personal and therefore knowledge is not transferrable from person to person but constructed by each individual.  Vygotsky is believed to have found the base of for present-day constructivism, in which learning is a social construction (Jia, 2010). The learning is believed to be situation specific and context bound (Liu & Matthews, 2005). Jia (2010) explains what constructivism should look like; knowledge- is an explanation and assumption, not a final answer, learning- is the process of constructing knowledge, an interaction between the object and the subject, students enter the classroom with their own experiences and where there are not experienced, they form explanations based on previous experiences. Lastly, he lays out a clear shift for the teacher.

As we emphasize on the students as the subjects, we should change the role of

teachers, from the initiator and indoctrinator into the helper and the driver for

student construction meanings initiative.  In other words, teachers should be the

designer of the teaching environment, the guide for students' learning, and the

academic consultant for students. It discards the traditional teaching mode that

takes teachers as the center, which merely focuses on conveying knowledge,

regarding students as the object for receiving knowledge. The new teaching mode

takes the student as the center, under the guidance of teachers. Teachers guide the

whole teaching process (Jia, 2010).

Project-based learning is born out of a learner-centered ideology and constructivism

approach to learning.  Project-based learning (PBL) is a student-driven, teacher facilitated

approach to learning through investigation (Bell, 2010; Blumenfeld et al., 1991; Stefanou

et al., 2013).  The genesis of the project is a question piqued by the student's natural

curiosity.  Within this framework, students decide what they will need to know and how

they will find out.  Through authentic tasks, the students will pursue solutions to the

question by asking and refining questions, debating ideas, making predictions, designing

plans and experiments, collaborating and communicating with others ultimately creating

an artifact that proposes an answer to the original question (Bell, 2010 & Blumenfeld et

al., 1991).  Bell (2010) suggests that a key component of project-based learning is student

choice.

In project-based learning, the focus moves away from the teacher and becomes

focused on the student's interests and curiosity.  The teacher becomes the guide on the

side, responsible for providing an environment conducive to exploration, research, rich

discussion and discovery. The student seeks knowledge from a variety of sources to include content experts (sometimes the teacher) a textbook, internet or group member (Galvan & Coronado, 2014). The Buck Institute of Education (2016) lists reflection as a key component of successful project-based learning. They quote John Dewey whom they credit for much of their inspiration in saying, "We do not learn from experience. We learn from reflecting on experience." Years after Dewey discussed the importance of reflection in the learning process reflection continues to be an integral part of the learning process for many theories. David Kolb and his experiential learning model suggest that a person learns through experience and must take time for reflection to consider what has been experienced (Wain, 2017). Graham Gibbes and Donald Schon both believed that reflection is important during and after a task. That in order for individuals to improve, learn or grow they must reflect upon what has happened, what went wrong, be able to respond in the moment and consider how they would respond in the future (Burn & Danyluk, 2017; Wain, 2017).

A major concern of advocates of project-based learning is that much of what is referred to as project-based learning can be no more than activities or assignments that lack the rigor of a true project-based learning unit (Larmer, Mergendoller & Boss, 2015). The Buck Institute of Education (BIE) (2016), leaders in the study of project-based learning, has developed the Gold Standard PBL and states that students must be taught important content standards, content and in-depth understandings that are fundamental to school subject areas and academic disciplines. Additionally, project-based learning success should be based on students developing critical thinking skills, problem-solving, collaboration and self-management. These skills cannot be developed in isolation they

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must be integrated with the development of content knowledge (Larmer, Mergendoller & Boss, 2015).

**Differences between project-based learning and problem-based learning**

With the resurgence of interest in student-centered learning and implementation of project-based learning, some educators and researchers use the acronym PBL to refer to both project-based learning and problem-based learning. Project-based learning and problem-based learning has been used interchangeably, but there are some distinct differences in the two models of instruction. Stefanou et al. (2013) cite a 1998 study conducted by Barron et al. where Barron and his colleagues refer to problem-based learning as the scaffold to project-based learning. Stefanou and colleagues explain the differences in the two models by stating that in project-based learning the emphasis is on the applying or integrating knowledge, while in problem-based the emphasis is on acquiring the knowledge. Larmer (2014) acknowledges the similarities in that both are based on an open-ended question, is authentic, builds 21$^{st}$ century skills like collaboration, problem-solving, digital literacy, critical thinking and emphasize student independence, however they are different in a number of ways. In project-based learning is often multi-disciplinary, last weeks to months, variously named steps are followed and creation of a product that can be applied to real life is the culminating piece. While problem-based learning can often be single subject, shorter in duration, has a specific set of steps to be taken, the product may simply be the answer to the question (Larmer, 2014). For this research will focus on the use of project-based learning because project-based learning units encompass 21$^{st}$ century skill development while applying content knowledge in the production of an artifact.

**Role of the Teacher**

In the instructional model of project-based learning, researchers have acknowledged that the focus should be on the student, clarity on the teacher's role during the process varies. Teachers are facilitators of the learning that will take place and must provide clear directions and expectations for the projects (Bradford, Mowder, & Bahte, 2016). Galvan and Coronado (2014) acknowledge that some students will not have mastered certain required skills, such as the ability to think creatively and critically. In such cases, teachers should model the steps of project-based learning before turning students loose. Although project-based learning is authentic and independently driven, teachers should use the chaos to get to know students individually providing support and guidance as needed (Galvan & Coronado, 2014). For project-based learning to be an effective instructional model, teachers must have a depth of subject knowledge that will enable them to link concepts and help students develop driving questions such that they may construct their own knowledge. They must manage their classes to allow for autonomy and maintain order, aid with necessary prerequisite skills (data collection and time management) and be willing to change the way they assess student learning (Przybysz-Zaremba et al., 2015). The teacher is still responsible for providing the environment in which the learning takes place. Teachers are also responsible for carefully planning project-based instruction with regards to providing resources, foreseeing common misunderstandings and planning for their correction, effectively assigning groups, and serving as the content expert when necessary (Cheng et al., 2008; Tangdhanakanond et al., 2006; Schiro, 2013).

**Opposition to project-based learning**

One of the key benefits of project-based learning is that the learner is minimally guided through an investigative process to construct meaning for himself. Kirschner et al. (2006), argue that minimally guided instruction is ineffective, stating that it does not respect the manner in which working memory and long-term memory interact, it shifts learning away from the pedagogic content of a curriculum to the process and methods of learning the curriculum, research on the topic lack controlled experiments, and that teachers that are successful with the model spend a considerable amount of time with instructional interaction with students. Researchers have also found that students taught through a project-based learning method, with no previous project-based learning experiences either show no gains or perform worse than students taught through a traditional teacher-led model when assessed in traditional testing methods (Edmunds et al., 2016; Karacalli et al., 2014; Kizkapan et al., 2017 & Kirschner et al., 2006). The time commitments struggle of working with group members and not being prepared for the complexity of the work are reasons cited by students for displeasure with the method (Gibbes & Carson, 2014). Teachers also state that planning time, classroom management and student prerequisite skills are all reasons they shy away from PBLs. With the many reasons for opposition to project-based learning, the proposed benefits may still outweigh the added suggested drawbacks.

**Accountability, Conventional Testing and Standardized Testing**

Currently, state standards and assessing the state standards through standardized testing dictates instructional practices in many k-12 schools. Standardized testing, accountability and high stakes testing did not always exist. Standardized testing can be

dated back to the 1890s with Joseph Rice's spelling surveys (Haney, 1981).  Standardized

testing began to prove their benefits during World War I with the need to streamline the

process of selecting quality men for military service (Haney, 1981; Huddleston &

Rockwell, 2015). During the early 1900s compulsory school attendance caused the

enrollment of American schools to grow by leaps and bounds.  School leaders then

sought the use of standardized testing to sort the influx of students into different

educational tracks (Linn, 2001).  Not only where standardized test used to determine

whether students would attend college or seek a vocation, but some school officials also

used test results to issue high school diplomas with prestige (Linn, 2001) thus

determining which students would attend the more exclusive colleges and universities.

During this time of constant change and growth, the United States of America

found themselves growing in scienctific discovery, military use, and rapid social change.

In 1957 the launch of Sputnik followed by the development of the National Defense

Education Act (NDEA) in 1958, strengthened the need for more testing (Haney, 1981;

Huddleston & Rockwell, 2015).  The NDEA provided funding for additional testing with

the goal of identifying students with the aptitude and abilities to support specialized

science training (Haney, 1981).  Just a few years later in 1965 the development of the

Elementary and Secondary Education Act (ESEA) expanded standardized testing

(Huddleston & Rockwell, 2015).  During the 1970s and 1980s the support for

standardized testing grew like wildfire.  Broader interest in IQ Tests was sparked by

Jensen's 1969 article in the *Harvard Education Review* that questioned whether

intelligence was heredity and suggested that blacks were genetically less intelligent than

whites (Haney, 1981).  A decline in SAT scores was attributed to several social changes

but ultimately caused many to question schools and schooling.  By 1974, 73 laws had

been passed designed to raise the achievement of students and to hold schools

accountable (Huddleston & Rockwell, 2015).  By the end of the 1980s, 45 states

including the District of Columbia used statewide tests to assess student achievement

(Linn, 2001).

The Reagan era's release of "A Nation at Risk," and Bush's 2002 reauthorization

of ESEA into No Child Left Behind all had the same goal; to establish minimum

competency standards.  *A Nation at Risk* was the 1983 report released by President

Reagan's Commission of Excellence in Education.  Although viewed as highly political

the report had a deep and lasting impact on school reform in America (Hewitt, 2008).

The commission's final report painted a picture of a grim American public school system,

one that needed a complete overhaul.  *A Nation at Risk* called for excellence in education

required a focus on content area courses increasing the number of English, math, science,

social studies and foreign language course required for high school graduation and a

decreased focus on elective classes (Mehta, 2015).   One of the major changes in public

education was the increased accountability to the individual school that would be

measured by external testing (Mehta, 2015).  Although not the intent of President Reagan

the Commission's report strengthened the influence of the federal government in public

education (Hewitt, 2008).

Two decades later President Bush's administration delivered *No Child Left*

*Behind (NCLB)*.  Again, the federal government identified areas of deficiency in the

American public school system and used their influence to enact change.  The major

components of NCLB required that all states test all students in grades third through

eighth every year in math and reading and at least once in high school. All students must reach proficiency by 2013/2014 school year, that included students with special needs and all schools would have to meet adequate yearly progress towards the goals (Ladd, 2017). No Child Left Behind's main similarity to A Nation at Risk was that all of the goals were to be measured by tests, albeit state tests, and that there were major consequences for not meeting the goals.

Both reforms recognized that American students needed to be prepared for college or have the knowledge and skills for work hence the minimum proficiency standards (Mehta, 2015; Ladd, 2017). However, when these minimum competency standards would be used to determine grade to grade promotion, high school graduation, the ongoing need for remedial instruction and school funding, the goal may have been developed with good intention and may still strive to produce students ready for the next phase, but the results were not always as favorable.

Because of the increased accountability for school districts and schools to ensure all students attain academic competencies, district and school leaders have placed increased pressures on teachers to use traditional teaching methods that have been proven to raise test scores (Aydeniz & Southerland, 2012). This increased pressure has led many teachers to teach to the test. Sacrificing high quality, evidenced-based instruction for a focus on test preparation results in narrowing of the curriculum, loss of instructional time and loss of teacher autonomy (Higgins, Miller & Wegmann, 2006).

Although the widespread use of standardized testing has made determining mastery of skills efficient, it has also made it standardized. Williams (2005) states that for standardized tests to be standardized the questions and answers must be written such

that they leave no room for interpretation.  Standardized test questions remove the ability

for the test taker to apply their own meaning and understanding.  When teachers are

focused on meeting the mandates of testing requirements they are no longer focused on

teaching and assessing for authentic learning.  They lose the opportunity to consider the

context of learning, student differences and unique needs or to acknowledge learning if it

does not meet the minimally required standard (Higgins, Miller & Wegmann, 2006).

  With the last reauthorization of ESEA into Every Student Succeeds Act (ESSA)

(2015) and the development of Partnership for 21st Century Learning (P21) (2007) the

expectation of accountability is maintained, and the use of standardized testing still

exists, but a key added component is the integration of 21st century skills.  Parsi and

Darling-Hammond (2015) suggest that the call for new standards to include 21st century

skills mandates that testing methods must change, as our old multiple-choice assessments

are no longer achieving their purpose.  The current state assessments are not aligned to

the knowledge, skills and dispositions expected for students to attain by high school

graduation. Parsi and Darling-Hammond (2015) suggest in their white paper written for

the National Association of State Boards of Education that states have already begun to

rewrite their assessments to include performance assessments that will more accurately

assess higher-order thinking skills, 21st century skills and identify student learning and

weaknesses more accurately.  Although the federal government strives to have limited

interaction with the day to day delivery of instruct, the influence of federal initiatives can

be felt in all classrooms.  Teachers are under pressure to meet the mandates of their

supervisors. Principals are continuously concerned with school performance and test

scores.  Districts are eager to demonstrate growth and states are always concerned with

how they are seen nationally.  The constant struggle to achieve at a higher level as measured by assessments always trickle back to students and their individual performance.

**Defining 21st Century Skills**

The Partnership of 21st Century Skills, a public-private organization of leaders in business and education, came together to support schools in addressing the educational needs of the 21st century.  In their white paper entitled *Learning for the 21st Century* (2007), they proclaim that "today's education system faces irrelevance unless we bridge the gap between how students live and how they learn (p. 4)."   The paper goes on to discuss six major elements of 21st century learning, they are:

- Emphasis Core Subjects.  Students should develop mastery of English/ language arts, mathematics, science, foreign language, civics, government economics and history at much higher levels than before.

- Emphasize Learning Skills. For students to continue learning throughout their lives they must develop skills in information and communication, thinking and problem-solving and interpersonal and self-direction.

- Teach and learn in 21st century context. A student must have the opportunity to learn academic content in a real-world context, inside and outside of schools.

- Use 21st century tools.  Students must have the opportunity to use the tools essential for everyday life and workplace productivity.

- Teach and learn 21st century content. Business and educational leaders identified global awareness, financial economic and business literacy and civic literacy as crucial skills for successful communities and workplaces.

- Use 21$^{st}$ century assessments that measure 21$^{st}$ century skills. States and districts need high-quality assessments that will measure newly developed 21$^{st}$ century skills.

Minigan (2017) explains that the 21$^{st}$ century skills that possess the six elements described by P21 are the foundation of necessary innovation skills referred to as the four C's of creativity, critical thinking, communication and collaboration. The 4C's are the foundation of 21$^{st}$ century learning and leads to curiosity or questioning (Minigan, 2017). When curiosity in the form of questioning is added to the skills of creativity, critical thinking, communication and collaboration there is a direct impact on student engagement and interests. The use of curiosity to go beyond gathering data to generating questions helps students to identify their own gaps in learning and drive their investigations (Minigan, 2017). Although 21$^{st}$ century skills are widely supported as necessary skills for all students exiting the k-12 education system, developing a system that teaches these necessary skills is not an easy task.

**Defining CBAM Stages of Concern**

Concerns Based Adoption Model (CBAM) was designed to study the highly complex process and the events that occur when educational institutions adopt educational innovations (Hall, 1974). CBAM is an evidence-based construct that uses tools to assess the Stages of Concern (SoC), Levels of Use (LoU) and Innovative Configuration (IC). CBAM is comprised of three measuring tools that can be used individually or collectively to assess the progress an institution is making toward program implementation. Hall and Hord (2011) state that change is learning, the implementation of innovative programs is as simple and complex as that. A teacher's perspective of the

innovative program can be assessed by the changes they undergo during the
implementation process. SoC specifically addresses the array of feelings, perceptions and
worries those engaged in the implementation process face (Hall & Hord, 2011). The SoC
moves with the implementer from concerns of self, to the task at hand and finally to the
impact the change is having. SoC is characterized by seven stages of concerns and
accompanying descriptors (Hall, 2013).

CBAM Stages of Concern

| 6 | Refocusing | Exploring more benefits. |
| 5 | Collaboration | Coordinating and cooperating with others. |
| 4 | Consequences | Concerned about the impact on students. |
| 3 | Management | Using the innovation with support from resources. |
| 2 | Personal | Uncertain, unclear, unsure. Considering personal conflicts. |
| 1 | Informational | Not worried. Gaining awareness of the innovation. |
| 0 | Unconcerned | Unaware or unconcerned about the innovation. |

**Major Findings of the Research**

This review suggests that there is evidence of project-based learning delivering
outcomes with the potential to meet both federal and state standard mandates and develop
21st century learning skills such as collaborating, critical thinking and communicating.
The review will also present studies that indicate there is an impact of teacher perspective
on the implementation of PBL. Although no one method of instruction can do all things
for all learners, the research presented in this review suggests that project-based learning
is a plausible answer for a variety of learners and educators. Project-based learning has
been proven to raise student achievement as it requires students to employ higher order

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thinking skills and problem-solving skills.  It has also been found effective at developing 21$^{st}$ century skills as it is rooted in authentic, real-life problems, integrates technology and requires groups of students to work collaboratively through an investigation to produce a product that will solve the problem (Cheng, Shui-fong & Chan, 2008; Hernandez-Ramos & De La Paz, 2009; Sart, 2014; Bradford, Mowder, & Bohte, 2016; Scogin et al., 2017).

**Student Achievement**

Cervantes, Hemmer and Kouzekanani (2015) studied the impact of project-based learning on middle school student in the content areas of reading and math.  The purpose of the study was to combat declining student enrollment, declining test scores and a poor school rating.  After a district initiated school redesign the researchers selected two middle schools in urban south Texas.  The treatment group contained 171 7th and 8th graders at a magnet middle school that had implemented project-based learning as a part of their curriculum.   The comparative group contained 290 7th and 8th grade students from a middle school in the district that had not introduced project-based learning.  The ex post facto, causal-comparative study consisted of comparing state testing data provided by the district.  The State of Texas Assessment of Academic Readiness (STAAR) was first administered during the 2011-2012 school year.  The 2012 scores were used to analyze the impact of PBL on student achievement.  The study found that the project-based learning group outperformed the non-project based group in every category tested with a statistically significant difference. Specifically, when the 87 PBL 7th graders were compared with the 140 non-PBL 7th graders accounting for all demographic areas indicating no statistically significant difference the 7th grade PBL

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students outperformed the non-PBL students in all three reading and all five math areas of the STAAR exam reporting by the district. The data analyzed for the 8th grade participants found that although there was a statistically significant difference in the two groups in the area of ethnicity and socio-economic status, both groups having a majority Hispanic and economically disadvantaged population, the PBL group outperformed the non-PBL group. Specifically, the 84 PBL 8th graders scored higher than the 150 non-PBL 8th graders in every reading and math area reported. These results are echoed in a study conducted by Han, Robert Capraro, and Mary Margaret Capraro (2015) where 836 high school students of varying achievement levels participated in science, technology, engineering and mathematics (STEM) project-based learning activities. Students were studied over a three-year period where they participated in a STEM PBL every six weeks in their science and math classes. Test scores from the Texas Assessment of Knowledge and Skills were compared with 1054 high school student that did not participate in STEM PBLs and found that low achieving and Hispanic students saw significant gains in their test achievement.

Additional findings indicate that project-based learning does support student achievement (Geier et al., 2008; Al-Balushi & Al-Aamri, 2014; Reisi &Saniei, 2016). Moreover, other studies find that even when no statistical significance can be found in the achievement data, qualitative measures cite benefits that include motivation, student engagement, and self-efficacy (Pine et al., 2006; Bradford, Mowder & Bohte, 2016). Bradford, Mowder and Bohte's 2016 study sought to determine the impact of student-centered learning on student engagement. The research was conducted at a mid-size to large urban university in the criminal justice program. The study used a nonrandom

sample of 58 college students of varying ages and years of study in two separate classes, taught by two different professors during the same semester. Both classes utilized a team-based instructional model with at least one other student-centered model of instruction. Students were administered a survey during the first week of class and the same survey during the last week of class to determine student engagement. Results of the survey indicated an improved emotional and active engagement, students that came to class prepared, experienced the biggest positive impact.

Pine and colleagues (2006) conducted a large scale research study to compare the development of inquiry skills in fifth graders taught through hands-on and text-based classes. The study included 1000 fifth graders, in 41 classes across 9 school districts in California, Arizona and Nevada. Seven of the nine districts were either heavily hands-on or text-based the two largest districts were a combination of both. Hands-on students received instruction through Full Option Science System (FOSS), Science and Technology for Change (STC) or Insight. Student inquiry skills were measured through four performance assessments developed by a team of researchers, scientist and teachers. All students were also administered the Third Instrument Math and Science Study (TIMSS) Exam. After controlling for student cognitive ability, socio-economic status and other demographic differences, hands-on students did not yield significant difference in performance from the text-based students. Additionally, the hands-on students performed just as well as the text-based students on the standardized exam meaning that hands-on students were not disadvantaged by not receiving direct instruction.

In addition to the research suggesting that students taught through hands-on methodology perform just as good if not better than those taught traditionally, millennial

students have an expectation for constructivist methodologies. Although the debate of whether students are constructing a more expert view of an external reality or actually constructing their own reality most educational experts agree that hands-on, student centered, and active approaches to learning are more effective (Carter, 2008). Carter (2008) goes on to explain that the millennial cohort of students (born circa 1982-2002) was born into a society with networking technologies that affords them the right to learn through social collaboration, they believe in trial-and-error learning, lots of mentoring and structure, teamwork and active learning. The millennial student and the generation that followed is designed to thrive in settings that are built on a constructivism model. Their experiences out of school help to shape their ability to not only flourish in constructivist learning environments but to expect them.

 In addition to the research that supports project-based learning for the means of improving student achievement and the added benefits of increasing student motivation and engagement, teachers must also consider how they will teach newly mandated 21$^{st}$ century learning skills.

**Project-Based Learning and 21$^{st}$ Century Skills**

The ability of project-based learning to develop 21$^{st}$ century skills in students is an important factor. In a study conducted by Wan Husin et al., (2016) researchers sought to assess the effect of Project Oriented Problem Based Learning (POPBL) in STEM education program on students' 21st century skills namely Digital age literacy, Inventive thinking, Effective communication, High productivity and Spiritual values. A quasi-experimental design involving 125 secondary students with a pre-posttest test used to measure the effects and a Likert scale style survey analyzed student perceptions.

Students worked through four modules i. Energy ii. Urban Infrastructure iii. Transportation and iv. Wireless Communication with a variety of units and activities in each module.  Students used the three step engineering design of; Think- discuss, analyze real-world problem and make plans, Make-build, create, experiment, solve the issue, and any other issues arising during artifact design , and Improve-  improve the artifact by testing and rebuilding the artifact again with improvements to identify arising problems, or build a better artifact following the guidelines which have been set..  Each step requiring group work communication, build and improve the artifact, test and rebuild the artifact.  The study revealed that instruction through the BITARA STEM POPBL Program increased students' 21st century skills in every area being assessed. Two of the areas, high productivity and digital literacy, were not determined to be a significant gain but a gain, nonetheless.

In a recent study conducted by Scogin, Kruger, Jekkals and Steinfeldt (2017) the authors used a convergent-parallel mixed method design to compare seventh grade students in traditional classes and those participating in an experimental program.   The study suggested that students grew in their non-cognitive skills such as engagement and collaboration.  Achievement data for the experimental group was higher, although not statically higher, overall the researchers concluded that 21st century skills could be improved through project-based learning with no negative impact on achievement data.

Earlier research strongly supports the development of 21st century skills through the implementation of project-based learning.  Most commonly identified skill improvements are in the areas of problem-solving, critical thinking, collaboration, deeper understanding of content, self-reliance, time management and communication

(Wurdinger, Harr, Hugg & Bezon, 2007; Moylan, 2008; Hernandez-Ramos & De La Paz, 2009; Stefanou et al., 2013; Sart, 2014). Although originally thought to be most effective in courses such as math and science, project-based learning has also been shown to improve skill attainment in content areas such as reading, literacy and social studies (Chu, Tse, Loh & Chow, 2011; Hill, 2014; Duke, Halvorsen & Strachan, 2016).

**Teacher Concerns on Project-based Learning Implementation**

Research surrounding Concerns Based Adoption Model (CBAM) and Stages of Concern (SoC) tells us that teacher concerns progress incrementally through the stages of implementation. Teacher concerns about change begin with low level concerns of their role in regards to the innovation that present themselves early in the implementation process and progress through struggles with the task of the implementation to how the innovation impact students (Hall, 2013). However, failure to acknowledge low level concerns will cause them to intensify and delay the progression through the stages of concern (Signer, Hall & Upton, 2000). Participating in an innovative program implementation such as PBL, requires change- a change in curriculum, instruction and assessment practices (Ferrara, 2013). Any attempt at a successful implementation of a project-based learning curriculum reform should include identifying teachers' concerns about the implementation (Leung, 2008).

In Hovey and Ferguson 2014 study about PBL and diverse student groups, they sought to explore preservice and in-service teachers' perspectives and experience with PBL. Targeting 100 preservice and in-service teachers they were able to recruit 134 teachers from area schools, participants at an international conference and a large university accredited by the National Council for Accreditation of Teacher Education

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(NCATE).    Participants received a survey link via an email to a 20 question researcher created survey.  The survey included three demographic questions (years' experience, instructional grade, and professional role), six general PBL experience and perspective questions and five questions about working with diverse groups. Other than demographic questions all questions used a 5 or 7 point Likert scale response.   Descriptive statistics were used to obtain information about demographics and overall response patterns. Quantitative data was analyzed using Statistical Package for the Social Science (SPSS) 21 Predictive Analytic Software and R statistical software.  Quantitative data analyses were performed utilizing frequency comparison, correlation analysis and Analysis of Variance (ANOVA).  The results suggest that although teachers are aware of PBL as an instructional strategy they lack understanding about methodology. Secondly, teachers working with gifted students did not indicate that their experience impacted the use of PBL.  Lastly the results indicated that the more experience teachers had working with special needs students increased their likelihood of using PBL. The overall suggestion from the researchers was to include more information about PBL in teacher instruction.

A study published in 2010 conducted by Rodgers, Cross, Gresalfi, Trauth-Nare, and Buck used a case study methodology to explore the experiences of three secondary math and science teachers in their first year of a school wide adopted PBL program. The case study asked three guiding research questions; how the three teachers describe their first year of implementation, what psychological and physical classroom resources and material obstacles do they face, and how do they attempt, if at all to adapt their orientations to fit their new instructional method. The three teachers all taught 9th raders, either algebra or biology but in two different schools with very different populations.

Data was collected through four interviews, teacher philosophy survey, field notes and videotape classroom observations. The findings indicated that the three teachers varied in their approach to implementation due to their various experiences in teaching and working with children as well as their academic training. One of the teachers saw the major benefit of PBL to be the development of 21st century skills while the other two teachers saw student engagement as a driving factor. The teachers also differed on the need to include mini lessons to ensure standard mastery.  However, all three teachers did express a significant change in their perspective after implementing PBL.  Two of the teachers found themselves being more of a facilitator and shying away from lectures in lieu of directing students toward resources for answers.  The other teacher saw himself more of a manger needing to control student progress and behavior. The teachers also differed in their perspectives of the effectiveness of PBL for all students and the difficulty in implementation. The study concluded that PBL implementation is challenging and requires extended professional development, ongoing classroom support and collaboration with school personnel.

The research on teacher concerns with implementing new programs align with the characteristics of SoC in that change is personal, it is a process and it takes time (Leung, 2008; Tschann-Moran & McMaster, 2009; Rodgers et al., 2010; Hall, 2013; Hovey & Ferguson, 2014).  However, any attempt to obtain touted benefits of innovative programs should include respect for teacher perspective and support during the change process.

**Conclusion**

This literature review explored the historical foundation of student-centered learning and the theoretical foundations of project-based learning through the work of some of education's most highly recognized early theorist (Dewey, 1902; Piaget, 1973; Vygotsky, 1978). The review of early theorist led to a definition of project-based learning elements more so than a conclusive definition of the instructional method (Bell, 2010; Blumenfield et al., 1991; Stefanou et al., 2013). The broad definition of project-based learning led the research to uncover what project-based learning was as well as what it was not and to clarify the role of the teacher in the model. Similarly, historical review of standardized testing revealed the increasing impact of accountability standards, the rise of high-stakes testing, development of 21st century skills and changes in educational law and policy.

Although Harmer and Stokes (2014) cite several disadvantages to project-based learning to include poor standardized test score because the model favors a depth of knowledge to a breath of knowledge, this review offers evidence that it is possible to go deep into content with project-based learning while maintaining student achievement. This review of literature delved into the research on the efficacy of project-based learning. Moreover, this review offers evidence that project-based learning has the capacity to develop necessary 21st century learning skills and deliver other non-cognitive benefits. However, additional research is needed to fully support project-based learning's ability to meet federal and state standards while developing 21st century skills.

CHAPTER 3

METHODOLOGY

**Introduction**

Carter and Little (as cited in Helskog, 2014) discuss the role of methodology in action research, defining methodology as the study of the description, explanation, and justification of methods, and not the methods themselves. The methodology justifies the methods used, which are the practical activities of research: sampling, data collection, data management, data analysis, and reporting. This chapter outlines the research methodology used to answer the identified research question. Because this research is designed to discover the impact of teacher perspective during the first year implementation of PBL it will use a three-prong methodology approach used in the study by Rodgers et al. (2010) discussed in chapter two.  A survey, interviews and field notes from classroom observations will be utilized to determine the impact of teacher perspective on PBL implementation.  This approach was able to show changes in perspective during the implementation process, as I strived to do with the SoC survey. The interviews conducted by Rodgers and colleagues (2010) gave the educators an opportunity to discuss their concerns in more elaborate terms.

**Restatement of Purpose and Overview**

The purpose of this action research study is to explore the impact of teacher perspective with regards to the implementation of PBL.  The research strives to answer the question:

RQ: How do teacher perception towards project-based learning impact implementation of a project-based learning curriculum?

The study took place during the fall semester between September 19, 2018 and November 16, 2018 at Legacy Middle School (pseudonym).  I sought to determine if teacher attitudes, feelings and concerns changed during the implementation process and if so what impact those perspectives had on implementation. For this qualitative action research study, the Stages of Concern Questionnaire (SoCQ) was administered within the first month of PBL implementation and again before the twelfth week of school after the first grading period (9 weeks). Classroom observations conducted during the first grading period and semi-structured interviews administered after completion of at least one full PBL unit were used to triangulate the data.

**Action Research Paradigm**

Action research is described as a process of systematic inquiry that seeks to improve the practice or social issues affecting everyday people (Hine, 2013; Mertler, 2014).  The main goal of action research in education is to improve the lives of children, by improving the practices of the educator (Hine, 2013).  Due to the reflective nature of action research it can be beneficial to the professional growth of teachers.  Mertler (2014), suggests that action research is a better option for teacher professional development over the traditional one-size-fits-all professional development.  He goes on

to cite that teachers benefit from improved problem solving skills and increase professional self-esteem (Mertler, 2014). My research followed the traditional phases of action research: identifying an area of focus, collecting data, analyzing and interpreting the data and developing a plan of action (Mertler, 2014).

This action research uses a qualitative research design, allowing the research to be conducted in a natural setting, collecting data where the problem is occurring (Mertler, 2014). The research involves the SoCQ that uses a Likert scale. The data collected from the SoCQ first administration is analyzed descriptively and used to offer targeted teacher assistance to two of the four teachers. The SoCQ was administered a second time at the end of the first grading period. The data collected from the administrations of the SoCQ were aggregated and analyzed descriptively to explain the teacher's changes in perception and attitude as they moved through the early stages of PBL implementation.

Additional data were reported via unstructured classroom observations and semi-structured interviews. All four teacher participants were interviewed after completing at least their first PBL unit and at least one classroom observation. The interviews were guided by the same five questions, but the semi-structured format allowed the interviewer to ask more probing follow-up questions depending on the responses of the participants (Creswell, 2007). The classroom observations were unscheduled and unannounced. I simply took notes of teacher behaviors, instructions, and movement and student interactions for a minimum of twenty minutes per observation. The notes from the interview and observation data was used to provide a more detailed description of teacher perception.

**Role of the Researcher**

Although I serve as school level administrator in the district of the study, I am not on staff at the research site. I served as the researcher and a member of the facilitator of change team for one of the four teachers. As a participatory member of this research study I designed the study, observed the implementation of PBL, supported in the implementation of the instructional model for one teacher participant and reviewed project plans as well as student work samples. My role in essence was one of participant observer. There are perceived advantages and disadvantages to participating in the action research as the participant observer. Kawulich (2005) suggests that one main advantage is the improved quality of data collection and interpretation because the observer has access to behavior, intentions, and unscheduled events. The participant observer has somewhat of a backstage pass to the research participants without being a direct participant themselves. However, there are also perceived disadvantages to this method as well. The participant observer who relies largely on observations to answer the research question can have a biased and narrow view (Kawulich, 2005).

In preparation for the implementation process, all teacher participants received the same three day PBL training facilitated by BIE organization during the summer prior to implementation, I attended this professional development as well. Planning of initial projects began during teachers' summer break. My assistance was offered once the study began to two of the for teacher participants. Teachers were allowed to request what kind of, and level of help desired. One research participant asked for detailed help early and often while the other only asked for observation feedback. I observed instruction in all four classes, observing teachers that did not receive support twice each and observing the

others at least three times. More observations were intended, but five days of instruction was lost to weather related school outings, and other scheduling conflicts occurred. This action research study is grounded in one of the intended benefits of action research that is the collaboration that is composed of educators talking and working together (Mertler, 2014). The research design of this study builds upon that collaboration.

**Participants**

Participants in this study included four middle school teachers at Legacy Middle School (LMS). LMS is part of a grant written by the school district to develop magnet programs with a combined focus of career explorations and project-based learning. LMS is in year one of implementation. During the previous school year several parent sessions were hosted to inform parents and students of the new magnet program and its focus. Current students at the school were allowed to apply for the magnet program and enrollment was opened to any middle school aged students in the district. Because of the small number of students (38) only four teachers were needed for this inaugural year. One teacher per content subject area was selected to teach in the magnet program. Two of the four were current teachers at LMS and two were new hires.

The teacher participants in this study were four teachers at the research site that worked on a multi-grade team of all four content areas, math, science, ELA and social studies. Two of the teachers were white and two were black. Three of the teachers were female with one male team member. Their teaching experience span two years to 15 years of experience. All teachers were assigned a pseudonym to protect their privacy and data collected. Amy is in her second year of teaching and both years have been spent at LMS. She teaches social studies and expressed hearing about PBLs in college but admits

that the focus was problem-based learning.  Brenda is in her twelfth year of teaching

English, her first at LMS.  Teaching is a second career path for her as she was a loan

officer in the banking industry prior to becoming a teacher.  She has expressed a great

deal of experience and enjoyment with PBL before joining the LMS staff. Matthew is in

his fifth year of teaching math, with the last three years being at LMS.  He was an airport

vendor in his previous career and has expressed that he has no experience with PBL.

Sharon has taught science for 15 years and is new to LMS this year.  She shared that she

worked at a school prior to LMS that implemented an unsuccessful PBL model. Although

three schools were a part of the district's grant initiative, LMS was chosen as a research

site because it is a school that is comfortable with implementing innovation.  LMS

implemented a Montessori middle school program five years ago.  In addition to an

administrative staff familiar with new initiative the teachers at LMS offered rich variety

in teaching experience as well as experience with PBL.

<center>**Ethical Considerations**</center>

When good teaching becomes research, it can sometimes be a difficult line to

recognize (Zeni, 1996).  Zeni (1996) goes on to explain that the researcher will inevitably

have a more systematic manner of data collection, more self-reflection in writing and a

broader audience through collaboration, presentation and publication. For these reasons

and others, the researcher must take careful precautions to not cause harm to research

participants.  The 1979 Belmont Report created by the National Commission for the

Protection of Human Subjects of Biomedical and Behavioral Research (as cited by Nolen

and Putten 2007) identify three ethical principles for all human subject research:  respect

for person, beneficence and justice.  The importance of protecting the research subjects'

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welfare and freedom to choose participation is paramount to conducting an ethically sound

research study.  Research conducted in the k-12 sector of education can be extremely

difficult to ensure that participants have been given ample information and opportunity to

refuse participation. Although this research will not use student data,

intervene with student activity or directly impact students at all, a great deal of attention

has been given to the adult participants to ensure that they participate of their own free

will.

My school district has as a district-wide policy which states that any persons

choosing to conduct research in the district and with district employees and/or district

students must seek permission through the district's Accountability, Assessment, Research

and Evaluation (AARE) office.  Once the office of AARE receives the request and

evaluates the focus of the research, they then contact the schools that have been requested

to participate in the research study.  The principal of the school must grant permission

before any research can begin.  As the researcher in this action research project I followed

the guidelines of the district by requesting permission from the district and the school.

Before gaining permission to conduct research through the office of AARE, I spoke with

the principal of the research site and the lead teacher for the magnet program.  She

identified possible volunteer participants among her staff, but eventually narrowed down

the selection to magnet teachers because they were required to implement PBL, while

other teachers on her staff had a choice of using a PBL instructional model.  I then

attended a team meeting of the magnet teachers and spoke with the teachers implementing

the PBL, explained the research topic, research process and solicited volunteers for the

research.  Upon receiving district permission, I obtained written permission from the

teacher participants.  Teachers were told from the very beginning of the process that this research was for my personal dissertation and participation was not required. The consent forms stressed the right to decline participation, a statement of benefit and lack of risk (Appendix A). Adult participants were assigned a pseudonym for the entire research period, all data collection and reporting. The two teachers that received additional support as a part of the research study were identified by the principal and lead teacher but agreed to by the teachers.  No teacher was offered any compensation for their participation Careful precautions were taken during the data collection process to protect teacher participants. Data collected during and after the research was saved on my personal password protected laptop. Handwritten notes, surveys and interview responses were kept in binder that was lock in my personal desk when not in use.

## Setting

The present action research takes place in a central South Carolina school district with more than 22,900 students. My district is different from all other districts in the state because it is the only school district that encompasses the state's capital city, as well as it covers 480 square miles to include urban, suburban and rural communities.  The district is predominantly black accounting for 73% of the student enrollment, 19% white and 8% other. The school district has a 72% free and reduced lunch rate.  The district has 52 schools/centers, to include 28 elementary schools, nine middle schools, seven high schools, and eight special schools.

Legacy Middle School (pseudonym) (LMS) one of nine middle schools in the district.  LMS is an inner city school first opened in 1961 and eventually moved to a new community in the same feeder zone to a renovated high school in 2009. The 2014 School

Renewal Plan provides the following data. The school is comprised of eleven different communities and apartment complexes. As of 2014 the school had a population of 392 students, 22% special education and 85% free and reduced lunch. The school's test data indicate trending growth in all areas; however assessment performance is still deemed consistently below average. LMS also has worked over the past five years to reduce a suspension rate of almost 32%. Legacy implemented the district's only middle school Montessori program in 2014 and comments from the principal suggest that although the program is progressing and performing well, teachers have not adapted to all components of the model. LMS has two goals that made it a prime location for this research. First, they have committed themselves to providing a variety of innovative, transformative and personalized learning experiences. Secondly, they strive to foster an environment that embraces change and leads to a responsive culture of accountability, communication and stakeholder engagement. The beginning of the 2018-2019 school year the district established leadership magnet programs in two elementary schools as well as LMS. The primary instructional format for all three magnet programs will be PBL.

As a member of this district's school level leadership staff for fourteen years I have seen the implementation of several new programs. My twenty-two years of experience as a public school educator has been inundated with innovation, new programs and the next best thing. Although sometimes bothered by the quick change to the next program I am often pleased with my district's willingness to try something new in an effort to improve student performance. Project-based learning presented itself as a possible solution to a growing concern of meeting assessment performance standards and 21st century skill development. As a middle school principal in this district, I had led an

unsuccessful implementation to a project-based learning instructional model five years

prior to this research. The desire to understand reasons for the unsuccessful

implementation was the basis for my research study. My collegial relationship with the

school principal and previous employment at LMS made it a research site that wasn't a

foreign place. While the fact that I was not a member of the school's staff allowed me a

level of objectivity that I may not have had if I was on the school's administration team.

I approached the entire research study with an attitude of wanting to help. In my mission

to answer my research question I would provide the school leadership with information

that might support a successful implementation of PBL. With the research participants I

provided another layer of support, a place to share their concerns and an opportunity

gather non-evaluative feedback.

## Design of the Study

Researchers that conduct action research identify the stages by varying names.

Mertler (2014) suggest that the many models of action research can be described in four

basic stages; planning, acting, developing and reflecting. Within each of the four stages

detailed steps are taken to ensure the credibility of the entire action research process.

Mertler (2014) explains that stage one- planning includes identifying the topic, gathering

information, reviewing the literature and the development of an action research plan.

During the planning phase of this action research I considered the concerns of my

research site and studied all the ways the present concerns were addressed in the past.

This portion of identifying the topic required that I reflect on my twenty-two year career

in education and the different assignments I have had. I considered previous teaching

assignments in similar schools and the strategies taken to increase academic performance

of the students served.  I then reflected upon programs in which I have led the

implementation process that yielded favorable results and those that did not. Past

experiences were only part of the concern, I also researched and reviewed successful and

unsuccessful implementation of programs by other educators and desired to find the

common element.  Conversations with colleagues, to include the principal of LMS, who

have had similar experiences led to this collaborative research study. The review of

literature discussed in chapter two narrowed the research focus to project-based learning.

Among the many things that the research revealed the benefits of project based learning

includes increased student engagement and opportunities to engage in hands on activities

(Scoggin, Kruger, Jekkal & Steinfeldt, 2017; Larmer, 2009; Lee, Blackwell, Drake, &

Moran, 2014; Wan Husin et al. 2016).  Project-based learning has also been linked to

increased content rigor and successful implementation of 21$^{st}$ century skills (Kaufman,

2013; Edmunds, Arshersky, Glennie, Charles, & Rice, 2016).  With the many benefits of

PBL discovered, several roadblocks to implementation were also identified in the

research.  Educators shied away from PBL implementation due to test-based

accountability (Scoggin et al. 2017; Gosnell-Lamb, O'Rielly, & Matt, 2013), and the

difficulty in implementation and assessing was a recurring theme (Lee et al. 2014; Galvan

& Coronado, 2014; David, 2008).  While the research indicated that implementing

project-based learning has several benefits it also identified several roadblocks. The

discovery of the pros and cons of PBL in the review of literature led me back to failed

attempts to fully implement and sustain newly implemented programs.  I questioned not

the proposed benefits of the innovation as I had earlier but what element appeared to not

be addressed.  In my own experience much of my interaction with teachers during

previous implementations was geared towards convincing them that the proposed innovation was a good idea and not listening to or addressing their concerns. My focus had always been to get the mandate implemented or the innovation proposed was the answer to all our school's ills. After speaking with the principal of LMS, who was embarking on a year one implementation of PBL instructional model about persisting concerns and her desire for the implementation of PBL to be successful the research question; how do teacher perception of project-based learning impact implementation was developed.

## Data Collection/ Analysis

In July of 2018, before district approval for my research was granted the teachers at LMS participated a three day professional development led by Buck Institute for Education (BIE). Because I had already discussed the nature of my research with the principal of LMS she invited me to attend the professional development. The training was led by a BIE paid consultant and attended by teachers from two schools in the district. The three day training entailed a foundational understanding of what project-based learning was and concrete steps to developing a "gold standard PBL" as defined by BIE. Teachers were allowed time to collaborate, share, watch videos of PBLs in action and create at least one PBL unit. I participated in the professional development alongside the teachers, sharing with my group that I was conducting research for my dissertation.

I received permission to conduct research from the district days before the students returned to school for the 2018-2019 school year but wasn't permitted to start collecting data right away as we are prohibited from conducting research during the first two weeks of school. After meeting with the school's leadership and gaining permission to begin,

school was closed for four days in response to Hurricane Florence. After meeting with

research participants upon our return to school and securing their consent to participate

(Appendix A), I left all participants with a copy of the Stages of Concern Questionnaire

(Appendix C) to be retuned via interoffice mail. The SoCQ were September 19, 2018 and

returned by September 28, 2018 except for one which was returned October 5, 2018.

Data from the September administration of the questionnaire was analyzed and used to

provide targeted support to two of the four teacher participants. Teachers were helped in

planning and implementing the PBL, securing resources and materials, as well as

assessing student work. Teachers were not required to accept help and had full autonomy

in what help and how much help was accepted.  During this time period only one

participant sought my assistance early on.  I was asked to review planned PBLs and

provide feedback and guidance.  I also had several phone conversations to talk through

plans and reassure the participant that they were on the right track.  The other participant

receiving support only asked for observational feedback.  All four teachers participated in

a semi-structured interview in October 2018.  Interviews took place either during the

teacher's planning period or after school.  Interviews were limited to 20 minutes and

were guided by the same five questions.  Unstructured classroom observations were

conducted throughout the research study, between the two administrations of SoCQ. The

post administration of the SoCQ was administered in November 2018. The questionnaire

responses were used to generate profile reports using SEDL's SoCQ manual process. The

profile analysis is the most frequently used method to analyze SoCQ data (George, Hall

& Steigelbuar, 2013).

The Stages of Concern Questionnaire was used to monitor the change process of the teachers participating in the implementation of PBL. Hall and Hord (2011) likened innovation implementation to taking a running leap across the Grand Canyon. They suggest that what is needed is an Implementation Bridge. Like real bridges different situations require varying lengths, degrees of stability and levels of support (Hall & Hord, 2011). The SoCQ is one of the supports to the implementation bridge. SoCQ is used to provide the change facilitator with information on what concerns implementers are experiencing at any time during the implementation process (Slough, 2007). The SoCQ is a 35 item questionnaire. Participants respond to the questions using a 0 to 7 Likert Scale. A score of seven indicates that the respondent is experiencing a concern with that item and a score of zero indicates that the respondent is not experiencing concerns with the item. The respondents can choose their specific level of concern by choosing any number between zero and seven along the scale.

For the present research, I customized the questionnaire to fit the implementation of PBL and additional demographic questions were included for the purposes of aggregating data. All teacher participants were provided a hard copy of the questionnaire. Teachers were directed to complete the questionnaire by an established deadline and to return them via interoffice mail in a provided envelope.

The completed SoCQ were analyzed manually following the procedures provided by SEDL (George, Hall & Steigelbuar, 2013). The raw scores generated by the SoCQ were tallied to determine a total raw score in each of the seven stages. Raw scores were then converted to percentile scores according to the percentile chart provided by SEDL. Percentile scores were then used to create the SoCQ profile. The profile indicates the

relative intensity in a specific stage each participant is experiencing. The data reflects the dominant high and low Stages of Concern for each participant.  A detailed description of participants' beginning and ending SoC questionnaires is discussed in chapter four. Once initial SoC questionnaires were collected and classroom observations began all four teachers participated in semi-structured interviews.

Semi-structured Teacher Interviews were conducted as a means to provide teachers an opportunity to express themselves with regards to their experience with PBL implementation. The semi-structured format was chosen because all teachers were only being interviewed once, all interviews would be guided by the same five questions that were developed ahead of time to ensure consistency in topics covered and the data collected could be compared in a relatively reliable manner (RWJF, 2008). Teachers were given the chance to use their words to express their concerns or experience at that time. All interviews were conducted at LMS and at a time dictated by the teacher in a time period established by me.

The interviews were conducted after the pre-administration of the SoCQ and implementation of at least one PBL.  All interviews were scheduled for a twenty minute block of time.  Although I took notes, all interviews were audio recorded and later transcribed for accuracy of information.  Questions were intentionally kept brief, clear and simply stated (Mertler, 2014). Teacher participants were ensured confidentiality of the interview and given an opportunity to review the transcript to verify before reporting.

Questions that guided the interview:

1. What are your current personal/ professional perceptions of project-based learning?

2. Discuss all training you were provided in preparing PBL implementation.

3. What was the most difficult aspect of implementing your first PBL?

4. What changes if any did you make during the implementation of your first PBL?

5. How has your perception of PBL changed from your introduction to the instructional model to now?

The interview notes were reviewed with the transcript of the interviews to ensure accuracy. The transcripts were then compared to SoCQ profiles to look for evidence confirming or disconfirming patterns. Interview transcripts were then printed with a three inch right margin for notes. In the first cycle of coding each interview response was read and interpreted into key words or phrases that captured the essence of the response. This process went through multiple cycles assigning summative descriptors to each response until two themes emerged. The early identified themes were reviewed until more descriptive and inclusive themes were identified. The process resulted in two distinct themes. The use of a three prong approach to data collection mimics the methodology used in Rogers et al. 2011 study on teacher orientations in the first year implementation of PBL instructional approach. Rogers and Rogers and her colleagues interviewed, surveyed and observed their teacher participants for an entire school year in their case study research.

The third means of data collection was unstructured classroom observations. The intent of the observations was to pay close attention to the teacher's level of organization, ease of interacting with students, availability of resources and to detect any teacher frustration. Upon entering the class, I recorded the date and time of the observation,

subject being taught and the focus of the PBL if that was the instructional model being

used, the grade level and gender make-up of the class. The observations were

unannounced and lasted a minimum of twenty minutes (a third of the class period).  I

took notes of all teacher behavior but did not include any student behaviors as the focus is

teacher perspectives.  The observation notebook was kept locked in my desk drawer

when not in use.

The observation notes were used to confirm SoC by identifying behaviors that

aligned with interview responses and SoCQ profile indication.  Observations were also

used to determine if the added support provided to two of the teacher participants had any

noticeable impact in their SoC or classroom behavior.

## Reflection

Mertler (2014) states that reflection is a key component of the action research

process.  The act of reflection is the one part of the process that takes place throughout

the research and again at the end. Reflection is the act of engaging in a critical

examination of your practice as the researcher but also a reexamination of the who, what,

when, where, why and how of the actual research (Mertler, 2014).  Throughout the

research and upon completion of the data analysis phase, I paused to assess concerns such

as whether I have fully answered the research question, were the research methods

appropriate, were there errors in the data collection and analysis, was the researcher

successful in producing valid data, does this research lead to additional research

questions. Certainly, the results of a detailed reflective assessment will drive future

actions. Reflective practice is also an important component of action research because it

is said that the act of reflection leads to teacher empowerment, changes in practice,

production of useful knowledge of teaching and learning and providing a gap between theory and practice (Herbert & Rainford, 2014). Ultimately the purpose behind action research for educators is to improve the educational practice of the participants.  The step of reflecting upon the study conducted should lead researchers to improving and refining their practices.  If this holds true and reflection happens deeply and often then action research has the potential to become cyclical and the cycle of improvement is continuous. Although action research does not call for generalizations about data to be shared with larger populations, the goal is still to "do good" and to do things well (Brydon-Miller et al., 2003).  Therefore, in the reflection phase I intend to share the results of the study with the school principal, lead teacher of the program, the district's professional development department, other school administrators and the district's Director of Magnet Programs.

**Conclusion**

The concerns of time constraints and assessment mandates have driven teachers away from a student-centered engaged learning environment.  Many teachers support the concept of project-based learning but fear that if content information is not delivered directly the time and information lost will be too great of a cost. Teachers also fear change, and that fear can lead to stagnation or poor implementation of programs (Leung, 2008). The purpose of this action research study is to determine the impact of teacher perception of project-based learning on the implementation of PBL.  The research question that drive this study is:  How does teacher perception impact the implementation of project-based learning?  I have used Mertler's (2014) action research cycle of planning, action, developing and reflection to conduct this action research study and to answer the research question. This chapter presented the structure under which the study

was conducted. Purpose of study, setting, participants and data collection procedures. The chapter concludes with a plan for sharing the research findings. The following two chapters will discuss the research results and will provide a detailed discussion of the overall research study.

# CHAPTER 4

## FINDINGS

### Introduction

Project-based learning (PBL) is an instructional delivery model that provides instruction through a student-led project, utilizing 21st century learning skills like communication, collaboration, and critical thinking. The premise of PBL is that students will learn the assigned curriculum by engaging in authentic learning experiences that require real-world application of skills. The implementation of a PBL requires teachers to use non-conventional teaching methods. This action research study was conducted to determine how teacher perceptions of PBL impacted the implementation of the model. Data collected in the present action research was used to answer the question: *How do teacher perception towards project-based learning impact implementation of a project-based learning curriculum?*

Four teachers from Legacy Middle School (LMS) (pseudonym) with varying amounts of experience with project-based learning were assigned to staff a newly developed PBL magnet program within the traditional school setting. All four teachers were provided the same three day PBL professional development led by the Buck Institute of Education, two of the four teachers had received prior training from other school systems. This research project focused on the perceptions of teachers towards project-based learning and to the extent, this perception changed throughout the research.

To answer the research, question the research participants were administered the Stages of   Concern Questionnaire (SoCQ) after the professional development but before implementing their first PBL.  The SoCQ was administered again at the end of the research period 10 to 12 weeks later.  All research participants also participated in a semi-structured interview and multiple classroom observations.

## Data Collection

Four middle school teacher-participants are the subject of the present action research.   Data collected from September 19, 2018, to November 30, 2018, included eleven 30 to 50 minute observations with field notes, two administrations of the SoCQ and semi-structured interviews for all four teachers.

### Stages of Concern Questionnaire

A copy of the standard 35 question SoC Questionnaire produced by Southwest Educational Development Laboratory (SEDL) (2006) was provided to all participants the second week of September.  Three of the four questionnaires were returned the week of September 17th via school district interoffice mail.  The fourth survey was returned on October 5, 2018.  The questionnaires were scored and graphed to reveal the stage of concern for each teacher participant prior to embarking on the first PBL unit at LMS. The data from the initial SoC questionnaire was kept in mind as I conducted classroom observations.  Teachers were left with a second copy of the SoCQ after all classroom observations and the five question semi-structured interviews were conducted.  Teachers were given two weeks to complete the survey.  All surveys were collected on November 30, 2018, except one.  Brenda's father became ill and subsequently passed away causing

her to take a leave of absence from work after her final interview.  Her second survey was not collected.

**Classroom Observations**

Eleven classroom observations were conducted during the data collection period.  Both Brenda and Stephany were observed twice, once during a morning class and once during an afternoon class.  Amy was observed three times and Matthew was observed four times.  In addition to classroom observations, Matthew and I spoke three times on the phone, sent several emails and debriefed after each observation.  Observation notes were collected in the researcher's notebook and analyzed to determine if classroom behaviors aligned with the initial SoCQ survey and semi-structured interview responses.

**Semi-Structured Interviews**

Data was also collected through semi-structured interviews. Interviews were scheduled at the teacher-participant's convenience and began after all teacher-participants had been observed at least once. Semi-structured interviews were audio recorded and later transcribed by the researcher.  The transcripts of the interviews were then coded using methods detailed by Saldana (2013) as major patterns and trends emerged.  Trends from the interviews were analyzed to confirm or disconfirm what was revealed in the initial SoCQ survey and classroom observations. The coding process includes capturing the essence of the interview response in a phrase or single word that communicates the meaning of the response.  The coding of interview notes was a multi-cycle process that resulted in two emerging themes.

Following the initial SoCQ administration and semi-structured interviews, the participant-researcher and teacher-participants met to discuss the data collected thus far. The researcher took notes during the discussion for the sole purpose of developing codes. The group discussion helps to clarify observational notes, interview responses and to describe prominent themes.

## Findings of the Study

The four middle school teacher-participants who were subjects of this action research study were Matthew, Brenda, Amy, and Stephany. A detailed description of each participant and the data collected from them can be found in their section of this chapter. After a discussion of individual teacher-participant data, I will discuss the general findings and themes that emerged from the data.

The data indicated that all four teacher-participants are fond of using project-based learning as an instructional format in their classes. Three of the four teachers were observed implementing a PBL during the data collection period. All four teacher-participants unanimously agree that the transition from a traditional teaching format to a student-centered, hands-on format like PBL takes practice over time. Although they all agree that they are still fond of PBL their perception surrounding implementation has changed slightly. The following section is organized by each teacher-participant. A detailed description of each teacher-participant is followed by an in-depth summary of their interview, description of their classroom observations and an analysis of their Stages of Concern Questionnaires.

**Matthew**

**Participant Information.** Matthew is a thirty-something African-American male math teacher. He is the only male teacher on the team. He has been teaching for five years three of which have been spent at Legacy Middle School. He has expressed an absolute love of teaching and deep interest in project-based learning. Teaching is a second career for Matthew as he was a vendor at the airport before going into education. On first impressions, Matthew is outgoing, talkative and greets you with a big smile. He is a man of small stature but big personality, married without children. Upon meeting Matthew, the summer of 2018 during the BIE training, it was clear that he was an open-minded teacher. Asking a lot of questions during professional development and using the time to get as much help as possible. His eagerness to try new strategies was obvious early on in the study. When given the opportunity to participate in the research, Matthew leaped at the opportunity to get as much help as possible. Because he was a novice teacher and new to PBL, Mrs. Sanders (pseudonym), the principal, thought he would be a great candidate to receive extra help. As I explained the nature of assistance I was offering, Matthew gave a resounding yes.

**Stages of Concern Questionnaire.** Matthew returned the initial SoCQ on September 19, 2018. I immediately scored his response as it would provide guidance for the kind of assistance that would be offered during the data collection period. His initial questionnaire indicated a high level of awareness about the PBL implementation. He also scored a relatively high percentile score, 80 in the area of information suggesting that he was open to receiving more information about the innovation. Matthew's raw score of 30 in the area of management did not come as a surprise, because he expressed early and

often his concerns about managing his classroom if the goal was to allow for it to be student-centered," I think I can handle all of my classes but my sixth grade regular class. It is my largest class with lots of behavior problems." Being a math teacher, he was also concerned that he would struggle to properly cover the required content through project-based learning. His lowest score on the initial questionnaire implementation was in the area of consequence which suggests that he was not concerned about the impact PBL would have on students. In our first phone conference, Matthew expressed that he was excited about implementing a PBL and thought the students would like it, but he was feeling nervous about getting started. This score is supported by his immediate buy-in to using the strategy. A percentile score of 28 in the area of collaboration and 52 in refocusing is consistent with a teacher new to the innovation. Matthew scored items like item five from the questionnaire, "I would like to help other faculty in their use of PBL," as a 1 indicating that he is not at a place where he can provide any assistance to others. His percentile score of 52 in the area of refocusing indicated an awareness that he needed to adjust his approach to PBL but was not ready to make adjustments to the innovation as a whole. The table below displays Matthews's raw scores, totals and percentiles for both administrations of SoCQ.

Matthew emailed me the week of September 24, 2018 asking if I would review his plans for his first PBL unit. I responded with suggestions and questions for him to ponder. We held our first of three phone conferences on Saturday, September 29th. We discussed his plans, student performance, his apprehensions and concerns. I provided welcomed suggestions of how to divide his class to include mini lessons where he provided necessary content and how to ensure that the chaos, he feared was manageable.

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I was also able to help Matthew tailor the PBLs he found online to fit the experiences and levels of the students he taught. I also provided observation feedback for the four classroom observations. As the semester went on, I could see that Matthew became more at ease with the student-centered nature of his class and planned lessons that had less of him as the center of the class. By the third observation, Matthew only provided students instructions at the beginning of class and facilitated a wrap-up discussion at the end of class. He did not stop the entire class to address any concerns as he had done in previous observations. The second administration of the SoCQ to Matthew indicated a certain change in his perception of PBL.

**Table 4.1 Matthew's Initial and Second SoCQ Item Responses**

| Raw scores for Matthew's SoCQ questionnaire | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SoC | Awareness | | Information | | Personal | | Management | | Consequence | | Collaboration | | Refocusing | |
| | 6 | 1 | 6 | 5 | 0 | 6 | 7 | 7 | 2 | 3 | 1 | 1 | 2 | 5 |
| | 1 | 2 | 6 | 5 | 1 | 6 | 5 | 6 | 2 | 3 | 2 | 6 | 3 | 6 |
| | 6 | 3 | 4 | 6 | 2 | 6 | 7 | 6 | 3 | 6 | 2 | 4 | 2 | 7 |
| | 4 | 5 | 4 | 3 | 7 | 6 | 6 | 7 | 4 | 5 | 3 | 6 | 4 | 5 |
| | 5 | 6 | 2 | 3 | 3 | 6 | 5 | 7 | 4 | 5 | 7 | 6 | 6 | 5 |
| Tot. | 22 | 17 | 22 | 21 | 13 | 27 | 30 | 32 | 15 | 22 | 15 | 24 | 17 | 28 |
| % iles | 99 | 94 | 80 | 75 | 52 | 89 | 97 | 98 | 16 | 38 | 28 | 64 | 52 | 92 |

The second SoCQ was collected on November 30, 2018, two and a half weeks after the final interview. Matthew's second SoCQ indicate that his concerns in the area of personal rose significantly, from a percentile score of 52 in the initial questionnaire to an

89 on the second administration. In follow-up conversations, Matthew indicated that as the semester went on there was little clarity from school leadership as to how the PBL implementation was supposed to happen alongside traditional school responsibilities such as benchmark testing. Matthew's concerns about management remained high. His concerns for covering required content was not lessened and led to him deciding not to implement any PBLs in his 8th grade class where he was required to teach 8th grade math and Algebra I, preparing students for both the state eighth grade standardized test and the Algebra I End of Course exam. Most notably his scores for collaboration and refocusing both rose during the data collection period. From a percentile of 28 and 52 to 64 and 92. Table 4.2 is a graph of Matthews initial and second SoCQ.

**Table 4.2 Matthew's SoCQ Percentile Scores**
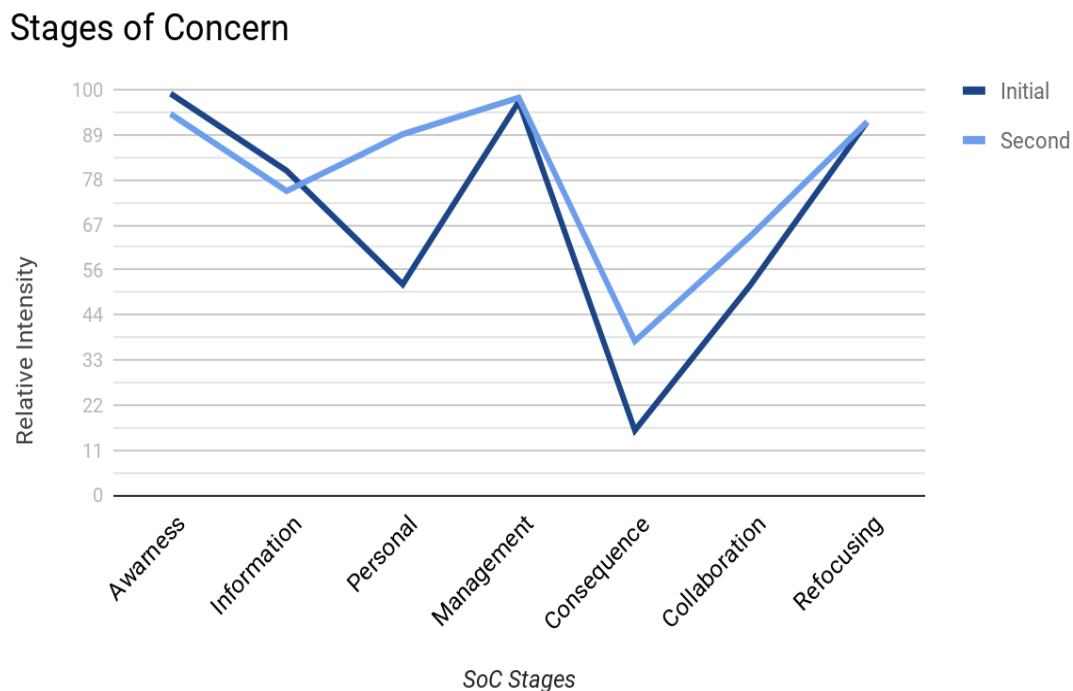


Matthew expressed a desire to have more opportunities to work with other teachers. Matthew was bothered by the schedule that did not allow all teachers

implementing PBLs to have common planning time. He expressed his frustration, "We don't even have common planning. I share about 30 minutes with Brenda but the only time we all get together is once a week before school." He also could see how he could alter PBLs to make more sense for his students.

**Observational data.** One of the projects that Matthew implemented was about nutritional facts at a fast food restaurant entitled, "Would you like fries with that?" The goal of the PBL was for students to answer the driving question, *how does displaying menu items in terms of minutes of exercise instead of calories affect what people order*? Students were to be separated into groups to complete a number of tasks to include researching menu items and calories, determining the weight of a person and types and amount of exercise needed to burn x number of calories, survey others about eating habits, graph statistical data and so on. Matthew launched the PBL with an activity about celebrities, their diets, and exercise routines and how much they weighed. Because a career component had to be incorporated in every PBL, Matthew decided to name team leaders and have them interview their team members as if they were applying for a job. The interview activity took place the day after the launch activity of the project. I entered the class on the morning of the interview activity. Matthew started his grade level, sixth grade class with a bell ringer. The class consisted of 19 students eleven boys and eight girls. As students entered the class the bell ringer assignment was present on the board students immediately began discussing the topic, unhealthy snacks and healthy snacks in their groups. During the class share time that followed students yelled out the answers. Some inappropriate behavior was addressed, "Guys settle down. Let's stay on topic." However, several examples of yelling out answers and off topic comments went

unaddressed.  Once the teacher introduced the PBL and assigned new group leaders, students were supposed to walk around to the group leaders and interview for a chance to work on their team.  Matthew had a well-defined plan of how students were supposed to get into groups, but he did not have a plan for what students were supposed to do while they waited.  While team leaders interviewed students for the chance of being in their group other students waited idly about the class.  Either they had been selected or they were still waiting to be interviewed. This idle time for students caused off task behavior to ensue. Matthew walked around to the teams asking guiding questions for team leaders. "Have you selected a good team member, or did you select your friend?"  There did not seem to be much of a plan for the remainder of the period. The goal of the day was to be interviewed for your PBL group.  Because this was an attempt to incorporate the career focus with the PBL structure. This was not indicative of all classroom observations.

Matthew always had a good bit of talking out across the classroom, but he seemed to manage it.  The talking did not appear to distract from accomplishing the lesson objectives. Of the four lessons observed only two used a project-based learning format.  Matthew seemed more in control of his seventh grade class.  Seventh grade math was labeled academically advanced and only had 8 students while his 6th grade class was grade level math and comprised of nineteen students. During his 7th grade math class students completed the bell ringer and immediately began working on their projects that were already in progress.  The talking appeared to be mostly about the assignment and there was little off task behavior.  Again, Matthew popped in and out of groups asking guiding questions and stopping the entire class to provide guidance when he saw a trend of misunderstanding.  "Okay, guys give me your attention for just a minute.  A lot of you

are getting stuck with developing a price list.  That portion does not have to be difficult.

Go online or use the sale papers for some ideas."  He went on to remind students to refer

to the assignment sheet for guidance.  The other classes observed were in the midst of

required benchmark testing and 8th grade Algebra I that was not using the PBL model.

   **Interview data.** When asked about his personal perception of PBL, Matthew

responded that he thought it was a great thing.  He liked that it got students thinking out

of the box, but he was also concerned that he lacked the support of a resource person to

help organize the PBL. "If there was someone to say, hey I know you need a speaker, let

me go find that person. As a first-year teacher, I need the help." Matthew described his

concerns as "red tape," the trouble he had to go through to get a speaker, items for the

class or an audience for presenting projects. Matthew stated that he considered the

support provided by the researcher as the only additional training other than the three day

professional development offered by BIE. When asked about the biggest obstacle to

implementing his first PBL, he responded, "Me.  My mindset, the unknown.  Not

knowing what to expect."  When asked about changes made to his PBLs, he responded

the timeline had to be altered.  He had to slow down the pace which extended his timeline

making the entire unit longer.  Matthew was asked if his perception of PBL had changed

and he responded that it hasn't.  "I have always thought it was a great instructional

practice.  I think it has the potential to change the classroom."  He did go on to express

that he felt it would take years to perfect it and felt that the current school was trying to

implement too many initiatives at once.  This last thought would prove to be a trending

concern. Matthew's data revealed that he is a traditional non-user of project-based

learning with some concerns that need addressing soon.  Although he remains supportive

of the instructional model, he desires a great deal more support.

**Stephany**

**Participant Information.** Stephany is a thirty-something, white female, science

teacher. She has been teaching for fifteen years.  She has one daughter that attends

LMS's Montessori program.  This is Stephany's first year teaching at Legacy when she

was hired, she was originally told that she would be in the Montessori program.  The

opportunity to teach Montessori is one of the reasons she came to LMS.  Unlike the other

teachers, Stephany has had extensive training with project-based learning.  In her years of

teaching, she has had training for gifted and talented instruction that introduced problem-

based learning and the flipped classroom concepts.  In her previous district, she was

trained through the Buck Institute of Education and had ongoing professional

development for project-based learning.  Stephany's previous school implemented PBL

school-wide which made collaboration much easier. Stephany came to teach through a

traditional teaching preparation program and brings with her a wealth of pedagogical

knowledge.

**Stages of Concern Questionnaire.**  Stephany's initial SoCQ was not submitted

until October 5, 2018.  Her scores for awareness, management and consequence were all

in the high 80 percentiles, 87, 85, and 86 respectively.  This indicates that she is well

aware of the concept of PBL, is not overly concerned about managing her classroom or

the changes in instruction that the innovation presents and is reasonably comfortable with

the impact PBL will have on her students. Her percentile score for personal is a 57

suggesting that she has some concerns for how the innovation will affect her

personally.  Item 13 of the questionnaire, "I would like to know who will make the decisions in the new system," Stephany responded that the statement was very true.  In casual conversation, Stephany shared that she was most concerned about the leadership structure with this being a new initiative for LMS. Stephany's scores on refocusing were the lowest of her questionnaire.  After reviewing her individual item responses, it appears that she has no desire to replace PBL but would like to find ways to review her implementation to address her student needs. Table 4.3 displays Stephany's raw scores from the SoCQ for both the initial and second administration.

**Table 4.3 Stephany's Initial and Second SoCQ Item Responses**

| Raw Scores for Stephany's Initial and Second Questionnaire | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SoC | Awareness | | Information | | Personal | | Management | | Consequence | | Collaboration | | Refocusing | |
| | 1 | 1 | 1 | 2 | 1 | 5 | 7 | 5 | 7 | 5 | | 7 | 1 | 1 |
| | 4 | 3 | 7 | 7 | 6 | 5 | 4 | 6 | 4 | 5 | 5 | 7 | 1 | 4 |
| | 5 | 4 | 7 | 7 | 4 | 7 | 4 | 5 | 7 | 7 | 7 | 7 | 1 | 5 |
| | 2 | 3 | 3 | 7 | 3 | 7 | 3 | 7 | 7 | 7 | 7 | 7 | 5 | 5 |
| | 3 | 5 | 1 | 7 | 1 | 7 | 5 | 4 | 7 | 7 | 7 | 7 | 7 | 7 |
| Tot. | 15 | 16 | 19 | 30 | 15 | 31 | 23 | 27 | 32 | 31 | 26 | 35 | 15 | 22 |
| % iles | 87 | 91 | 69 | 97 | 57 | 95 | 85 | 94 | 86 | 82 | 72 | 98 | 11 | 73 |

Stephany's second questionnaire was collected on November 30, 2018.  Her overall score on the second questionnaire is more reflective of a teacher that has experience with project-based learning.  She scored in the 90th percentile in five of the seven areas.  Scoring an 82 in consequence and a 73 in refocusing.  Stephany's classroom

observations and interview responses support such high percentile scores on the questionnaire.

   **Observational data.** When I entered Stephany's classroom the first time, I got the distinct impression that she was not new to project-based learning. Her bulletin boards were all organized with driving questions for projects, big ideas, and project organizational tidbits. The class was comprised of 19 students. As students entered the classroom, she gave clear directions as to where to sit. "Please take a seat at tables one, two or five". When a few students decided that they would sit somewhere different she quickly restated her directions and redirected the students. The first part of the class was dedicated to finishing the independent work on a project in progress.

**Table 4.4 Stephany's Initial and Second SoCQ Percentile Scores**
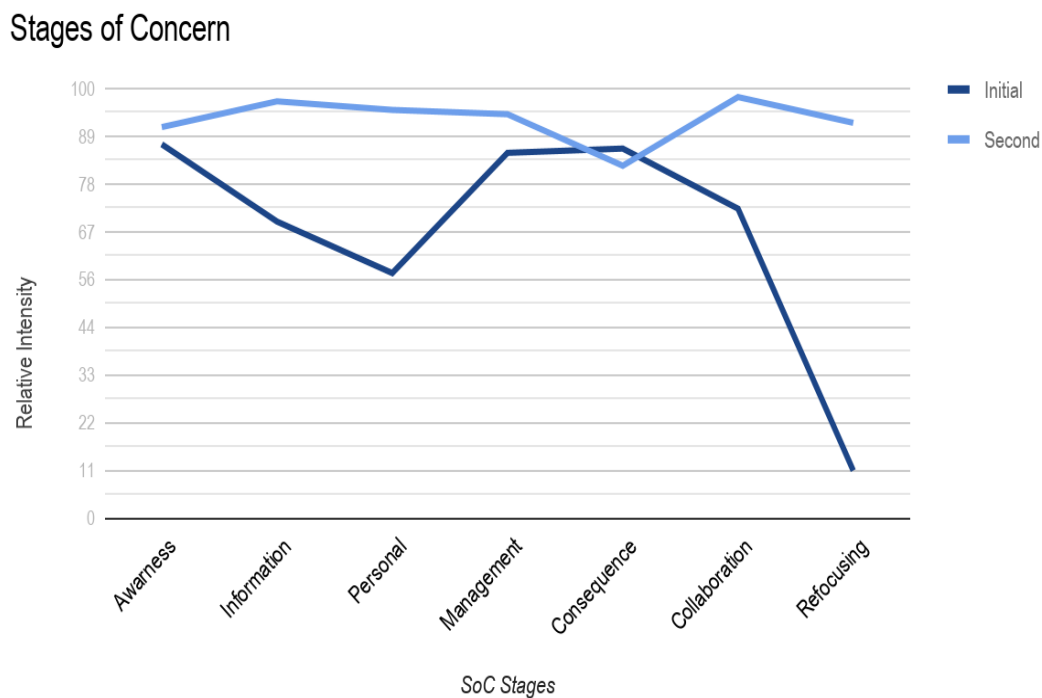


While students worked, Stephany met with individual students asking questions that required students to look deeper into their chosen topic. She discussed the importance of

data collection with every student she conferenced with. During a whole group discussion, she asked students to consider what problems needed to be fixed and gave directions for the next steps. Students were directed to look at the board, while she explained homework. The students lined up and exited the classroom orderly. In the few minutes between class periods, Stephany and I discussed her impression of her student's performance in the PBL model. She expressed that she felt the student's prerequisite skills were on par with other students their age. She felt that their understanding of science process skills was strong which made it easier to teach the grade level content. The one area of concern was technology. She felt that the students did not have the technology skills she would assume students their age would have especially with the access to the technology they have had. She did add that they were fast learners.

The second observation in Stephany's class was equally as organized and productive. Students were reminded why they were working with a partner because they were embarking on a more detailed project. The students participated in a partner lab experiment after Stephany provided a mini-lesson with a short review of the previous lesson. Students were previously assigned group member jobs and were able to execute their assigned tasks with ease. Materials for the lab experiment remained on a side table until directions were given, which reduced any distractions they may have caused.

When asked how she came to develop such an organized classroom, she responded, "Giving clear and precise instructions helps to establish an organized, well-managed classroom." Stephany's high scores in management on her SoCQ were evident in her classroom observations. The years of practice with a flipped classroom and project-based learning that she had prior to LMS helped her to develop a routine for

grouping students, delivering content and developing a student-centered classroom that was all directed by the teacher.

**Interview data.** After years of use, Stephany's perception of project-based learning was that it was a great way for students to go deeper in their learning. She added that PBL allowed her to sneak in necessary information once students were interested in a topic. As mentioned, early Stephany's training in PBL was beyond the three day training offered by LMS through BIE. When asked if she had not had the previous training where would she be with just the training offered by Legacy, Stephany responded, "Interested but not prepared." She went on to explain that she would feel isolated because not everyone was participating in the PBL initiative. When asked what the most difficult part was of implementing her first PBL, Stephany responded," The difficult part of implementation was flipping that learning. Realizing that I didn't teach then do a project. The project revealed the learning." We discussed the changes she has had to make to projects this year. She expressed that trying to include a career aspect to the project proved to be too much and she had to focus just on the science content. With the many hurdles she has faced with project-based learning, Stephany still feels that PBL is a really good way to teach. Stephany's years of experience and training with project-based learning was evident in her data. Her love of the instructional model has not diminished, but management concerns are growing.

**Amy**

**Participant Information.** Amy is a twenty-something, white female. She teaches three blocks of social studies and one block of science. She has only been teaching for two years, she worked as an optician prior to becoming a teacher. All of her

teaching experience has been at LMS, teaching in their traditional program.  Amy is an

eager teacher, willing to try new strategies in her classroom.  Amy shared with me that

she learned about project-based learning in her undergraduate program, although most of

the instruction was focused on problem-based learning.

During the planning meeting with the school's leadership, Mrs. Sanders suggested that

Amy would be a good candidate to receive assistance, because of her multiple preps and

lack of teaching experience.  However, when presented the option of receiving additional

help implementing PBLs, Amy was not eager and only asked for observation feedback.

     **Stages of Concern Questionnaire.** Amy's initial SoCQ suggests that she could

have used a little help.  Her percentile score for awareness was a 40, suggesting that she

was aware of PBL but not all-knowing.  The high percentile score of 88 in the area of

information indicated a desire to know more about the innovation. Her responses to items

14, 15, and 26 suggest that she was very interested in knowing more about resources

available and the immediate requirements of the implementation.  Interest in knowing

more does not align with a lack of desire to receive more assistance when offered.

Amy's initial questionnaire does exhibit a concern for managing non-academic tasks and

PBL requirements.  Scores in the area of collaboration and refocusing are consistent with

a teacher new to the innovation.  Un-readiness to support others but an openness to

collaboration. As the semester went on, Amy's comfort with PBL appeared to grow

which was evident by her second SoCQ.  Amy's percentile scores increased in all seven

areas analyzed by the SoC questionnaire. Her greatest gain was in the area of awareness,

moving from an initial percentile score of 40 to a percentile score of 91 in just over two

months. In the area of consequence, she only gained five percentile points, suggesting

that her concern for the consequences PBL will have on her practices and students have not changed greatly.  The most surprising aspect of Amy's second SoCQ was the increased percentile score in the area of refocusing.  Her second SoCQ refocusing percentile score of 97 indicates a teacher that is comfortable enough with the innovation that they can now incorporate their own ideas for improvement.  This behavior has not been observed during classroom observations nor was it clear during the interview.  After observing and talking with Amy throughout this process, her high scores in the refocusing stage is more likely attributed to the way implementation took place at LMS and her ideas of how to improve the implementation process.

**Table 4.5 Amy's Initial and Second SoCQ Item Responses**

| Raw Scores for Amy's Initial and Second Questionnaire | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SoC | Awareness | | Information | | Personal | | Management | | Consequence | | Collaboration | | Refocusing | |
| | 2 | 2 | 3 | 4 | 4 | 6 | 5 | 5 | 4 | 4 | 2 | 3 | 6 | 6 |
| | 1 | 2 | 5 | 5 | 4 | 5 | 0 | 2 | 2 | 2 | 5 | 7 | 2 | 6 |
| | 3 | 5 | 7 | 7 | 3 | 6 | 5 | 5 | 6 | 6 | 3 | 3 | 2 | 6 |
| | 1 | 2 | 5 | 6 | 2 | 5 | 6 | 5 | 7 | 6 | 7 | 7 | 3 | 6 |
| | 1 | 5 | 4 | 5 | 5 | 6 | 3 | 3 | 4 | 6 | 3 | 7 | 5 | 7 |
| Tot. | 8 | 16 | 24 | 27 | 18 | 28 | 19 | 20 | 23 | 24 | 20 | 27 | 18 | 31 |
| % iles | 40 | 91 | 88 | 93 | 67 | 91 | 73 | 77 | 43 | 48 | 48 | 75 | 57 | 97 |

**Observation data.** During the first visit to Amy's class, a discussion about a multimedia project was observed.  After students completed the Get Started and took notes from a PowerPoint presentation, Amy turned everyone's attention to the project on world religions. Although intended for students to select the multimedia device they

would use to present their understanding of world religions, all students chose to complete a PowerPoint presentation. When asked why all students were doing a PowerPoint, she responded that the students lacked the know how to do anything else. She went on to explain that she took a great deal of time teaching the students how to create a PowerPoint, add slides, use a jump drive and how to transfer information. The project groups were not deliberately selected, nor was it clear how the project was to provide an opportunity for learning as notes for world religion was a part of the daily lesson.

Table 4.6 **Amy's Initial and Second SoCQ Percentile Scores**
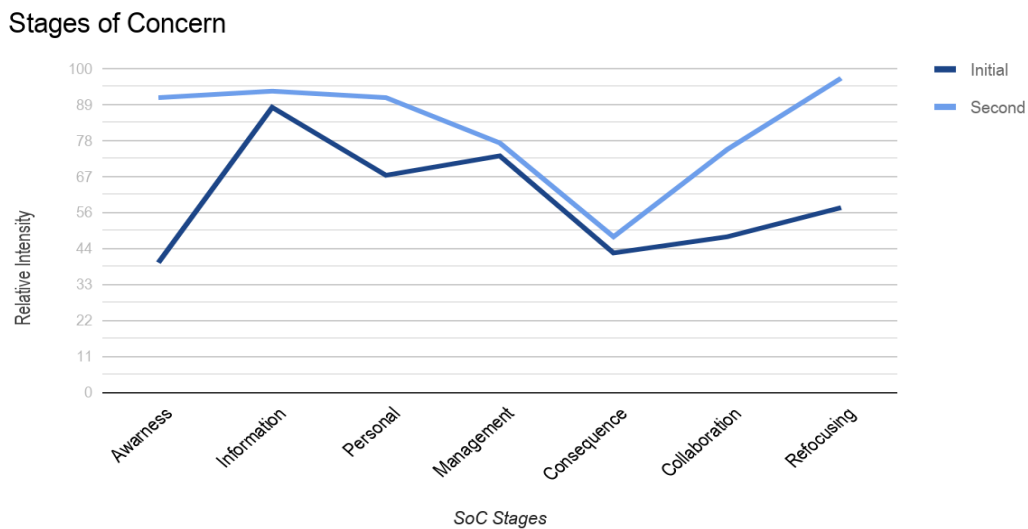


This example lesson was indicative of the other lessons observed in Amy's class. The students were often chatty and off task as she provided instruction. In one lesson she attempted to have students work through an activity that exhibited the unfair imbalance of kings and queens taxing their commoners using candy as currency. "Okay if you have a black book bag, pay your king five pieces of candy." Student responses, "No," "My bag is black and white," "Not fair." The students laughed and talked

throughout the activity, fighting over candy at some point, but there was no summary or closure to the lesson.  The activity ended with, "Put your chairs back, clean your area and prepare for dismissal." Students were never observed participating in a project at any point in Amy's class.

**Interview data.**  Although Amy's perception of project-based learning was that it was generally a good idea allowing students to take ownership for their learning, she found it difficult to implement across different curriculums. She found the most difficult part of implementing a PBL was the planning and timing.

> It's a good idea and it allows students to take ownership. It's just difficult when we try to implement it across the different curriculums. Trying to make sure its career based it would just be easier to either be a PBL or a career based lesson, but both is just too much.

It is important to note that the plans for PBL implementation were that the first PBL would be a joint cross-curricular, career based PBL.  Once the school year began the days out of school for inclement weather and varying pacing guides caused the timeline to be adjusted.  A follow-up question of, are you in the midst of a PBL now or working out the timing? Amy's response was "No we don't have planning together, so we never got it going. So, it looks wonderful on paper but when we went to implement it was a different story." The other teachers altered their plans and completed some portion of the PBL, however, Amy did not implement a PBL.  When asked how her perception has changed from the time she heard about project-based learning to the time of the interview, Amy responded that she now understood the differences between problem-based learning and project-based learning.  She also expressed that planning a PBL was quite different from

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implementing a PBL.  Amy's main concerns from implementing a PBL curriculum is that timing and planning was her biggest hurdle.  She also felt overwhelmed by teaching multiple grade levels and courses. Amy's data revealed that although not resistant to the instructional model she was incapable to move from the planning to execution phase. Her refusal of additional help coupled with her concerns for logistical obstacles leads me to believe that she is in need of more professional development and guided support.

**Brenda**

**Participant Information.**  Brenda is an African-American female in her early forties.  She is a single mother of two small girls about whom she talks often.  Brenda is not a native southerner and refers to her teaching experiences in other states and schools frequently.  Brenda has been teaching for twelve years and is in her first year at Legacy Middle.  I had the benefit of supervising Brenda at her previous school where she served as an eighth grade English teacher and I was her principal for three years.  Brenda states that she has been using project-based learning in her classroom for many years, although she does not name any specific training received.

**Stages of Concern Questionnaire.** Brenda's initial SoCQ indicated a high awareness of project-based learning with a percentile score of 99. Her percentile score of 48 in information indicated that she felt pretty informed about the instructional strategy and was most interested in learning about available resources.  Brenda's lowest SoCQ score was in the area of consequence with a percentile score of 27 suggesting that she had little concern about the impact of the innovation on her instruction or students and supporting her stated belief that PBL is a beneficial instructional strategy.  Brenda's second highest score was in the area of management, a percentile score of 83.  This

confidence in management was observed in each of her classroom observations.  Most

interesting aspect of her questionnaire was her score on collaboration, a percentile of 31.

A careful review of the items in the area of collaboration indicate that Brenda is very

willing to work with other teachers, however, she has no desire to take on a leadership

role. Nearing the end of the data collection period Brenda's father became ill and

subsequently passed away, therefore she did not complete the second SoCQ.

**Table 4.7 Brenda's Initial SoCQ Item Responses**

| Raw scores for Brenda's initial SoCQ Raw Scores | | | | | | |
|---|---|---|---|---|---|---|
| SoC | Awareness | Information | Personal | Management | Consequence | Collaboration | Refocusing |
| | 1 | 1 | 7 | 7 | 1 | 1 | 3 |
| | 7 | 2 | 1 | 5 | 2 | 5 | 1 |
| | 7 | 7 | 1 | 4 | 2 | 1 | 1 |
| | 2 | 1 | 5 | 1 | 7 | 7 | 6 |
| | 6 | 1 | 2 | 5 | 7 | 2 | 7 |
| Totals | 23 | 12 | 16 | 22 | 19 | 16 | 18 |
| Percentiles | 99 | 48 | 59 | 83 | 27 | 31 | 57 |

**Table 4. 8 Brenda's Initial SoCQ Percentile Score**



Stages of Concern

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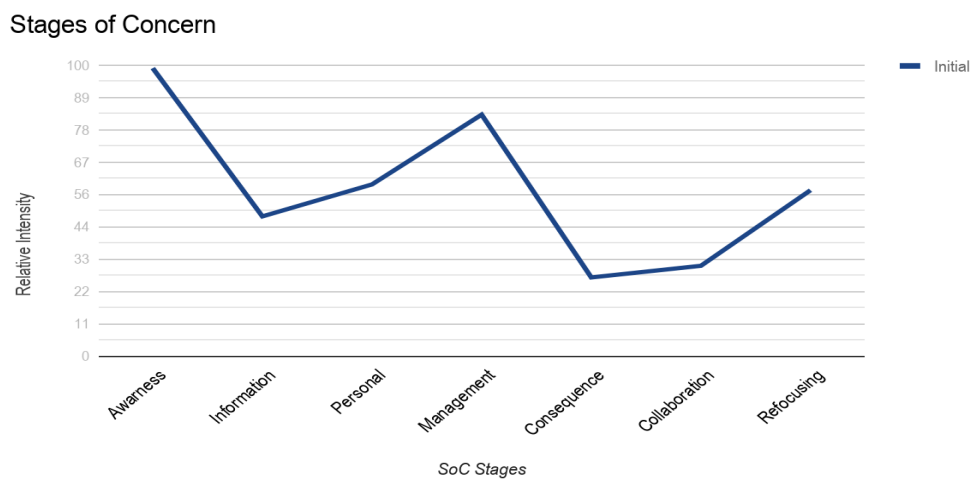
**Observation data.** Brenda's familiarity with project-based learning was evident in every class observation. In the first observed lesson, she led students through a process of going deeper into their thought process as they chose project topics. She posed broad questions to pre-assigned groups for discussion and encouraged the group mates to play devil's advocate. "What would you do if you were President? You couldn't talk to someone like that if you were President. Don't hesitate to say but, what if." Students were instructed to develop lists of possible topics for their upcoming research and to ensure that every group member is equally involved. "Stop and mentally assess how you are communicating in your group. If someone in your group has not shared, they get the stage now." Brenda informed students that next week they would choose their topic and begin data collection. In the other observation, Brenda reminded students of research recently completed and spent the observation conferencing with each student. As she realized a common misunderstanding, she quickly called the class back together for a quick explanation. "Let me get your undivided attention. Based on all the ideas accumulated this week you must narrow down to the top three issues you will focus on. Everything discussed is good, but you can't research all of them." In both observations, students were in the midst of conducting a project. Whole group, teacher-led instruction was minimum. Brenda's SoCQ suggested a high awareness of PBL and comfort with management, both of which was supported by classroom observations. The class was student-centered, with rich student discussion and collaboration. There was only one time that student behavior had to be addressed, students were quickly redirected with little effort. "Don't tell each other to shut-up that is not productive."

**Interview data.**   Brenda is a very outspoken teacher, one that does not shy away from sharing opinions. In our previous work together, she chaired the English department and often requested meetings to discuss topics from curriculum pacing to student behavior.  During this study, her comments were supportive of the leadership of LMS but critical.  "I follow directions, but you know I don't mind asking questions."  "Like, what are you going to take off our plate with these added planning responsibilities?" When asked her perception of project-based learning, she stated, "I love project-based learning, but I find it to be in contrast with the more traditional learning styles of pacing guides and CFA's [checking for understanding assessments] and other requirements."  Brenda could not recall any training or support received to prepare them for project-based learning beyond the three day training offered the summer before the school year started. She went on to explain that during the summer training they planned a couple of cross-curricular PBLs but have not been able to implement them due to planning and scheduling constraints. Once Brenda made the decision to break away from the plans of the group, she found the most difficult part of implementing her first PBL at LMS was the lack of work ethic of the students.  She said that she is used to being able to give students the project sheet and letting them go, this group of students needs a lot more guidance.  When asked about adjustments made to her PBLs this year, she said, "I wish it was like pre-k, they don't get grades during the first quarter."  She thought it would be good to get to know the students to gather qualitative data before grading their work. Brenda was asked if her perception of PBL has changed over time.  She answered by explaining "When I was first introduced to PBL we were not held to pacing guides. We were able to pull from the curriculum where we need to. The pacing guide is a real big

hindrance, trying to fit that and it doesn't fit." This concern about pacing guides helped to identify the theme of policy interference. Brenda's previous fondness of PBLs was lessened by the requirements to follow pacing guides and assessments. Although still a fan of PBLs she finds that implementation is greatly impacted by school and district policies. Brenda's data indicates that she understands the project-based learning process and has the capacity to implement successful PBL units of study. Any concerns that linger can be easily addressed by school level administration.

### Interpretation of Findings

After the initial administration of SoCQ, several classroom observations, and semi-structured teacher-participant interviews the participant-researcher joined the teacher-participants and their lead teacher during one of their regularly scheduled 7:15 am, before school meetings. We discussed the results of their initial survey and their concerns for the implementation of project-based learning. The researcher shared with the teachers-participants observations from their classrooms that confirmed or disconfirmed their SoCQ survey. Discussion notes along with class observations notes, SoCQ 1 and 2, semi-structured interview data were analyzed. Semi-structured interview data were coded identifying recurring words or phrases. The data were analyzed for recurring contributing factors to identify themes. Two major themes of the research study were identified. Theme One- Organizational Culture and Climate; Theme Two- Organizational Knowledge and Skills. These two themes were used to determine the action steps for the action plan in Chapter Five of this dissertation.

**Theme One:  Organizational Culture and Climate**

The data from this research study identified scheduling, pacing guides, cross-curricular projects, career exploration and teacher perceptions towards students as obstacles to successful project-based learning implementation. These factors can all be interpreted as culture and climate concerns. Communicating the mission and vision of an organization begins with the organization's leadership. Establishing expectations for practices for individuals in an organization are communicated through written and unwritten methods. Implementation of a new program must be considered with respect to how it will fit with ongoing initiatives and previously established policies and procedures. This includes providing staff clarity on their expected roles and responsibilities, assessing their openness to change and leadership's dedication of resources to support the innovation.  These practices will reflect the leadership's commitment to the practice or program.

At LMS the master schedule is developed by the school leadership team.  The master schedule dictates when and how long classes are taught.  It also identifies teacher planning time.   Additionally, school protocol suggests that teachers adhere to district issued pacing guides to determine when and how long a curriculum standard is taught. Brenda, Matthew, and Amy indicated that the bell schedule did not allow for any common planning for teachers in the magnet program. The teachers met before school once a week which Brenda admitted she was always late to because of daycare drop off.  Therefore, when the school year began and the team realized that their pacing guides and individual class curriculum did not align with the planned cross-curricular project, they never had ample time to adjust and subsequently abandoned the PBL unit. When

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responding to a follow-up interview question about a PBL cross-curricular unit developed during summer planning, Brenda responded,

> … Now that we are in the school year and we see some of the contributing factors we are finding that scheduling is making it that much harder to make happen. We assumed it was supposed to be that we would have all of our students but some of the students only have one class in the magnet program that has been a huge hindrance to making the project work properly. The subjects aren't allowed to build.

Brenda's comment that projects aren't allowed to build referred to the expectation school leadership established for projects being cross-curricular. The obstacle to ensuring projects were cross-curricular was also shared by Amy. When discussing the most difficult aspect of implementing the first PBL, she responded.

> We had planned to start but with the hurricane days, we didn't start when we were supposed to. Now we are away from the curriculum for the PBL and we are supposed to be starting our second PBL, but we never got that PBL off the ground.

At the end of Stephany's interview, she wrapped up her comments by stating three concerns that she continues to have; too many innovations, cross-curricular because of scheduling and student work ethic.

Although the teachers were a part of a magnet program, they were not relieved of traditional teacher duties nor were they provided any guidance on how to make it all work together. One of the major challenges to implementing a PBL were the many tasks that are required of a traditional classroom. Benchmark tests are scheduled by the district

and are aligned to the district issued pacing guides.  Ensuring that certain content was covered prior to benchmark assessments tampered with PBL timelines.  One of the observations conducted in Matthews's class was during a benchmark assessment.  I had been to see him three days within two weeks prior to the observation and each was consumed with some non-PBL task, so I decided to stay the day of benchmark testing. Teachers at LMS are also required to have a minimum number of grades per grading period, which led teachers to assess assignments they would not have normally.  Stephany stated that they brought these concerns to the school's leadership team and they were given the okay to take some liberties with grading and pacing requirements.  Stephany reported, "I took that to mean we didn't have to honor these expectations." None of the other teacher-participants shared Stephany's understanding. Matthew shared that he thought this meant to take their time getting it done, but get it done. David (2008) cites a 1997 research study by Marx, Blumenfeld, Krajcik and Soloway which concludes that length of class periods and pressure to cover curriculum topics are among the many challenges' teachers face in implementing projects. This finding appears to be true of LMS's implementation as well.

The concern for the many traditional tasks was also evident in the initial SoC questionnaires.  Question four of the questionnaire states, "I am concerned about having enough time to organize myself each day." Three of the four teacher-participants scored it a seven and the fourth teacher-participant scored it a five.  These responses indicated that the teacher-participants were extremely concerned with managing their many responsibilities.  Brenda was the most concerned with the traditional teaching tasks and how they would impede her PBL progress. "I love PBL, but I find it to be in contrast with

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the more traditional learning styles of pacing guides and CFAs {common formative

assessments] and other requirements." The policies that seemed to work well with

traditional teaching methods, limited the flexibility required in a student-centered

learning curriculum like project-based learning.

One additional school protocol was dictated by the very nature of the magnet

program. The program at Legacy Middle was designed to be a career focused magnet that

used project-based learning as the primary instructional strategy. Therefore, in addition to

planning and implementing rich, standards based projects-based units of study, the

teacher-participants were expected to incorporate a career exploratory component to each

PBL. Mrs. Sanders the principal of LMS stated that she wanted to promote a cohesive

school environment for all of Legacy's programs, therefore the entire school

implemented the "Leader in Me." Philosophy as well. All four teacher-participants

expressed their frustration with the number of initiatives being implemented

simultaneously. When asked has his perception of PBL changed, Matthew responded;

> It hasn't, I have always thought it was a great instructional practice. I think it has
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> the potential to change the classroom, but you have to have those years to perfect
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> it. It doesn't need to be overlapped with anything else.  I feel that it should just be
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> PBL. Here you have PBL, career magnet. Leader in Me, it's too many
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> implementations at once.

Stephany and Amy shared their frustrations about the simultaneous implementation

during their individual interviews.  Stephany exclaimed that even with her experience

with PBL, there were just too many innovations at one time.  While Amy suggested,

"Everything would feel a lot easier if we could just do one thing."  The multiple

implementations just compounded the frustrations felt by the teacher-participants;

project-based learning had become another thing to do instead of replacing the traditional

way of doing things.

An aspect of developing a healthy culture and climate of any organization is

addressing the attitudes of the workforce. This research study investigates the impact of

the perceptions of the teacher-participants towards project-based learning, however, their

perceptions towards the students was a recurring concern. Although this was a magnet

program and students were hands selected through an application process, the teacher-

participants felt that very few of the students demonstrated the prerequisite skills of a

student ready to engage in project-based learning. While Matthew was more concerned

with classroom management, Brenda stated that she was accustomed to her students

having a stronger work ethic.

> I'm used to being able to give students the project sheet and checking in with
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> them. This group of students seems to fall back a little more than I am used
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> to. They need a lot of feedback or their final drafts will look like the first draft.

Stephany echoed this sentiment stating that the students lacked work ethic and did not

take initiative and ownership. The ability to work independently is a necessary skill for

students completing a PBL as the instruction is student-centered (Bell, 2010). Amy cites

the lack of student readiness as one of the reasons she did not conduct a PBL during the

first quarter. During a discussion following a classroom observation where she discussed

a student activity that required a multimedia presentation, I inquired why all the

presentations used power points. Her response was that the students lacked the technical

knowledge to vary their presentation. She went on to explain,

When we started, they didn't know how to create a PowerPoint, how to add

slides, hot to save Microsoft documents to a flash drive or how to transfer

information. We spent the first weeks just going over how to build a PowerPoint

presentation.

Stephany added that the students needed to develop soft skills. "They need to have more

group work skills; it seems to be lacking for their age." When asked what changes he had

made to his first PBL, Matthew responded that;

Things I started teaching had to be changed because the students weren't getting

it, at least not the way I had hoped. My timeline was cut. I had to slow it down

which basically extended it a lot longer. Trying to keep them on pace was hard.

Matthew's comments referred to students not working independently when expected and

seeking more teacher direction than he had anticipated.

Although the concerns the teacher-participants shared for student skill levels were

valid. The teacher-participants had the expectation that simply introducing a new

instructional format would be enough, while realistically students needed the same

opportunity to learn and practice a skill that they needed to develop their delivery of PBL.

**Theme Two: Knowledge and Skills**

In education the saying, what gets inspected gets done is familiar to most school

administrators. This is true because setting goals and objectives is great but executing

strategies and monitoring performance are necessary. Although the teacher-participants

in this study all received training and indicated that the training was helpful, moving from

planning to practice was a struggle. The teacher-participants lacked both technical and

adaptive leadership from school administrators.

Legacy Middle School provided the same three day professional development for the four teacher-participants in the study. The professional development was led by The Buck Institute in Education (BIE) in July 2018. LMS did not offer any follow-up professional development or PBL specific support for teachers from the time of the professional development to the end of the first semester. When asked about the training received prior to implementing their first PBL, Amy only referenced the training offered by the school.

> The whole team went through several days of training to create a PBL with them [expert trainer] there. They walked us step by step through what it would look like and they gave us a lot of examples, so I feel it was really good training.

Later in the interview, Amy was asked, how her perception of PBL changed. She responded,

> I learned about it in college before coming here [LMS]. It was more problem-based and not project-based and I thought they were the same thing and they're not. I feel like the idea of it is really great so when we went through the training, they taught us how to write a really good one [PBL unit] but did not teach us how to implement one.

Amy's original response of feeling that the training was sufficient referencing the ability to write PBL units, but later stating that she struggled with implementation reflects a conflict between theory and practice. Matthew recalled the three day professional development as helpful, stating that he was able to ask as many questions as he needed. He also referred to the assistance he received from the participant-researcher citing it as, "personal professional development." Both Brenda and Stephany discussed in detail their

training prior to arriving at LMS. When asked, if you had not had the previous school training where would you be with just the three day training offered by LMS. Stephany responded;

> Interested but not as prepared. Feeling isolated because the whole school is not doing it. In my other school, the whole school was doing PBL. We worked together and learned from each other. Without ongoing training, collaboration with colleagues and years of practice I could never implement quality projects.

The concern for the lack of ongoing professional development was raised by all four teacher-participants on multiple occasions leading the issue to become a theme of the study. In casual conversation, Matthew and I discussed the role of the lead teacher. When asked if the lead teacher for the magnet program was able to offer any assistance with planning and implementing PBLs, Matthew felt that he may have the desire to help but not the skills. "He is new to this too; I don't think he knows how to help us." The lead teacher attended the same three day summer professional development but had not received much additional training for project-based learning at the time of the study. A 2011 study conducted by Meredith Rogers and colleagues in which they studied first year implementation of project-based learning and teacher orientation, concluded that successful PBL implementation requires extended professional development, ongoing classroom support and collaboration with school personnel.

The desire for more training was confirmed by the SoCQ responses in Stage 1-Information of the questionnaire. Three of the four teacher-participants had Stage 1 percentiles scores of 80 or higher. The desire for more information was only compounded by the isolation the teacher-participants felt from the rest of the staff.

During the summer professional development, several traditional program teachers were trained to implement PBLs however, they were not required to implement any PBLs this school year. Which meant the teachers that were implementing a PBL may not have time to collaborate with each other due to the absence of common planning time and those that had common planning did not implement PBLs and consequently did not have a need to collaborate. All which left the teachers feeling quite isolated.

The feeling of isolation was not excluded from just teachers. The teacher-participants also felt somewhat isolated from the school leadership. The teacher-participants expressed not feeling fully supported in their implementation. This concept is supported by the responses to item 15 on the initial SoCQ. Item 15 states, "I would like to know what resources are available if we decide to adopt PBL." Three of the four teacher-participants scored this item a 7 (very true of me now), the other teacher participant scored it a 6. This questionnaire was administered at least two months after the only training offered and all teachers demonstrated a lack of awareness of resources available. According to Leung (2008), a lack of professional development and resources, along with an absence of collaboration presents challenges that require ongoing support and continuous monitoring for quality assurance. The SoCQ also indicated that the teacher-participants had a real desire to collaborate with their colleagues with three of the four teachers-participants responding to question 27, "I would like to coordinate my efforts with others to maximize PBL's effects," a seven in both the initial and second SoCQ administration. Scheduling may have led to a lack of collaboration, but the lack of support led to a feeling of isolation.

**Implications**

   After 10 ½ weeks of data collection, what does it all mean? How do teacher perceptions impact their implementation?  As a school administrator, my lens into this research study was from a leadership perspective. I can say with some certainty that attempts at implementing new programs in schools require both technical and adaptive changes.  The decision of what program to implement may be driven by data indicated need.  Planning for the program to include schedule changes, the hiring of staff, securing resources, and training for implementation are all technical changes that can be managed by someone familiar with the program.  However adaptive concerns surrounding programmatic are hard to define and require input from stakeholders to address.  Attitudes, beliefs and behaviors masked as concerns with policy and procedure have the ability to derail the successful implementation of any initiative.

   Heifetz, Graschow, Linsky (2009) suggests that the most common leadership failure comes from leaders trying to apply technical solutions to adaptive challenges. I would agree and extend that thinking to include that stakeholders often wrongly identify technical issues as the cause of poor implementation out of a failure to understand adaptive concerns.  In this study conducted at Legacy Middle School little to no time had been given to determining how a project-based learning curriculum for a sub-group of teachers and students would align to the current mission, vision and goals of the school. Teacher-participants were left to figure out the implementation process armed only with a three day training created frustration that was misplaced with policy, protocol, student skills and professional development.  Not to say that all of the concerns identified by the teacher-participants were not real and relevant, but the concerns were perhaps

misunderstood. Policies and protocols are needed in every organization, however equally important is guidance in how to apply them to new programs.

William Edward Deming said, "Every system is perfectly designed to get the results it gets." The data collected in this action research leads me to believe that LMS is a part of a system that desires $21^{st}$ century results but is designed for $20^{th}$ century learning. The historical influence of standardized assessments is present in current school culture and therefore guides many school policies and protocol.

### Conclusion

On the initial administration of the SoCQ three of the four teacher-participants scored relatively high in stage 0 scoring in the 87th percentile or higher in the stage of awareness. Only one teacher indicated she was aware of the innovation but not concerned about PBL on her questionnaire, however, by the second SoCQ administration, her awareness and interest appeared to be heightened moving from a 40th percentile to 91st percentile. According to Southwest Educational Development Laboratory (SEDL) (2006), the higher the stage 0 score, the higher the indication that other things, innovations or activities, are of greater concern than the innovation under consideration. For the three teacher-participants that returned the second Stages of Concern Questionnaire stages one and two were also relatively high all scoring at the 75th percentile or higher. Stage 1 indicates that teachers want more information and stage 2 indicate a concern for what a PBL implementation means to them personally.

These scores on the SoCQ were confirmed in the group discussion, interviews and classroom observations. Although teachers stated that they were on board with implementing a PBL, they were overly concerned with all of the challenges they were

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faced with.  When asked what changes were made during the first PBL implementation, Amy admitted to not implementing a PBL.  Brenda shared that she changed to a problem-based unit instead of a project-based unit. Matthew and Stephany both explained that what they planned was quite different from what they implemented.  Either altering the timeline or reducing the requirements. During classroom observations, three teacher-participants were observed either providing traditional direct instruction with an activity or conducting components of a problem-based unit.  None of the teacher-participants that expressed having implemented a PBL had an authentic, multi-discipline product to share (Lamer, 2014).  The timelines of the projects were just a week or two and involved a great deal of teacher input.

The data collected during this action research study suggests that the teacher-participants were not ready to implement a PBL due to either a large concern for their personal needs, modifications and adjustments made due to student concerns or the absence of support from school leadership.

This research study was conducted to answer the question: How do teacher perception towards project-based learning impact implementation of a project-based learning curriculum? The data collected include two administrations of the Stages of Concern Questionnaire, classroom observations and semi-structured interviews.

After careful analysis of the data, two themes were identified. Theme one, concerns with organizational culture and climate and theme two, concerns with organizational knowledge and skills. Current school policies and protocol at LMS posed obstacles that made it difficult for teachers to develop and implement authentic project-based learning experiences for students.  The traditional assessment and scheduling

requirements established by the school and district are believed to be restrictive.  A careful review of teacher and student schedule could provide a technical solution to many of the problem's teachers voiced. School and district administrators should consider altering certain grading and testing mandates to better fit the PBL classroom. Additionally, during this action research focused on implementation of a project-based learning curriculum, teacher-participants were also expected to implement a career development curriculum and infuse the Leader in Me philosophy.  The simultaneous implementation of several new programs proved to be cumbersome to the teacher-participants resulting in the partial implementation of project-based learning. Better implementation of PBLs may be achieved if teacher-participants are allowed to focus solely on project-based learning.

With the many obstacles faced by school policies data also revealed concerns with student skills and attitudes.  Three of the four teacher-participants cited either lack of technical knowledge, ability to work independently or poorly developed soft skills like collaboration as a hindrance to implementing planned PBLs as intended.

Secondly, limited access to ongoing professional development led teacher-participants to perceive a lack of support for the innovation and led to an uneasiness to execute plans for PBLs.  Teacher uneasiness to implement a PBL was confirmed by both the SoCQ and classroom observations. Three of the four teacher-participants proclaimed that they successfully implemented a PBL unit during the data collection period. The data collected revealed that only two teacher-participants implemented a modified PBL and the third teacher participant implemented a problem-based learning unit.  This concern

can be addressed with ongoing professional development and a dedicated, knowledgeable change facilitator.

The identified problem of practice centered on the idea that project-based learning could meet both the state and federal testing mandates while also developing necessary 21st century skills such as collaboration. Although believed to be a possible solution to a growing academic problem, project-based learning like many new innovations is either not implemented or implemented and fail to last years later.  The research question asked, how do teacher perception of project-based learning impact their classroom implementation? The present action research study revealed that the teacher-participants have an overall positive perception of project-based learning, but they also perceive several obstacles that are hindering their implementation.  Although the teacher-participants listed their concerns in terms that appear to be easily addressed by changes in policies, the participant-researcher found that the larger issue centers on organizational health.  Both culture/ climate and knowledge/skills are issues that need to be addressed with attention paid to the adaptive leadership of school and district administration.

Chapter 5 of this dissertation will include a summary of the findings and a discussion of the action research study. An action plan to address implications and lessons learned will be presented.  Acknowledgment and explanation of limitations to the study will also be discussed.  Lastly chapter 5 will present a reflection of the researcher's experience throughout the study and include recommendations for future areas of research.

CHAPTER 5

SUMMARY, CONCLUSIONS AND ACTION PLAN

**Discussion**

In this final chapter I will discuss the major findings of this action research study, *Middle School Teachers' Perception of Project Based Learning as it Impacts First Year Implementation.* The discussion will include an overview of the purpose of the study, summary of the findings, a plan of action, limitations of the study and recommendations of future research topics. This action research was conducted at Legacy Middle School (LMS) (pseudonym) a high poverty, urban middle school, located in central South Carolina. The data collection period of this action research study coincided with the first year implementation of a newly established career magnet program with an instructional focus on project-based learning. The identified problem of practice (PoP) is centered on the teacher-participants' perception of project-based learning and how that perception impacts their classroom implementation.

The primary purpose of this action research study was to determine if teacher perception of project-based learning had any impact on the manner in which teacher-participants implemented the instructional model in their class. The secondary purpose of this action research study was to enable novice users of project-based learning to successfully implement the instructional model in their classroom by providing specialized support that would improve their early implementation of the model.

**Overview**

        The state of South Carolina and the local school district place a great deal of concern on both improved test scores and developing 21st century skills in students as evidenced by the South Carolina Profile of the High School Graduate and State School Report Card.  Project-based learning emerged some years ago as a possible solution to the growing challenge of meeting both mandates.  Prior to conducting this action research, I conducted preliminary investigations at a different site.  During preliminary investigations the researcher led a team of teachers through a project-based learning implementation.  The process revealed several concerns that required deeper investigations.  Previous attempts at project-based learning implementation lacked a well-developed professional development to provide necessary training to teachers prior to implementation.  A second concern that was identified prior to the current research study was a lack of teacher buy-in for the change in instructional model, a concern that hindered implementation.  Both concerns were addressed by choosing LMS as the research setting. Teacher-participants in this action research study chose to be a part of the current PBL implementation and received professional development by a nationally recognized educational organization.  Choosing a research setting and teacher-participants that were both willing and eager to implement PBL as a primary instructional model was a key factor in developing a research plan. The participant-researcher developed an action research plan that observed and surveyed four teacher-participants in their first year of implementing project-based learning at LMS.   The identified PoP focused on teacher perceptions of PBL as a means to prepare students for state and district required assessments and to develop 21st century skills like critical thinking,

problem solving and collaboration. The problem of practice lead to the research question:

How do teacher perception towards project-based learning impact implementation of a

project-based learning curriculum?  The purpose of this study was to determine how

teacher perceptions impacted early implementation of a new instructional method.  The

remainder of this chapter will discuss summary of the findings, present an action plan and

suggest related topics for future research.

## Summary of Findings

This action research study sought to answer one research question:  How do

teacher perception about project-based learning impact implementation of a project-based

learning curriculum?  The study used four middle school teacher-participants (Amy,

Brenda, Matthew and Stephany), from varying racial (two white, two black), age (from

early twenties to early forties), gender (three females, one male) and teaching experience

(two years to fifteen years) backgrounds. The teacher-participants also had varying levels

of experience with project-based learning.  Amy had been introduced to the instructional

model in college, both Stephany and Brenda considered themselves intermediate users of

the model, having used PBL in previous teaching assignments and Matthew who had

only been introduced to PBL at Legacy Middle. The teachers were identified in the spring

of the 2017-2018 school year to open a newly developed middle school career magnet

program with an academic focus on career exploration through project-based

learning.  During the summer of 2018 the teacher-participants received training in

project-based learning through a consultant with the Buck Institute of Education.  After

agreeing to participate in this action research study all four teacher-participants were

administered the Stages of Concern Questionnaire (SoCQ) from the Concerns Based

Adoption Model (CBAM), participated in semi-structured interviews and were observed while delivering classroom instruction.  A reflection meeting was held on November 14, 2018 after the initial administration of SoC questionnaire several classroom observations and all four semi-structured interviews were conducted. The goal of the meeting was for the participant-researcher to share findings to date and have the teacher-participants to confirm or disconfirm the data with their present perception. Data collection lasted from September 19, 2018 to November 30, 2018 and concluded with a second administration of the SoCQ. The collected data was analyzed and coded using methods delineated by Saldana (2013).

The observational data revealed that three of the four teacher-participants were successful in implementing some form of a project-based learning unit.  One teacher-participant, Amy, did not implement a PBL during the data collection period. While the data collected from questionnaires, classroom observations and semi-structured interviews revealed that all teacher-participants have a positive perception of implementing a project-based learning curriculum, two overarching themes emerged that may explain the early implementation results. The themes include: Theme One: Organizational Culture and Climate; Theme Two: Knowledge and Skills

## Interpretation of Findings

Theme one revealed that the teacher-participants found it difficult to fully implement a PBL because of a number of school policies and established protocol. Class scheduling constraints, a lack of common planning time, ongoing assessment and expectations to implement cross curricular projects with career exploration components stifled successful PBL implementation.  Several schoolwide policies of Legacy Middle

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were designed for a traditional instruction and conducive to daily direct instruction and frequent assessments. These same policies proved to be unfavorable to project-based learning. The requirement to adhere to district pacing guides, district scheduled benchmark assessments and minimum number assessments per grading period were all designed to prepare students for statewide assessments. Aydeniz and Southerland (2012) suggests standardized testing has influence on teacher's instructional and assessment practices that is counter to many learning goals. A preoccupation with assessments and grades was a factor in the implementation of PBLs

During this action research focused on implementation of a project-based learning curriculum, teacher-participants were also expected to implement a career development curriculum and infuse the Leader in Me philosophy.  The simultaneous implementation of several new programs proved to be cumbersome to the teacher-participants resulting in partial implementation of project-based learning. Better implementation of PBLs may be achieved if teacher-participants are allowed to focus solely on project-based learning.

Teacher-participants' perceptions towards student skills and attitudes were of concern during the data collection period.  Brenda noticed that students did not take ownership for their learning and needed a lot of guidance.  Stephany was largely concerned with their lack of soft skills and experience collaborating.  Amy changed one of her early activities because of the student's deficit technology skills and Matthew was constantly concerned about classroom behavior. The ability to collaborate, be self-directed and to effectively use technology are all skills regularly used in a project-based learning classroom. Galvan and Coronado (2014) suggest that teachers model expected project-based learning behavior for students that approach PBL with deficit skills.

Theme two revealed that teacher-participants felt the three day professional development they received the summer before implementation was not adequate to prepare them for full implementation of a PBL curriculum. The varying levels of implementation was aligned to the level of training or prior knowledge teacher-participants possessed upon implementation. Stephany, having the most knowledge of PBL, was formally trained at a previous school with ongoing support through implementation arrived at LMS with a good grasp of PBL which was evident in her instructional observations. Brenda implemented what resembled more of problem-based unit and that coincided with her previous experience. Matthew, receiving additional support from the participant-researcher was able to implement a scaled down project-based learning unit. While Amy who only received the three day professional development did not implement a project-based unit during the study. This finding is similar to that of a study by Rodgers et al. (2010) in which the researchers concluded that PBL implementation is challenging and requires extended professional development, ongoing classroom support and collaboration with school personnel.

The implications of these findings can be divided into two areas. Technical concerns and adaptive concerns. School policies and ongoing professional development, grading and assessment expectations as well as implementing additional initiatives are established by school and district level administrators and must be altered by them. These concerns can be classified as technical challenges. They are easy to identify and can be addressed with a rule change or an expert's intervention. Teacher perception toward student skills is best addressed through instruction and an assessment of teacher attitudes towards the change. The adaptive concerns present in the action research study are

twofold. One the feelings toward the innovation itself and two the feelings towards established policies. Adaptive challenges will best be addressed through a collaborative effort between the school's leadership and teacher-participants. Discussions of what tasks must be stopped, which will continue and clear communication of expectations of the new program will help the implementation process. The action plan will address the themes evident in the data.

The implications of this research for school and district level administrators are clear. Innovations that require a paradigm shift with teachers in the manner in which they provide instruction also dictates a paradigm shift at the leadership level. School principals and district curriculum leaders must consider the impact that grading and assessment policies will have on a change in instruction. Principals and school level administrators should take special care in developing master class schedules that allow for in-depth planning, collaboration and consistency with students when necessary. In the case of project-based learning, the instructional format requires time to plan and design the projects but also longer class periods to work on projects and extended time between required assessments as projects develop over weeks (Lamer, 2009). The development of an ongoing professional development plan that supports the changing needs of teachers throughout implementation requires school leadership support.

This action research study also revealed that teachers must develop units of study that specifically model those skills that PBLs intend to develop. The teacher's role in this will be to understand that not all students approach PBLs at the same skill level and teachers as the facilitator of the projects-based learning process must present the expectations of the PBL by modeling them.

**Action Plan**

**Action Researcher**

Principals in the 21ˢᵗ century are required to demonstrate a higher standard of

instructional leadership than principals in the 1990's (Mora-Whitehurst, 2016). These

higher standards demand a focus on assisting teachers and struggling students to become

successful (Mora-Whitehurst, 2016). My current role as an assistant principal is unique

in the fact that I have served as a principal for seven years and a principal coach for four

years. My previous administrative experience has helped me to understand that my

position as the assistant principal is a key member of the instructional leadership team. If

the principal is responsible for developing a vision for their school, then the assistant

principal is responsible for supporting that vision in every aspect of their job.

In my role as an assistant principal, I attend and lead professional learning

community (PLC) meetings, I conduct classroom observations and provide feedback as

well as make suggestions for curriculum improvements and work alongside teachers and

the principal to make curriculum changes. Brubaker (2004) states, "the creative

curriculum leader is expected to give attention to both personal and organizational vision

(p. 80)." Because of the direct interaction I have with classroom teachers, I get to know

quite intimately their personal goals for their careers and their classroom practices. I also

have the benefit of working closely with the principal and therefore have the opportunity

to discuss her vision for the school, concerns and frustrations on a regular basis. This in

between position played a pivotal role in deciding my research topic. The teachers that

participated in the research shared my desire to do something different and was eager to

join the action research.  Additionally, the principal was supportive of me conducting the research with a hope for possible curriculum changes**.**

My role in this action research was to provide ongoing support to one of the teacher-participants. I also collected data on the implementation process throughout the ten week data collection period through classroom observations with feedback, administering the SoCQ and conducting semi-structured interviews.  Although I was not on staff at LMS, I was a constant visitor throughout the data collection period.  For these reasons I classified myself as a participant-researcher.  However, because I did not serve in an evaluative role to the teacher-participants, I was able to maintain considerable objectivity. This action plan was developed by the participant-researcher and presented to the school leadership of LMS.  The goal is that the action plan will be utilized to influence both the practices of the magnet teaching staff and professional development for the entire LMS staff.

**Action Plan in Detail**

**School Culture.**  Theme one revealed an ongoing conflict with established school policies with regards to common planning time, required assessments and grading expectations.   The leadership team at Legacy Middle School will review the current master schedule and district professional development days to secure a biweekly common planning period for all teachers implementing a project-based learning curriculum. The common planning time will be used to address trending concerns of all PBL teachers as well as make adjustments to planned PBL units of study.  The magnet staff will still meet every Wednesday before school as currently planned. The additional planning time will be facilitated by a newly trained change facilitator. The instructional leadership team of

LMS will also review the assessment schedule and grading policy to allow necessary flexibility in assessments that will align with projects. Reducing the minimum number of assessment grades required a quarter and using more project checkpoint feedback sessions.

A suggestion is made to the school leadership to focus solely on project-based learning instruction without the added mandate that projects are cross curricular or include a career exploration component.  This measure is simply a suggestion as the design of the magnet program was developed by the district. Ms. Sanders has agreed to consider suspending the "Leader in Me," initiative for teachers implementing PBL for the 2019-2020 school year to provide an opportunity to become more familiar with PBL implementation.

Student skills and attitudes will change every year with the enrollment of new students.  Skills will develop overtime and will vary depend on the activity assigned. Through the scheduled common planning time and ongoing professional development, teachers will be provided with strategies to address the varying skill levels of students.  Teacher will also be provided with paid access to several online project-based learning databases which will provide a selection of developed projects that can be modified to fit the needs of their current students

**Knowledge and Skills.**  Teacher perceptions that they lacked the necessary training and support to properly implement a PBL curriculum will be best addressed by a detailed professional development plan.  A professional development proposal has been presented to Legacy's Principal to address PD and support concerns. The lead teacher of the magnet program, LMS's Curriculum Resource Teacher, along with all research

teacher-participants will identify the specific areas needing support. This team of educators will be supported by the participant-researcher to develop a comprehensive professional development plan that will be implemented during the 2019-2020 school year. The newly developed professional development plan will include intensive training for the lead teacher with the intent for him to serve in the role as change facilitator. At least one of the three assistant principals of LMS will also be trained to provide additional support and to be better informed with regards to evaluations. Teachers will attend a summer training institute during the summer of 2019 followed by online support courses during the 2019-2020 school year. The focus of professional training will be to learn the difference between doing projects and projects-based learning and how to incorporate formative and summative assessments in project-based learning.

**Limitations**

This action research has multiple limitations which should prohibit the results from being generalized to other settings. The first is the very nature of action research. Because action research is developed around a problem of practice as it relates to a specific setting, the results are not generalizable to other settings (Mertler, 2014).

The second limitation is in the area of data collection. During the data interpretation period, the participant-researcher discovered that although field notes from classroom observations were detailed, more observations of each teacher-participant would have provided much needed information to support identified themes. Likewise, during the semi-structured interviews additional questions about the nature of support provided by school leadership and specific questions about implementation of projects may have provided quality data to answer the research question. Action research is often

designed to be a personal problem solving mission. One that addresses an identified problem in the researcher's day to day duties. This action research was limited by the participant-researcher not being in the research site daily.

The third limitation was the sample size. With just four teacher-participants, with varying backgrounds the data collected could not be generalized to a larger sample size. Certainly, the four teachers were willing participants, however they brought with them previously developed perceptions about project-based learning that could not be generalized within such a small group.

**Recommendations for future research.**

There is a well-developed body of research surrounding the benefits of project-based learning (Grier, et al., 2008; Chu et al., 2011; Kaldi, Filippatou, Govaris, 2011; Richardson, 2012; Stefanou et al., 2013; Hill, 2014; Yin, 2015; Holmes & Hwang; 2016). There is also considerable research into why teachers who support project-based learning fail to implement (David, 2008; Krahenbuhl, 2016; Przybysz-Zaremba et al., 2015). This study sought to study the impact of teacher perceptions as it impacts implementation. Therefore, further research into the effects professional development on implementation would address one of the identified themes. Additional research may also address implementation beyond the first year. Perhaps health of the program in year three or beyond. It would be interesting to see whether teachers are able to sustain instructional practices or return to conventional teaching methods overtime.

**Conclusion**

Project-based learning has been tapped as an instructional format that can support students in meeting state and federal standards as well as develop highly sought after 21st century skills such as higher order thinking, problem-solving, collaboration and technology integration (Cheng, Shui-fong & Chan, 2008; Hernandez-Ramos & De La Paz, 2009; Sart, 2014; Bradford, Mowder, & Bohte, 2016; Scogin et al., 2017). Although previous research touted the benefits of project-based learning, several research studies also indicated that teachers and education administrators were apprehensive about PBL implementation (David, 2008; Krahenbuhl, 2016; Przybysz-Zaremba et al., 2015). This action research study sought to consider the impact that teacher perception had on implementation. The results of this study indicated that although teachers maintained a positive perception of project-based learning, external factors or factors beyond teacher control caused partial implementation or in at least one classroom no implementation at all.

In response to the results of this action research study, an action plan has been developed. The action plan will provide for scheduling and assessment changes that will allow more time for planning and instruction. As well as professional development that has the potential to increase teacher and administrator capacity to implement and sustain a project-based learning curriculum.

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# APPENDIX A

## CONSENT TO PARTICIPATE

Dear Potential Research Participant,

You are asked to participate in a research study conducted by Stacey C. Whitaker, assistant principal in Richland School District One and doctoral candidate in the College of Education at the University of South Carolina, Columbia. You have been asked to participate in this study because you are involved in or have knowledge of the implementation of the project-based learning curriculum at your school. Your participation in this research project is completely voluntary. You should read the information below and ask questions about anything you do not understand, before deciding whether or not to participate.

This study is designed to determine if and to what extent your perception of project-based learning changes during the first weeks of implementation and if that perception has any impact on your implementation. Specifically, I seek to answer the question:

**How do teachers' perception of project-based learning influence their implementation of a project-based learning curriculum?**

You will be asked to complete a Stages of Concern survey in the first weeks of school and again at the end of the grading period after completing at least two project-based learning units. You will also be asked to participate in a short, semi-structured interview with the researcher. The researcher will observe your classroom one to two times during the study. Lastly two identified teachers will receive one on one assistance with developing units, gathering resources, assessing student work or in any manner the teacher deems necessary. The entire process will happen within the first semester of implementation and is intended to be as nonintrusive as possible.

There is no expected risk involved in this study other than those ordinarily encountered in daily life. The results of the study will be coded in such a way that your identity will not be attached to final data. The teachers receiving additional support from the researcher will determine what support and to what extent support is provided. Other than support from the researcher you will receive no direct benefit from participation in this study. Information derived from this study may help building administrators, district administrators, curriculum support staff provide specific ongoing professional development and plan for smooth implementation of other programs. There are no other alternatives for participation in this study.

# APPENDIX B
# SEMI-STRUCTURED INTERVIEW QUESTIONS

1.  What are your current personal/ professional perceptions of project-based

    learning?

    a.  Are you in the midst of implementing a PBL now?

2.  Discuss all training you were provided in preparing PBL implementation.

    a.  If you did not have previous training where would you be?

3.  What was the most difficult aspect of implementing your first PBL?

    a.  What has been the biggest hurdle to implementing?

4.  What changes if any did you make during the implementation of your first

    PBL?

5.  How has your perception of PBL changed from your introduction to the

    instructional model to now?

    a.  Any final thoughts?

STAGES OF CONCERN QUESTIONAIRRE

# Stages of Concern Questionnaire

**Name (optional):**

_____

The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the adoption process.

The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various programs to many years' experience using them. Therefore, **many of the items on this questionnaire may appear to be of little relevance or irrelevant to you at this time.** For the completely irrelevant items, please circle "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale.

    For example:

        This statement is very true of me at this time.      0  1  2  3  4  5  6  ⑦

        This statement is somewhat true of me now.    0  1  2  ③ 4  5  6  7

        This statement is not at all true of me at this time. 0  ① 2  3  4  5  6  7

        This statement seems irrelevant to me.      ⓪  1  2  3  4  5  6  7

Please respond to the items in terms of **your present concerns,** or how you feel about your involvement with **this** innovation. We do not hold to any one definition of the innovation so please think of it in terms of your own perception of what it involves. Phrases such as "this approach" and "the new system" all refer to the same innovation. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement with the innovation.

Thank you for taking time to complete this task.

| 0 | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Irrelevant | Not true of me now | | Somewhat true of me now | | | | Very true of me now | |

Circle one number for each item.

| | |
|---|---|
| 1. I am concerned about students' attitudes toward PBL. | 0  1  2  3  4  5  6  7 |
| 2. I now know of some other approaches that might work better. | 0  1  2  3  4  5  6  7 |
| 3. I am more concerned about another innovation. | 0  1  2  3  4  5  6  7 |
| 4. I am concerned about not having enough time to organize myself each day. | 0  1  2  3  4  5  6  7 |
| 5. I would like to help other faculty in their use of PBL. | 0  1  2  3  4  5  6  7 |
| 6. I have a very limited knowledge of project-based learning. | 0  1  2  3  4  5  6  7 |
| 7. I would like to know the effect of PBL on my professional status. | 0  1  2  3  4  5  6  7 |
| 8. I am concerned about conflict between my interests and my responsibilities. | 0  1  2  3  4  5  6  7 |
| 9. I am concerned about revising my use of PBL. | 0  1  2  3  4  5  6  7 |
| 10. I would like to develop working relationships with both our faculty and outside faculty using PBL. | 0  1  2  3  4  5  6  7 |
| 11. I am concerned about how PBL affects students. | 0  1  2  3  4  5  6  7 |
| 12. I am not concerned about PBL at this time. | 0  1  2  3  4  5  6  7 |
| 13. I would like to know who will make the decisions in the new system. | 0  1  2  3  4  5  6  7 |
| 14. I would like to discuss the possibility of using PBL. | 0  1  2  3  4  5  6  7 |
| 15. I would like to know what resources are available if we decide to adopt PBL. | 0  1  2  3  4  5  6  7 |
| 16. I am concerned about my inability to manage all that project-based learning requires. | 0  1  2  3  4  5  6  7 |
| 17. I would like to know how my teaching or administration is supposed to change. | 0  1  2  3  4  5  6  7 |
| 18. I would like to familiarize other departments or persons with the progress of this new approach. | 0  1  2  3  4  5  6  7 |

| 0 | 1 2 | 3 4 5 | 6 7 |
|---|---|---|---|
| Irrelevant | Not true of me now | Somewhat true of me now | Very true of me now |

Circle one number for each item.

| | |
|---|---|
| 19. I am concerned about evaluating my impact on students. | 0  1  2  3  4  5  6  7 |
| 20. I would like to revise PBL's approach. | 0  1  2  3  4  5  6  7 |
| 21. I am preoccupied with things other than PBL. | 0  1  2  3  4  5  6  7 |
| 22. I would like to modify our use of PBL based on the experiences of our students. | 0  1  2  3  4  5  6  7 |
| 23. I spend little time thinking about project-based learning. | 0  1  2  3  4  5  6  7 |
| 24. I would like to excite my students about their part in this approach. | 0  1  2  3  4  5  6  7 |
| 25. I am concerned about time spent working with nonacademic problems related to PBL. | 0  1  2  3  4  5  6  7 |
| 26. I would like to know what the use of PBL will require in the immediate future. | 0  1  2  3  4  5  6  7 |
| 27. I would like to coordinate my efforts with others to maximize PBL's effects. | 0  1  2  3  4  5  6  7 |
| 28. I would like to have more information on time and energy commitments required by PBL. | 0  1  2  3  4  5  6  7 |
| 29. I would like to know what other faculty are doing in this area. | 0  1  2  3  4  5  6  7 |
| 30. Currently, other priorities prevent me from focusing my attention on PBL. | 0  1  2  3  4  5  6  7 |
| 31. I would like to determine how to supplement, enhance, or Replace PBL. | 0  1  2  3  4  5  6  7 |
| 32. I would like to use feedback from students to change the program. | 0  1  2  3  4  5  6  7 |
| 33. I would like to know how my role will change when I am using Project-based learning. | 0  1  2  3  4  5  6  7 |
| 34. Coordination of tasks and people is taking too much of my time. | 0  1  2  3  4  5  6  7 |
| 35. I would like to know how the innovation is better than what we have now. | 0  1  2  3  4  5  6  7 |

**Please complete the following:**

1.  How long have you been involved with the innovation, not counting this year?
**Never \_\_\_      1 year \_\_\_      2 years \_\_\_      3 years \_\_\_      4 years \_\_\_      5 years or more \_\_\_\_**

2.  In your use of the innovation, do you consider yourself to be a:
**non-user \_\_\_ novice \_\_\_      intermediate \_\_\_      old hand \_\_\_ past user \_\_\_\_**

3.  Have you received formal training regarding the innovation (workshops, courses)?
**Yes \_\_\_\_      No \_\_\_\_**

4.  Are you currently in the first or second year of use of some major innovation or program other than this one?
**Yes \_\_\_\_      No \_\_\_\_**

If yes, please describe briefly:

_____
_____
_____

Thank you for your help!

**Stages of Concern Questionnaire** (SoCQ 075) is available in the following SEDL publications:

George, A. A., Hall, G. E., & Stiegelbauer, S. M. (2006). *Measuring implementation in schools: The stages of concern questionnaire* (Rev. ed.) (Appendix A, pp.79-82 and as a PDF document on an accompanying CD-ROM.) Austin, TX: Southwest Educational Development Laboratory.

George, A. A., Hall, G. E., & Stiegelbauer, S. M. (2006). *Stages of Concern Questionnaire (SoCQ) online.* Available from http://www.sedl.org/pubs/catalog/items/cbam21.html

Hord, S. M., Rutherford, W. L., Huling, L., & Hall, G. E. (2006). *Taking charge of change* (Rev. ed.) (pp. 48-49). Austin, TX: Southwest Educational Development Laboratory.