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A PHENOMENOLOGICAL CASE STUDY OF TEACHER PERCEPTIONS ON THE EFFECTIVENESS OF PROJECT-BASED LEARNING

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ABSTRACT

A PHENOMENOLOGICAL CASE STUDY OF TEACHER PERCEPTIONS ON THE EFFECTIVENESS OF PROJECT-BASED LEARNING

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This qualitative phenomenological case study explored the experiences of three middle school social studies teachers as they implemented a unit of instruction using project-based learning (PBL) in their eighth grade, social studies classrooms. Middle school is often where we see student engagement significantly diminishing and national scores on reading, writing and mathematics declining; the COVID-19 pandemic has exacerbated this. PBL, as an instructional methodology that promotes hands-on learning and a strong connection between the classroom and the outside world, and first introduced in the early 1900s by John Dewey and William Kilpatrick, may help to stem the pandemic's effects that have compounded a further loss in student engagement and overall learning loss. The participants in this research study teach at three different schools in a large, urban school district in the Northeast in which achievement and student engagement are low. The study was conducted as students and teachers returned to school during the second year of the COVID-19 pandemic. This research study provides a phenomenological case study of teacher perceptions about the effectiveness of project-based learning in an urban, middle school environment. The study's participants implemented a unit of study in their U.S. History classes using PBL as the main instructional methodology over the course of four weeks. This study focused on the participants' perceptions before, during and after implementation. The results of this

study can be used to inform researchers, education policy makers, and school district leaders on the effectiveness of PBL in increasing student engagement.

DEDICATION

This dissertation is dedicated to my three children, Katherine, Payton, and Sam and in memory of my husband, Greg.

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could keep working in my job and at my studies, and consistent encouragement so that I could finish.

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CHAPTER 1

Introduction

Project-based learning (PBL) is an inquiry-based approach to instruction that begins with a real-world driving question or compelling problem. Students must collaborate in teams, conduct rigorous research, and develop a project that provides a solution to the question or problem posed (Dewey, 1933; Kilpatrick, 1925; Blumenfeld et al, 1991). Project-based learning engages students because they are solving an authentic problem and are learning through the process. The final product typically results in varied and innovative solutions by the students who gain a deeper level of content knowledge (Hernández & De La Paz, 2009, Ausubel, 2000; Novak, 1995). It is the process, however, that students go through in their inquiry that is perhaps more valuable than the result because to get there students must use higher order thinking skills, such as problem-solving, critical thinking, and analysis in order to achieve their solutions (Dweck, 2012; Yeager & Dweck, 2007; Burger, 2015). In a 2011 study on innovation and what accounts for innovative practices, General Electric surveyed 1,000 senior business leaders in a dozen countries. What the survey found was that most respondents, regardless of country or business type, believed that creativity is needed to find new ways to solve problems. Fully 69% agreed with the statement "Today innovation is more driven by people's creativity than by high-level scientific research" (Wagner, 2012, p. 6; *GE Global Innovation Barometer*, 2011).

This raises an interesting question. Can innovation be taught? When students are in a learning environment where they must grapple with developing solutions to real world problems, creativity becomes part of the process as they research, investigate, test,

and collaborate under the guidance of their teachers (Diffily, 2002; Dweck 2012; Yeager & Dweck, 2007). When real-world problems are integrated into academic courses using a project-based learning approach, students interact, collaborate, investigate, and create their solutions. “When academic subjects are interconnected and where there is a clear connection to the outside world, it is motivational for students” (Sutinen, 2013, p. 1042). Because project-based learning requires finding a solution to a real-world question or problem, students work together to meet this goal. They are more motivated when “they have a goal in which they must collaborate together to reach that goal” (p. 1042). PBL methodology connects school with real world problem solving and this makes learning more meaningful and can lead to innovative thinking on the part of students (Ausubel, 2000; Novak, 1995; Dewey, 1933). This connection to real-world learning engages students and motivates them to want to learn more (Scheer et al, 2012).

Project-based learning uses a constructivist approach, that is, it provides students with a hands-on approach to learning in which they must be active participants in the process. It transforms the traditional classroom dynamic from passive learning, in which the teacher is at the front of the class and students are sitting in their seats listening, to one that is more dynamic where students are solving real-world problems in small groups using the multi-step process of PBL (Rossighn & Chambers, 2011; Sutinen, 2013). In their small group work, students are often out of their seats to collaborate with peers and to conduct investigations or experiments as they develop a solution to the inquiry (Gale & Bishop, 2014; Ausubel, 2000; Blumenfeld et al, 1991; Novak, 1995; Katz & Chad, 1989; Dewey, 1933). Traditional instructional methodology is often characterized as one in which discrete content knowledge is taught to students. By implementing a project-based learning approach, academic subjects are interconnected and are directly linked to what is

current in the outside world (Fredricks et al, 2004; Blumenfeld et al, 1991; Krajcik & Blumenfeld, 2006).

Project-based learning can be implemented at any grade level; however, it can be used with great effect at the middle school level when many students first begin to lose interest in school and where, nationally, we begin to see a drop in student achievement. Middle school "is also a time in which high school dropout tendencies can begin to occur, even as early as the sixth grade. Sixty-eight percent of our nation's eighth graders read below proficiency and a quarter are unable to read at even the most basic level" (Gale & Bishop, 2014). With two years of the COVID-19 pandemic behind us, learning loss across the country's classrooms has been exacerbated. As students and teachers returned to full time instruction in their traditional school settings after a rocky two years of inconsistent instruction, educators in this urban school district where the research study was focused noted that students had less engagement. Sitting passively to learn does not meet the needs of today's students, particularly after the educational upheaval of the pandemic. However, by changing more traditional instructional methodologies, such as teacher-directed instruction, to student-centered PBL, students must participate and engage in their learning. As researchers have found, PBL has the potential to increase student engagement in school (Dewey, 1930; Kilpatrick, 1921; Blumenthal et al, 1991; Hernandez-Ramos & De La Pax, 2009). This engagement leads students to want to achieve and in urban settings where the opportunity gap is the greatest and where student achievement rates are typically low (Fredricks et al, 2004; Lawson & Lawson, 2013). Project-based learning classrooms have the potential for leveling the playing field and increasing student achievement. It is this higher level of student engagement that sets the stage for academic achievement and "school persistence" (Fredricks, p. 87). Katz and

Assor (2006) and Fredricks & Paris (2004) linked increased student engagement to higher student learning outcomes. “Classrooms in which there are challenging activities that are connected to the outside world and in which students have greater choice and are allowed to use their creativity tend to foster higher levels of cognitive engagement (Fredricks et al, p. 87). Cognitive engagement is defined here as the “investment” students are willing to exert to understand and master difficult subjects (p. 60). When engaged, students remain at their tasks longer.

The Purpose of the Study

The purpose of this phenomenological case study was to explore the experiences of three middle school social studies teachers as they implemented project-based learning in three different schools within the same large, urban school district. Germane to the research is how the teachers perceived the value of project-based learning (PBL) as an instructional methodology to teach United States History; what these teachers perceived as their strengths and challenges in using PBL at the middle school level; and how the teachers organized their classrooms for PBL to take place and to be effective.

The main goal of a phenomenological study is to “describe the lived experiences of the participants during an extraordinary time in history” (Creswell & Poth, 2018). During this phenomenological case study, the teachers and students in this school district had returned to in-person learning following wide-spread school closures occurring nationwide during the COVID-19 pandemic and heavy reliance on the use of virtual means of instruction. This research study was conducted within one of the largest urban school districts in the Northeast during the second semester of the school year. In these three eighth grade social studies classes the students had returned to in-person instruction

and mask mandates had been relaxed. All three of the teacher participants in this study had a significant number of years of teaching experience in urban education, with not less than 17 years as a middle school social studies teacher. All the teachers taught middle school U.S. History at the eighth-grade level and two also taught seventh grade U.S. History courses.

During this study, observations were conducted in two of the three participants' U.S History classes while the PBL units were implemented. The third teacher provided information through interviews and artifacts that were developed and collected from a recently completed U.S. History unit of study using PBL. All three middle schools in this study taught in the same school district, although they were geographically in different parts of the city in which this school district is centered. Because of the distance between the schools, the teachers rarely interacted with each other apart from professional development opportunities. The school district has 39 schools of which 23 include middle school grades. Although the school district is one of "choice," meaning that families may enter a lottery system to select up to three schools that they would prefer their child attend, many of the students attend schools based upon other factors including the neighborhood they live in and the magnet program that is concentrated in each school. The magnet programs within the research study sites include gifted education, bilingual education, and media literacy. Two of the three schools are composed mainly of students who live in the surrounding neighborhoods. The magnet program in gifted education in which Participant 1 taught has mostly students from outside of the immediate school neighborhood because it is the only school in the district in which students must take an assessment to qualify for placement. At this school, students take the district assessment for gifted or talented education when they first enter the school, which is typically at four

or five years old and rarely are gifted assessments conducted at other ages unless a student applies for an opening from another school.

These magnet programs were developed in the 1990s as one remedy after the school district was ordered by the U.S. Supreme Court to desegregate its schools. The court ruling was two-pronged, taking aim at both the city for its segregated housing and the school district for segregated schools. It was decided after an 18-year federal court case in which the federal court judge declared that both the city's housing and its school system "exacerbated racism" (Staples, 2002).

Through this phenomenological case study, the researcher hoped to gain a stronger understanding of teacher perceptions of the value of using PBL as a primary instructional strategy. This study adds an important case study to the literature on PBL at the middle school level, a level that has not been studied as closely as that of the secondary and post-secondary levels. Of the existing research studies on PBL in middle schools, few have been conducted within large, urban school districts. There are also very few studies that measure teacher perceptions of the impact of PBL on their students. As the study occurred during the recent COVID-19 pandemic, there are even fewer studies on implementing project-based learning under these circumstances and few studies to date have examined the impact of PBL through teacher perspectives during or immediately following a pandemic. Through the research study, the researcher attempted to gain a deeper understanding of how the participants perceived student engagement in their classrooms during project-based learning, how they perceived their own strengths in implementing this methodology as well as their challenges, and how they organized their classrooms. This qualitative study was also intended to identify and describe the experiences of the teachers as they implemented a unit of study in their eighth grade U.S.

history classes over a four-week period using PBL as their primary instructional methodology.

Theoretical Framework

Research has shown that authentic, experiential learning opportunities in which students construct knowledge in authentic settings, creates deep and effective learning experiences enhancing engagement and depth of learning (Dewey, 1930; Kilpatrick, 1925; Blumenfeld et al, 1991). Project-based learning, also referred to sometimes as "inquiry-based learning" or "problem-based learning" is derived from the constructivist theories of John Dewey (1916, 1933, 1959) and William H. Kilpatrick (1919, 1921, 1925) in which the learner is placed at the center of instruction. This theoretical framework requires the educator to change his or her role from providing direct instruction to serving as a facilitator or guide for students as they lead their own investigations (Dewey, 1933; Blumenfeld et al, 1991; Ausubel, 2000; Novak, 1995; Freire, 1993).

Project-based learning is launched with a driving question or compelling problem that students solve in collaboration with one another (Krajcik et al, 2002; Blumenfeld et al, 1991). This driving question or compelling problem must be one that connects academics with the outside world in a meaningful way.

> "[The driving question] provides context in which students can begin their exploration, and it is broad enough so that students can take different pathways to respond to it. As students pursue solutions to the driving question, they develop meaningful understandings and key scientific concepts, principles, and practices" (Krajcik et al, 2002, p. 6).

It is this well-developed question that provides the challenge and context to students as they begin the project-based learning activity. There are several key components needed to develop the driving question or compelling problem that launches the inquiry and that serves to engage students. According to researchers, Krajcik & Blumenfeld (2006), the five necessary components of a question include that:

- It must be broad enough to allow for students to investigate, research and collaborate.
- It must be aligned to state content standards for the academic areas being covered and it must be "rich in content."
- It must have an important and relevant "real-world connection" or application.
- It must be "interesting" for students to research and "meaningful."
- It must be "ethical." Students must be trained on how to conduct investigations and research and the real-world application must be based.

In attempting to answer the driving question or solve a compelling problem, students collaborate in small groups, grapple with issues during the process that are similar to those found in the outside world, engage in research, and develop an answer to the driving question through the creation of a project (Dewey, 1916; Kilpatrick, 1925; Blumenfeld et al, 1991; Krajcik & Blumenfeld, 2006; Sutinen, 2013; Friesen, 2013). The culminating projects are displayed to a community audience for feedback followed by student reflection on the process and product. When students explain the processes they used to find their solutions and when they engage in self-reflection, they reach one of the highest levels of thinking, metacognition (Schunk, 2012). Through solving these authentic, complex problems or answering a driving question, students become more

engaged in learning, leading to increased academic engagement (Dewey, 1933; Kilpatrick, 1921; Blumenthal et al, 1991; Hernandez-Ramos & De La Pax, 2009). "High motivation levels towards school leads students to want to know more, to engage with their learning, and to make the connection between school and the outside world" (Scheer et al, 2012, p. 10). Without this correlation between academics and the outside world, students often view academic content areas in isolation to one another with little or no connection to the outside world (Fredricks et al, 2004, p. 87). The nature of PBL helps students make connections between academic disciplines and the outside world. Essential elements of PBL include:

- A driving question to answer or compelling problem to solve
- Collaborative student teams working on the inquiry together
- The teacher serving as a guide and facilitator for student learning
- Students conducting research to develop workable, real-world solution
- Ongoing formative assessments
- The incorporation of technology
- Presentation of the results or project to an outside audience
- Student reflection on the process and project (Dewey, 1930; Kilpatrick, 1921; Blumenfeld et al, 1991; Freire, 1993)

The role of technology took on a more prominent role during the pandemic as digital communication was often the only way for teachers in school districts to connect with their students and to continue instruction. During the months of virtual learning that took place within this school district, technology, such as computers, the Internet, and online instruction, was how teachers and students were able to communicate and how students

were able to interact while maintaining a safe distance from each other. The virulence of the pandemic shuttered the school district and most others across the country and the world during the first months of the pandemic. Schools in districts such as this one, opened cautiously during this new school year with only half of the student population returning to in-person instruction each day. Technology provided a medium for student collaboration as well as interactions with teachers. It also facilitated the sharing of information, projects, and assignments. The use of technology also engages students because they have grown up with technology and are not afraid of it; they are "digital natives" (Prensky, 2001, p. 99). There were many more drawbacks, however, for most students trying to learn during the pandemic through virtual means, particularly in inner cities. Students were often isolated from their peers and teachers and unable to go outside because their neighborhoods may not have been safe. Internet connections did not always work within the city and the district did not have enough computers for each student so many families were forced to share one device, adding to the disruption to education. In high poverty districts, such as this one, families often cannot afford to purchase their own computers for their children to use.

Significance of the Study

This research study has significance on the local, state, and national levels as school districts grapple with engaging students, many of whom may have lost two or more years of consistent instruction due to the pandemic. Many students became disengaged when they had limited or no direct access to their teachers and schools, especially when learning tasks required little more than recall or other lower level thinking skills. These inconsistencies of instruction resulted in large learning gaps across

the country. There is a growing educational movement to increase experiential learning activities because hands-one learning tends to engage students and when students are engaged in instruction, deeper learning occurs. Two national documents that support the importance of using student inquiry methods for instruction are the U.S. Department of Education's Every Student Succeeds Act (ESSA) and the National Social Studies C3 (College, Career, and Civic Readiness) standards published by the National Council for the Social Studies (NCSS). These research studies support the assertions by federal entities and constructivist theorists that inquiry-based teaching methods, such as project-based learning, best prepare students for continuing education beyond the secondary level as well as careers of the future. According to a position paper published by the NCSS (2017), "By engaging in social studies inquiry, young children can begin to see themselves as capable problem-solvers and active contributors to their communities and beyond." Additionally, the state in which the research study took place is considered a leader in promoting inquiry-based instruction approaches contained in the Next Generation Learning Standards (NGLS) in each discipline (social studies, English language arts, science, math). Therefore, gaining a deeper understanding of how teachers implement PBL and their perceptions of the process of implementing PBL in the middle school grades and their perceptions on the impact of young learners is essential. This study adds an important phenomenological case study to the literature. Additionally, the study may have significant implications for other urban school districts across the country. This is particularly important as urban districts tend to have fewer resources than suburban districts and achievement is often lower, when measured by state and local assessments.

Connection to Equity and Social Justice

Research indicates that as some students progress through their school years, their engagement levels decrease, particularly among Black/African American and Latino/Hispanic students (Fredricks et al, 2004, p. 60). It is this lack of student engagement that can lead to increased drop-out rates (p. 60). This occurs typically in classrooms where students are passive participants and teachers use lecture or other teacher-directed instructional methods. When teachers provide low level thinking activities and where students are passive, or compliant, participants, there is little learning and little is retained (Fredricks et al, 2004; Lawson & Lawson, 2011). Research studies also indicate that student motivation levels are not as high in classrooms that are "performance-based" as they are in classrooms in which the "mastery of content" is emphasized (Blumenfeld et al, p. 384). In other words, when getting the correct answer and high grades are the only relevant outcomes, students will tend not to retain information long term.

However, in classrooms where students are active participants; have some degree of choice within the instructional environment; and are engaged in higher level thinking skills such as problem solving, critical thinking and creating; their engagement levels and connection to school increases (Lawson & Lawson, 2011; Fredricks et al, 2004). "Minority students, in particular, learn best through active classroom cultures characterized by creativity, innovation, collaboration and critical thinking," (Lawson & Lawson, p. 446). However, many large urban districts with high populations of minority students from lower socioeconomic environments typically do not utilize inquiry methods to engage students in the classroom. Low state test scores may also, mistakenly, lead

educators to focus on teaching discrete content and skills for students to obtain proficiency on a test. Through PBL, however, students must use higher order thinking skills, such as critical thinking, investigating, problem solving, collaborating with others, and creating to solve real-world problems. While these higher order thinking skills are needed for success in college and careers, they are not often taught in high poverty schools. When inquiry learning, such as project-based learning activities are introduced into schools in impoverished areas, students can learn on a more level playing field, much like their peers from higher socioeconomic backgrounds (Ravitch, 2010; Schunk, 2012). Shifts from performance-based achievement to deeper learning methods using PBL is necessary to break this cycle of low achievement (Lawson & Lawson, 2011; Fredricks et al, 2004; Blumenfeld et al, 1991). In their study, Moll & Gonzalez (1994) demonstrated that inquiry-based learning, with its integration of student collaboration, problem-solving framework, and "bringing community and culture into the classroom," engages learners, particularly diverse students. In a telephone interview with PBL researcher and theorist John Larmer (March 2021), he explained that PBL is perhaps most important for students in urban areas where the "educational system can be disengaging for students. Kids drop out of school because they do not see the cultural relevance. Studying a real problem in the community is powerful for them." He added that those teachers who regularly used PBL had a "much smoother transition during remote learning and students remained much more engaged," because of its structure and students being able to work both independently and collectively virtually during the pandemic.

PBL as an instructional methodology is based on a constructive approach that connects academics to careers. Students must collaborate to answer a driving question or solve a compelling problem, like problems that adults face in the outside world. When we

create more active learning environments, characterized by “creativity, innovation, collaboration and critical thinking,” it is more likely that students will use higher-level, problem-solving skills (Lawson & Lawson, p. 446).

Implementing PBL in a school district in which achievement levels were very low, between 25% to 30% as measured by the English Language Arts assessments in grades three through eight in the years prior to the pandemic (2018, 2019), may improve learning outcomes starting with engaging students. The most recent results (2019) are indicative of a years-long pattern of low achievement within this district in which the research study was conducted. State assessments were cancelled due to the pandemic in 2020 and 2021 so state data during the height of the pandemic was not available. However, by turning passive learners into active participants in their own learning and integrating higher order thinking skills through a shift in instructional methodologies is a game-changer. Research has shown that the hands-on nature of PBL motivates students by placing them at the center of their education where they are making meaningful connections between their lives and academics and between academics and the outside world (Dewey; 1916, 1933; 1959; Kilpatrick, 1918; Blumenfeld et al, 1991; Fredricks et al, 2004). Many studies linking student engagement with achievement have been conducted at the high school and collegiate levels and there is a vast opportunity to further study this phenomenon at the middle school level where tendencies towards dropping out of school may germinate.

A central aspect of the project-based learning approach is that students become the “drivers of their education” through collaborating to solve a compelling problem or answering a driving question and they create a project that showcases their solution (Blumenfeld et al, 1991; Scheer et al, 2012; Vygotsky & Cole, 1978). The collaborative

environment that exists within PBL classrooms promotes student autonomy because students gain confidence through interacting with each other as they develop solutions (Fredricks et al, 2004, p. 60). Classrooms that have these high levels of student autonomy tend to have "higher levels of student mastery of content, higher engagement levels, and better learning outcomes" (Lawson & Lawson, 2011, p. 453). According to Vygotsky (1962), "When a person is absorbed, the subject consumes him. When a teacher effectively nurtures this, it can be a springboard for other behaviors. Students become more motivated and ask more questions." In other words, once students feel ownership of their learning, and interested in it, they continue to be involved and want to know more.

Relevant Research

A phenomenological research approach attempts to understand the lived experiences of individuals, in large part, through gathering and examining their perspectives (Seidman, 2013; Bogdan & Biklen, 2014). The research study participants' perceptions and experiences integrating project-based learning was at the core of this qualitative research study and has enabled the researcher to capture their first-person accounts. These accounts form a deep, contextual understanding of the phenomena being studied. According to Seidman (2013), "context is crucial to understanding the meaning of participants' experiences from their point of view" (p. 19). The participants worked with their students in their classrooms while the researcher observed the classrooms and interviewed the participants virtually. Due to COVID-19 restrictions, schools had limited outside visitors to minimize the risk of exposure. By further contextualizing these experiences and perceptions, a thematic analysis of the virtual interviews and class observation data was conducted. Capturing exact quotes from the participants further helped to construct themes (Saldana, 2016, p. 200). "Themes or thematic statements

culled directly from the participants' own language [may] succinctly capture and summarize a major idea" (p. 200). From these themes the researcher was able to gain a deeper understanding of the participants experiences through their own words.

Additionally, the findings of this study provide further evidence of the impact of project-based learning in increasing student engagement as school districts plan and implement their distance learning approaches. Within the current state education department draft Every Student Succeeds Act (ESSA) plan, project-based learning, and other inquiry approaches, are being proposed for inclusion in social studies instruction for kindergarten through grade 12 classrooms. Social studies is a new indicator in evaluating school district performance with its integration of inquiry-based learning at all grade levels (New York State Department of Education).

Research Questions

This study answered the following research questions:

1) What are the teachers' perceptions of the value of project-based learning as an instructional methodology?

2) What are the teachers' perceptions of their strengths and challenges using project-based learning in middle school classrooms?

3) How do teachers organize the classroom learning environments for project-based learning?

Definition of Terms

Case study research: This type of research involves the study of a case within a real-life, contemporary context or setting. (Yin, 2009). The case typically involves a specific

"individual, community, decision or event" that the researcher studies; it is "current" and represents a "real-life" example (Creswell & Poth, p. 97).

Constructivist theory: "This approach incorporates the research's views; uncovers experiences with embedded, hidden networks, situations, and relationships; and makes visible hierarchies of power, communication, and opportunity" (Charmaz, 2006).

Digital learning: Students learning through various technologies instead of, or as a supplement to, in person instruction in a classroom.

Driving question: It "serves to organize and drive activities of the project, provide a context in which students can use and explore learning goals and scientific practices, and provide continuity and coherence to the full range of project activities. As students pursue solutions to the driving question, they develop meaningful understandings of key scientific concepts, principles, and practices" (Krajcik, Czerniak, & Berger, 2002).

Engagement: This term has variations of meaning in research. It can refer to the idea of "commitment or investment (the two terms are used interchangeably) (Fredricks, Blumenfeld & Lang, 2004, p. 61) or in the "attitudes students bring to their study, the work students produced... and the extension of that learning beyond the formal lecture" (Errey & Wood, 2011, p. 26). Lawson & Lawson (2013) considers student engagement to be the "conceptual glue" that connects students' prior knowledge, experience, interest at school, home, and in the community) with its "ecological influences of peers, family and community" (433). It is "extra-classroom energy in action, observable and

measurable in school-sponsored activities and tasks" (Lawson & Lawson, p. 439). Engagement and motivation are used interchangeably in this study.

Interview protocol: The protocol is the procedure the researcher will use to direct the interview and record information from the participant. Typically, interview protocols include instructions to the participant, topic headings, and the questions that are proposed (Creswell & Poth, 2018).

Historical Contexts: This occurs when the researcher presents the life and relevant background of the participant, adding depth to the study (Creswell & Poth, 2018).

Meaningful Learning: "Meaningful learning occurs when the learner is able to link new information to concepts and meanings that she or he has already had in his/her cognitive structure. In other words, new information to be learned is not taught arbitrarily but always in relation to what the learner already knows" (Novak, 2002, pp. 213-214). Meaningful learning connects new knowledge to knowledge previously learned (p. 24)

Motivation: "This refers to the magnitude and direction of behavior… it refers to the choices people make as to what experiences or goals they will approach or avoid, and the degree of effort they will exert in that respect" (Keller, 1983, p. 389). Motivation also can be the 'investment and commitment" one has (Fredricks et al, 2004, p. 61). Motivation and engagement are used interchangeably in this study.

Phenomenon: This is the "object" of human experience (van Manen, 1990, p. 163).

Phenomenological Study: "This type of study describes the common meaning of experiences of a phenomenon (or topic or concept) for several individuals. In this type of qualitative study, the researcher reduces the experiences to a central meaning or the 'essence" 'of the experience" (Creswell & Poth, 2018, p. 314). In other words, this is the "lived experiences" of the participants (Creswell & Poth, p. 76).

Project-based learning: "A teaching methodology in which the teacher guides students through a problem-solving process which includes identifying a problem, developing a plan, testing the plan against reality, and reflecting on the plan while in the process of designing and completing a project" (Dewey, 1938).

Social constructivism: In this approach, individuals seek understanding of the world in which they live and work. Meaning is formed through interaction with others and through historical and cultural norms that operate in individuals' lives" (Creswell & Poth, 2018, p. 24).

Virtual learning: Classroom instruction that is conducted using digital technologies, often a computer, Internet, and computer operating system that allows for screen sharing and the sharing of digital content.

CHAPTER 2

Introduction

In conducting a review of the literature on project-based learning, the impact of how project-based learning can be used to increase student engagement at the middle school level was prioritized. Theorists such as John Dewey and William Kilpatrick provide an historical perspective beginning in the early 1900s. Peer-reviewed articles and dissertations describing the approach, its connection to increased student motivation, and the link between student motivation and student achievement were researched. The researcher found that motivation and engagement were often interchangeably used in various research studies. For the purpose of this study, the researcher used student engagement to mean "extra-classroom energy in action" (Lawson & Lawson, 2013, p. 439) that a student brings with him or her and the "commitment or investment" (Fredricks et al, 2004, p.61) a student has in his or her studies. The researcher used motivation and engagement to refer to this commitment or "investment" and extra classroom energy towards a goal.

During the literature review process, the researcher was particularly interested in curating studies that examined teacher perceptions of engagement in their classrooms when project-based learning was used as the primary instructional methodology. The researcher was also interested in investigating whether a link existed between student engagement and student achievement, particularly among students in urban areas living in lower socioeconomic homes. Research connecting project-based learning to increased student engagement exists, however, generally at the high school and collegiate levels. There are relatively few studies conducted on teacher perceptions on student engagement

during project-based learning activities aimed at the middle school level, particularly within urban middle school settings. Similarly, there were few studies showing a connection between increased student engagement and achievement when using project-based learning in urban schools in high poverty environments. This phenomenological study of teacher perceptions of student engagement during project-based learning at the middle school level increases the literature on PBL and expands it to urban middle schools with high poverty levels.

Initial research and theories on project-based learning occurred fairly frequently between 1920 and 1930, beginning with Dewey's (1916) and Kilpatrick's (1919) constructivist theories; however, this approach seemed to disappear in the research literature between the late 1930s through the 1960s when it again began to surface, largely in small movements but not as a predominant methodology in American schools. Since the early 1990s, there have been several studies that began to link project-based learning to increased student motivation in school. The link between teacher perceptions of student engagement and increased academic achievement, however, is not always apparent in research studies and this is an area that this research study addresses. This study also contributes to research conducted in urban middle school classrooms, an area in need of additional research.

Theoretical Origins of Project-Based Learning

Project-based learning; also referred to as PBL, "inquiry-based learning," or "problem-based instruction," is derived from the constructivist theories of John Dewey (1916, 1933, 1959) and William H. Kilpatrick (1919, 1921,1925) in which the learner is placed at the center of instruction. PBL is interdisciplinary in nature and fosters higher order thinking skills such as problem solving, critical thinking, analysis and synthesis of

information, and innovation. When instruction is student-centered, with a real-world application through a compelling question to answer or problem to solve, students become motivated to learn because learning has taken on meaning for them (Dewey, 1933; Blumenfeld et al, 1999; Ausubel, 2000: Novak, 1995). In answering the driving question or solving a compelling problem, students engage in research, and oftentimes develop multiple solutions which are displayed for a larger audience in their final product (Krajcik & Blumenfeld, 2006; Blumenfeld et al, 1991). Through solving these authentic and complex problems students become motivated to learn leading to increased academic engagement and increased learning outcomes (Dewey, 1933; Kilpatrick, 1921; Blumenfeld et al, 1991; Hernandez-Ramos & De La Paz, 2009). Students who are motivated to attend school because they are engaged in their classes will continue to be motivated to learn more particularly when there is the "connection between school and the outside world," (Scheer et al, 2012, p. 10).

PBL is also well suited for integrating formative assessments into teachers' instruction. Formative assessments are ways in which teachers can quickly check in to see if students are on track in their inquiries and to provide targeted instruction to address content knowledge or skills that may be lacking (Caine et al, 2002). "Formative assessments allow teachers to check student understanding and to modify instruction or provide missing content or context they need" (p. 70). "Its interdisciplinary design helps students make connections between academic disciplines and the outside world (p. 70)". Essential elements of PBL include:

- A driving question to answer or compelling problem to solve
- Collaborative student teams working on the inquiry together
- The teacher serving as a guide and facilitator for student learning

- Students conducting research to develop a workable, real-world solution
- Ongoing formative assessments
- Presentation of the results or project to an outside audience
- Student reflection on the process and product

These essential elements are characteristic of project-based learning (Dewey, 1933; Kilpatrick, 1921; Blumenfeld, 1991; Freire, 1993). One element that should be added, particularly in today's flexible instructional environments, is technology. As we saw through the pandemic, facility with technology can promote the continuation of instruction, outside or inside of schools. Technology not only can facilitate instruction, but it engages young people (Creswell & Poth, 2018; Blumenfeld et al, 2000) in the process.

Review of Related Literature

This literature review examined project-based learning and its foundation in constructivism, where students are "doing the learning" while working to solve a compelling, real-world problem or question (Blumenfeld et al, 1991). Project-based learning takes the student and places him or her at the center of the educational process (Dewey, 1933; Blumenfeld, 1991; Kracjik, 2006). When instruction is student-centered, with a real-world application through a compelling question to answer or problem to solve students are motivated to learn because learning has taken on a more personal meaning for them (Dewey, 1913, 1933; Kilpatrick, 1925; Blumenfeld et al, 1991).

Several themes emerged through the research study. The first is the relationship between project-based learning and increased student engagement. The second theme explored the importance of social interactions, endemic to PBL, which led to increased

student engagement and cognitive development. The third theme connected theories of "meaningful learning" as an essential element of constructivism and project-based learning, and the fourth theme explored the role of historical inquiry in raising student skill levels. A fifth theme emerged when examining the participants' backgrounds in gifted and talented education and comparing them to the characteristics of project-based learning. The challenges of implementing project-based learning were a consistent theme found in research literature and reinforced through this study.

Engagement

> "Today's learners are totally different, and training and education have not kept pace with them. Moreover, training and education are largely non-motivating or demotivating to the Games Generation. So, we should ask, how can we motivate today's learners? Can we motivate them?...The primary reason we need to pursue motivation is because learning takes effort" (Prensky, 2001, p. 100).

Studying student engagement is necessary because without this connection, students will continue to struggle in school, dropout rates will continue to rise, and we will continue to lose students in our educational system. Research since the early 1900s has shown that when students solve authentic and complex problems they become increasingly engaged in their learning (Blumenfeld et al, 1991, 2000; Dewey, 1933; Kilpatrick, 1921). Through increased engagement, students are more interested in learning, and this leads to both a deeper learning and increased academic achievement (Blumenfeld et al, 2000). A key aspect of project-based learning is that students become the "drivers of their education" because they must collaborate, research an area of interest

that solves the compelling problem or answers the driving question, and design and create a project that showcases their solution (Blumenfeld et al, 1991; Scheer et al, 2012; Vygotsky & Cole, 1978).

> "When children are intrinsically motivated, they respond in ways that encourage their disposition to work independent of the teacher, for example by helping one another. They can determine for themselves what they want to find out from books, reference materials, adults at home, and other children. By experimenting, children can determine the most appropriate method of inquiry and sources of information" (Katz & Chard, 1989, p. 17).

Project-based learning requires students to work together. A key aspect to project-based learning is the connection between academic subjects and the outside world, as well as the interrelationships between subjects. School is no longer a series of independent subjects separated from the world outside. The connections that are formed between academic disciplines and school to the outside world engages students. According to Dewey, "Inquiry acts as a magnet for content. It motivates further analysis of content and input of several disciplines to explore and solve complex inquiry" (Scheer et al, 2012, p. 10). A predominant finding from research studies on project-based learning is that when students are engaged in their learning activities, they are more likely to want to learn more. The motivation to learn more positively impacts student achievement (Lawson & Lawson, 2011; Dweck, 2010; Yeager & Dweck, 2007; Hernandez & De La Paz, 2004; Ausubel, 2000; Novak, 2002).

Roessingh and Chambers (2011) found classrooms that used project-based learning increased the use of students' higher order thinking skills at a greater rate than

more traditional classrooms. By transitioning from teacher-driven instruction to an "open-ended process with the values of inquiry, reflection, negotiating meaning, case and problem-based learning, discussion and collaboration, and self-directed learning," students achieved at much greater rates (Roessingh & Chambers, p. 60). When intrinsically motivated, students will work collaboratively as well as engage in self-regulation to find what they need from resources. The hands-on experimentation and investigation that is central to PBL, engages students in a way that lets them decide on how they want to design their inquiry projects (Katz & Chard, 1989, p. 17). This type of learning also allows for students to discover their own solutions and to test them which breaks away from the mold of there being only one right answer to a problem.

Social Constructivism

The relationship between social constructivism and project-based learning is grounded in Vygotsky's (1962) theory that social interactions play a significant role in cognitive development. He emphasized the importance of constructing socially meaningful activities in schools for students to increase their intellectual development. According to his social constructivist theory, learning occurs largely through observing others. Through observation, children learn how to interact and behave socially, how to perform tasks, and how to find information necessary to complete their learning tasks (Vygotsky & Cole, 1978; Rieber & Carton, 1987). In PBL, the focus is on having students engage fully in the learning activity through active problem-solving, working in small collaborative peer groups to grapple with real-world issues, and being guided by teachers as opposed to being provided with the answers to problems (Vygotsky & Cole, 1978; Scheer et al, 2012; Benek & Ostrovsky, 2008, Novak, 2002). It is this social component that can increase student engagement, and which can then encourage students

to strive for higher levels of achievement than what they may do independently or in an environment where they are passive learners (Vygotsky & Cole, 1978; Schunk, 2012).

According to Vygotsky, "the social environment is critical for learning" because these social interactions can "transform learning experiences" (Schunk, 2012, p. 242). The social dynamic of collaborating with peers increases a student's "cognitive growth at a higher rate" when he or she collaborates with "more capable peers" or with the teacher than if working independently (Vygotsky & Cole, p. 86). Vygotsky referred to this as the *zone of proximal development.* PBL utilizes the social component of collaborative learning, and with its emphasis on open-ended results, it provides a vehicle for students to be successful while encouraging the use of higher order thinking skills such as innovating, problem solving and critical thinking as students interact with one another with a goal. "With collaboration, direction, and some kind of help the child is always able to do more and solve more difficult tasks than he can independently" (Rieber & Carton, 1987, p. 205).

Kilpatrick's "project method" (1925) illustrated that students become more motivated when they have a goal that is part of a planned activity and in which they collaborate to reach that goal (Sutinen, 2013, p. 1042). He believed that schooling should include "democratic" activities in which students have more "choice" in developing projects; he refers to the hands-on learning approach of constructivism as an "essential principle of teaching" (p. 1042). He also posited that project-based learning approaches shape a student's character and that "collaboration among students leads them to their goal more quickly than working independently" (Sutinen, 2013; Ravitch, 2010). Studies of teacher-directed instruction, as opposed to student-centered instruction, have

repeatedly shown that students retain very little from direct instruction because there is often little applicable meaning for them because they are passive receivers of the information (Thomas, 2000; Blumenfeld et al, 1991; Moll & Gonzalez, 1994). When we move from the traditional teacher-directed "lecture to [an] open-ended process with the values of inquiry, reflection, negotiating meaning, case and problem-based learning, discussion and collaboration, and self-directed learning," students achieve at much greater rates (Roessingh & Chambers, p. 60). When students are actively solving problems and thinking critically, they construct meaning in what they are doing, they tend to become fully engaged, and deep learning can take place (p. 60).

Meaningful Learning

David Ausubel (1978, 2000) and Joseph Novak (1991, 2002) describe "meaningful learning" as that which connects students' prior knowledge to new learning. Ausubel refers to this as "the most important single factor influencing" learning (Ausubel, 2000). According to Ausubel and Novak, the most effective method to connect prior knowledge and new learning is for the teacher to develop scaffolds. These are incremental steps or tasks that assist students in making larger connections. Examples of scaffolding include concept maps and other visual graphics in which students can connect topics they have learned in the past with new information. Developing scaffolds for PBL begins when planning the unit of instruction as they help students make connections from what they have learned previously to new concepts and skills (Blumenfeld et al, 1991, p. 382). Ausubel and Novak demonstrated through their research that when teachers scaffold instruction, they help students to "gain mastery over their learning by providing building blocks" (Ausubel, 2000; Novak, 2002). Scaffolding is often necessary for learners engaged in PBL to help guide them as they attempt to answer driving questions

or solve compelling problems by taking smaller, logical steps to make connections. Scaffolding also assists students who are "not proficient" yet in using higher order thinking strategies, allowing them to learn different skills as they tackle the project (Blumenfeld et al, 1991, p. 382). "Scaffolding is critical for students when they are using higher order thinking skills" (p. 382). For project-based learning to be successful for all students the projects, beginning with the question or problem, must be very well planned, and organized" (p. 382). Another essential element in PBL is that of student choice. Projects must be broad enough to allow for student choices. These choices may include the direction and types of their investigations or experiments, how they will determine roles and responsibilities of group members, and how they will develop their projects to showcase their solutions. (Ausubel, 2000; Blumenfeld et al, 1991; Novak, 2002). By having "choices and control" over their inquiry, the learning becomes more personalized and thus more engaging (Blumenfeld, 1991, p. 376).

Scaffolding the unit and its lessons for students helps them to connect new learning to prior learning (Ausubel, 2000; Novak, 2002). When teachers provide scaffolding through graphic organizers or concept maps, students can more readily see the connection between what they are learning and the process by which they are learning it. They are then better able to make the connection between the work they are doing in school and real-world situations and problem solving (Novak, 2002; Ausubel, 2000). "Meaningful learning occurs through engaging students in comprehensive projects that compels them to drill deeper into content and skill areas, apply and extend learning beyond the school building walls, use evidence and ideas in practical ways, and make new connections" (Yeager & Dweck, 2007; Ausubel, 2000; Novak, 2002). This approach allows students to work at their own pace while they gain content knowledge

and skills; Yeager and Dweck define this as "deeper learning" (Yeager & Dweck, 2012, p. 302). Through this method of scaffolding instruction, students are no longer memorizing isolated facts, they are constructing meaning and building new knowledge by connecting what they have learned to new learning (Ansalone, 2009, p. 191). As students gain mastery over the content, the levels of scaffolding can be reduced. Reaching levels of mastery further increases student engagement because students better understand what they are learning and are prepared for it. (Ausubel, 2000; Novak, 2002). Scaffolding instruction allows for all students to gain success. Their feeling of success leads them to higher levels of metacognition, students start to think about their learning as they take control and become more self-directed with the help of scaffolding activities and skills (Schunk, 2012; Scheer et al, 2012). Furthermore, "success in school leads to higher engagement levels and with that comes greater self-efficacy in students" (Yeager & Dweck, 2007; Dweck, 2010).

By scaffolding instruction in a way that supports student inquiry, learning becomes meaningful and students "naturally delve deeper into content and skill areas needed for school and life; apply and extend learning activities beyond the school building walls; use evidence and ideas in practical ways; and make interdisciplinary connections" (Yeager & Dweck, 2007; Ausubel, 2000; Novak, 2002). It is through the process of inquiry that students acquire a higher level of proficiency leading to higher motivation levels and thus deeper understanding and greater achievement (Lawson & Lawson, 2013; Hernandez & De La Paz, 2009; Kilpatrick, 1925; Dewey, 1933).

Gifted Education

Many theories of gifted education emphasize inquiry-based learning practices such as integrating complex problem-solving, allowing students to work at their own

pace, and including elements of choice. These characteristics of gifted education are also characteristics of project-based learning (Blumenfeld et al, 1991; Diffily, 2002; Tomlinson, 1995). According to Blumenfeld et al (1991), project-based learning "encourages creativity and higher order thinking, both of which are necessary for gifted children" through having students become the "drivers" of their education through the process of inquiry (pp. 3-4). The element of choice is significant in teaching gifted students and choice is also endemic to establishing a PBL learning environment for students of any ability (Blumenfeld et al, 1991; Diffily, 2002; Subotnik & Jarvin, 2005). PBL not only "meets the needs of gifted students with its inquiry lessons, but it allows the teacher to differentiate for all students," (Diffily, p. 40). Tannebaum (1983) believes the terms "gifted" and "creativity" are interchangeable and posits that "children have the potential to be gifted and this potential should be nurtured in order for it to be realized." His theory opens the door to a more flexible view of giftedness as opposed to those theorists who posit that giftedness is fixed and largely determined through genetics.

Historical Inquiry and Achievement

Several case studies are effective in illustrating the connections between project-based learning, increased student engagement, and increased achievement as compared to more traditional approaches to teaching and learning. Studies conducted at the elementary, middle, and high school levels were included to provide examples of how inquiry methods, such as PBL, can look quite different. These case studies used different approaches and targeted different audiences and, although the essential characteristics of PBL were present in all, teacher attitudes had a significant impact on the studies outcomes. In the Shepard study (1998), fourth and fifth grade students were asked to

solve a housing crisis. The experimental classes used project-based learning to develop solutions while the control classrooms engaged in traditional teaching and learning practices. While all students scored similarly on the pretest, the PBL class scored significantly higher on the Cornell Critical Thinking Test (CCTT) posttest. Attitude surveys administered to students indicated much higher levels of self-confidence from students in the experimental class. This level of confidence led to higher motivation levels among students in the PBL classes (Shepard, 1998).

In Hernandez-Ramos and De La Paz' (2009) study, the researchers compared three eighth grade middle school social studies classrooms from two middle schools within the same district. One classroom used a project-based learning approach and integrated technology so the students could create their own documentaries. The other two classrooms used more traditional methods of teaching history, relying heavily on factual knowledge and memorization. The topic was the westward expansion movement. The data collected in this quasi-experimental study included the examination of results on content knowledge tests, group projects, and attitude and opinion surveys. Students were administered a pretest at the beginning of the unit and a posttest at the end. The results indicated content gains in content knowledge for both groups however there were significantly higher gains from the students in the project-based learning school. Two months after the unit ended, students were administered the state assessment measuring content knowledge and historical thinking skills and the group who participated in the project-based learning classroom scored "significantly higher and showed greater retention of both facts and historical thinking." The researchers found that the classroom that used project-based learning resulted in students who were better able to "grasp the understanding that history is more than random facts" and to increase both their "interest

level and achievement" (Hernandez-Ramos & De La Paz, 2009). In other words, higher engagement levels and higher achievement were linked to the students who participated in the project-based learning unit.

Page's ethno-historical case study (1992) evaluated the National History Day (NHD) program and its implications for teaching and learning. In this study, the researcher used ethnographic and historiographic methods to review documentaries developed by students and interviewed 13 student and teacher participants, including six former student participants and the state coordinators in three states. All participants and projects had reached the national competition level with their projects. The findings in this qualitative study indicated that the NHD process of using historical inquiry through a project-based learning approach and the competition "increased student engagement; increased cognitive, affective and skill development; and increased students' understanding of historical content and concepts as well as their abilities to think critically," (Page, 1992). Again, there was a strong nexus between project-based learning and increased engagement and student achievement, including the acquisition of higher-level thinking skills.

Two qualitative studies (Adams & Pasch, 1987; Page, 1992) of the National History Day program discussed the importance of students linking the past to their own lives and communities. Both studies found that high school students who used historical inquiry increased their use of higher order thinking skills. The investigative aspect of the NHD program, in which students are expected to engage in original historical inquiry on a topic, resulted in several student projects leading to landmark developments. As an example, one high school NHD project reinvestigated the kidnapping and murders of three civil rights workers in Mississippi in 1964. The evidence they uncovered led to the

retrial and conviction of a former Ku Klux Klansman in 2005 and the project and case were used as evidence leading to the movie, "Mississippi Burning." While this is the most famous connection between inquiry-based learning through the National History Day program, other student projects have resulted in local and state programs (Page, 1992). These examples further illustrate the link between project-based learning and real-world problem solving resulting in learning that goes beyond the mere retelling of facts. Students learn to apply their knowledge and skills to problem solving.

Difficulties in Implementation

While there are many studies that describe and demonstrate the success of project-based learning in increasing student engagement, there are contrasting studies that demonstrate implementation barriers. A main criticism of this approach is the amount of time that is needed for teachers to plan inquiry units as well as for students to be able to engage in the process of inquiry. Planning allows for differentiation to occur and for scaffolding methods to be created so that students' prior knowledge is connected to new learning. It is during the planning stages that the teacher is working to ensure that the projects are appropriately challenging, that the problem or question is one that is worth exploring, and that the solution has a direct application to a real-world issue. Planning for the inquiry project is complex, generally includes an interdisciplinary approach, and calls for the alignment of content to learning standards (Blumenfeld, et al, 1991). The comprehensive nature of the projects leads students to use the requisite higher-level skills that are often not taught in many schools, particularly those serving students from lower socioeconomic backgrounds. However, higher level skills applied during PBL help to ensure that students from lower socioeconomic households can achieve at the same rate as students in higher socioeconomic households (Ravitch, 2010; Schunk, 2012).

Students must also have adequate class time to collaborate, experiment, and develop well-constructed conclusions and prepare a final product for an audience otherwise they will just be "doing projects" that are not connected to learning. Doing projects that do not include inquiry can lead to disengagement or other negative classroom behaviors (Scheer et al, 2012; Beneke & Ostrosky, 2008). The role that the teacher plays in a PBL classroom is also significantly different than in a traditional classroom. The teacher serves as a facilitator or guide providing content knowledge and assisting with relevant skill acquisition where there may be a void, as opposed to being the sole provider of information in the traditional teacher-centered classroom (Dewey, 1933; Blumenfeld et al, 1991; Novak, 1991; Ausubel, 2000). Studies of teacher-directed learning, as opposed to student-centered instruction, have repeatedly shown that students retain very little information in teacher-directed classrooms in large part because there is little applicable meaning for them. When we shift from traditional teacher-driven instruction to a more open-ended process that uses "inquiry, reflection, negotiating meaning, case and problem-based learning, discussion and collaboration, and self-directed learning" students achieve at much greater rates because they are no longer passive participants (Roessighn & Chambers, 2011, p. 60). In situations where students are using higher level thinking skills, such as problem solving, critical thinking and innovation, they "construct meaning in what they are doing and a deeper level of learning occurs" (Katz & Chard, 1989, p. 17).

Some teachers have difficulty relinquishing the traditional teacher role in which they are completely in control of the classrooms, directing students in each step of a process or providing information for students to digest. In a qualitative study of a middle school in the Midwest in which the principal wanted to implement PBL throughout the

school, the researchers measured the teachers' knowledge and skill in using PBL both before and after the study (Wurdinger at el, 2007, p. 154). The researchers concluded that many teachers were uncomfortable having students work independently for lengthy periods of time.

> "Teachers may be uncomfortable with the approach especially when students make mistakes and flounder during the process...However, in this valuable aspect of the learning process, students learn from their mistakes and realize they must re-evaluate their plans and implement them in different ways until they find a solution" (Wurdinger et al, p.159).

It is this part of the process where students must grapple with uncertainty that many teachers are uncomfortable with. This is where students struggle and where teachers must transition to the role of a guide instead of providing the answers. This can be very uncomfortable for teachers. In addition, students and their group members may be working at different levels, at different speeds, and on different parts of their solutions. This may compel them to further collaborate to determine the solution they can agree on and it may be more time-consuming when allowing for different learners to reach the same point at their own pace. So, project-based learning units may be longer than when a teacher delivers the information to students. This approach to instruction also can change how materials and assessments are used. It may also change the types of assessments used in the classroom to ones that are designed to show mastery (Scheer et al, 2012; Beneke & Ostrosky, 2008; Novak, 2002; Blumenfeld et al, 2012). Project-based learning instruction, in which more control is ceded to students, is difficult for many teachers to

adjust to and it can complicate how instruction is delivered for teachers. Implementing PBL requires teachers to, oftentimes, change their pedagogical approach, change how they organize their classrooms, and change their roles. “These changes are not easy to adjust to… however they play a critical role in sustaining [student] motivation,” (Blumenfeld et al,1991, p. 381).

In a research study of two first grade classrooms in an urban public school system, Hertzog (2007) investigated the effects of changing the instructional methodology from traditional teaching to project-based learning. The researcher was a participant observer as she trained teachers in the process of PBL, conducted classroom observations and teacher interviews, and documented student work and lesson plans to evaluate the impact of PBL on student learning. The school system had been required by court order to balance racial diversity in its schools and to change its instructional methods to increase student achievement. The two teachers in the study were reluctant participants in the required professional development workshops, often missing parts of the training, not engaging with other workshop participants, and expressing concerns that PBL was better suited for “gifted students” (Hertzog, p. 553).

In the two, three-week PBL units they conducted during the year with instructional coaching support, student assessments indicated improvements in their students’ reading levels. Both the teachers and students reported increased student engagement on the attitude surveys when the students were involved in the PBL units. At the end of the year, both teachers reported that they were “surprised by the high level of student engagement and by the higher-level questions the students asked during the course of the projects” (Hertzog, p. 556). In follow up interviews, however, both teachers reported that the students from lower socioeconomic homes “made it difficult to teach

using the project strategies," and that it was difficult for them [the teachers] to "give up control" of their classrooms to an inquiry-based instructional methodology (Hertzog, pp. 557-558).

Conclusion

This review of literature suggests that project-based learning is an instructional approach that can level the playing field for all students by teaching higher order thinking skills through practical applications in real world situations. When students are engaged in problem solving, critical thinking, and innovation it is assumed that they will naturally seek out additional learning opportunities and acquire necessary skills along the way that can drive achievement upward. Project-based learning is effective in raising engagement levels of students, particularly among students from lower socioeconomic homes who may be part of the achievement and opportunity gap that exists in many of our school systems. However, changing traditional instructional practices is extremely difficult, particularly if teachers do not receive training in the methodology, if they do not have enough time to develop projects, and if they do not see the benefits for their students. "It is not only the student's motivation that must be sustained, but also the teacher's" (Blumenfeld et al, 1991, p. 383).

There is a need for further study on the correlation between PBL and increased achievement on standardized assessments. In this climate of high stakes testing, student gains at all levels and measurements are important. Unfortunately, it is this very climate that is reinforcing the faulty belief that teacher-directed learning is the most effective way for students to learn content knowledge. "A teacher who lectures a lot engenders little emotional involvement by students," however when the instruction is student-centered,

students tend to become “emotionally engaged, learn more, and retain it” (Schunk, p. 61). While PBL has proven to be an effective method of engaging students, and while research shows a strong correlation between engagement and achievement, there is a need for school leaders and teacher education programs to train pre-service teachers and practicing classroom teachers on how to properly use this methodology. In addition, professional development is essential for administrators so that they can understand the project-based learning approach and help to eliminate barriers to PBL implementation that may exist internally.

Unfortunately, by keeping the traditional school structure in place in which tasks may be of a low intellectual level and where little connection is made between academic subjects or content and the outside world, achievement, particularly at the secondary level, will continue to decline. Students who have negative attitudes toward school will then continue to disengage, achievement will be low, and the cycle of ineffective instruction and the resulting low student engagement and low achievement levels will continue. While project-based learning has proven to be an effective method of engaging students, and while research indicates a correlation between student engagement and increased achievement, there is a need for school districts to engage teachers in high quality professional development in how to use this methodology and provide them with the time to craft comprehensive, real-world, meaningful projects.

CHAPTER 3

Introduction

The purpose of this qualitative case study was to examine teacher perceptions of student engagement when they implemented project-based learning units of study. This phenomenological approach sought to examine the teachers' perceived strengths and challenges when they implemented PBL and the procedures they used to create a PBL classroom environment. A phenomenological case study is used to describe and explain the experiences of specific participants. Creswell & Poth (2007) explain that a case study is most effective when the researcher has "clear, identifiable cases and boundaries for which to study and collect an in depth understanding of the case." In this research study, three teachers provided the researcher with access to their unit and lesson plans, their classrooms, and their thoughts on the impact of PBL on their students. The teachers participated in in-depth interviews about their backgrounds and perceptions. The researcher was able to gather diverse data that, when triangulated, developed into themes during the data collection and coding processes. The researcher then sought to formulate a deeper understanding through analyzing the data and examining how it addressed the research questions guiding the study.

In a case study, participants must be both willing to participate and able to participate (Vogt et al, 2012, p. 116). The most effective case studies are those that are both current and represent "real life" scenarios so that the researcher "can gather accurate information not lost by time," (Creswell & Poth, p. 97). Good case studies also use multiple forms of data; these data, when triangulated, increase the reliability and validity

of the research in addition to providing an in-depth study of the phenomena (Creswell & Poth, p. 98). In this case study, the researcher examined the participants' perspectives on the value of project-based learning as an instructional methodology, the impact they perceived on their students, and their perceptions of their own strengths and challenges in developing and implementing a unit of study. The researcher was also interested in observing how the participants organized their classrooms when implementing PBL and if there were differences in a PBL classroom and a traditional classroom structure.

Three participants were selected from those who had volunteered to be part of this research study. All three participants had taught middle school social studies for a significant amount of time, all were seasoned educators and fully certified in the academic content area, and all taught within this large urban district for most, or all, their careers.

Research Questions

This research study focused on the perceptions of teachers on the effectiveness of PBL in their classrooms. The researcher focused on answering the following research questions:

1. What are the participants' perceptions of the value of project-based learning as an instructional methodology?
2. What are the participants' perceptions of the strengths and challenges in using PBL in their middle school classrooms?
3. How do the participants organize their classroom learning environments for PBL?

Methods and Procedures

Setting

The school district where this case study took place is one of the largest school districts within the northeast. The district is the fourth largest in terms of student population in the state and it has 39 schools with just under 27,000 students. Within the district, the middle schools are located within one of two configurations, pre-kindergarten through sixth grade and pre-kindergarten through eighth grade. All the participants involved in this study taught in pre-kindergarten through eighth grade schools in different areas of the city. All were certified teachers of social studies, and all taught eighth grade U.S. History courses, a mandated subject at this grade level in the state where the research study took place.

Within this district, student achievement was low with fewer than half of eighth grade students reaching proficiency levels in reading and writing. The average English Language Arts scores on state assessments have remained stagnant, on average at 30% proficiency levels. The majority of students in the district were minorities and almost half of the families spoke a language other than English in their homes (46%). The city was one of the most diverse in the state and region, with 31% of residents born outside of the United States. The school district's students hailed from 100 geographical regions across the globe (World Population Review, 2019). Across the district, 58% of students were identified as Hispanic/Latino; 19% as Black/African American; 16% as White; 5% as Asian/Native Hawaiian/Pacific Islander; and 1% of the population identified as multiracial. Of the entire student population, 80% of all students are considered

economically disadvantaged and 76% of the students qualified for Free of Reduced Lunch. Approximately 18% of all students were classified as students with disabilities (SWDs) and 13% were classified as multilingual learners (MLLs).

This case study is comprised of three teachers, all teaching eighth grade U.S. History, in three different middle schools within the same urban school district. The focus of this research is to interview teachers who have experience implementing units of instruction using project-based learning during the study. The classroom observations occurred virtually with each of the participants outside of the school day. The researcher sought to investigate teacher perceptions on the value of project-based learning through a phenomenological case study.

During the time the research study was being conducted, the researcher was an employee within the school district. However, the researcher conformed to the requirements and processes outlined in the school district's IRB procedures. After receiving IRB approval from the university and the school district, the researcher utilized the university's secure WebEx account to interview the participants and observe class sessions to see project-based learning in action. The researcher had only remote access to each of the three school sites within this district. The university's WebEx account was used because of the COVID-19 protocols, which limited access for those other than the teachers and students in the schools. While the researcher had visited the three research site schools previously, the researcher had access to the participants and classrooms only through virtual means during the research study. This protected the research subjects from possible exposure to COVID-19 from an outsider entering the schools and

classrooms and provided another level of objectivity for the researcher as she observed the class sessions virtually.

The researcher was aware of possible bias as she was a school district leader in the district where the phenomenological study was conducted. In addition, the researcher had prior experience as a high school teacher who used project-based learning. It is important to acknowledge the potential for researcher bias and, by "bracketing this experience" through acknowledging and then setting aside her experiences as much as possible, the researcher sought to increase reliability and validity (Creswell & Poth, 2018; Moustakas, 1994). In a phenomenological case study, the researcher must put aside her own experiences in order to seek to understand the "lived experiences" of the participants as they engaged with the phenomena, project-based learning (Creswell & Poth, p. 83). By putting aside her experiences with the phenomena to investigate the experiences of the participants, the researcher gained "a fresh perspective towards the phenomena" (Moustakas, 1994, p. 34).

The collection and analysis of multiple types of data also increased the validity and reliability of the study. The analysis is "an interactive and simultaneous process" that begins with participant interviews and includes document analysis and observations (Merriam, 1998, p. 155). The researcher used several measures to ensure the validity of the data, including having multiple research sites, having multiple participants in a case study approach, interviewing each participant multiple times, conducting multiple class observations, and gathering multiple artifacts (Marshall & Rossman, 1999, p. 157). The findings allowed for the data to be gathered, analyzed, and through this process, the researcher developed new understandings about the phenomena being studied. "Quality

data cannot be separated from the analytic process" (Marshall & Rossman, p. 157). The data, which included in-depth interviews and classroom observations from three teachers with different backgrounds and teaching styles, provided unique insights into the research subjects' experiences.

Within the case study design approach, there were multiple sources of evidence that were triangulated, increasing the validity and reliability of the study (Yin, 2003). Through various sources of data, the researcher investigated and analyzed teacher perceptions to better understand the phenomena of project-based learning through the teachers' experiences. In this study, a series of three interviews with each participant occurred. This allowed the researcher to gain a deeper understanding of their experiences, insights, and reflections which provided a rich, textual description of their experiences. As an observer, the researcher transcribed, verbatim, the interview data and the observations without making judgments. Research notes included questions for follow up interviews and details about context and tone were noted to allow for a deeper understanding of the classroom experience of each of the three participants.

After gathering the data, transcribing it, and coding it, the researcher identified pronounced themes and patterns that emerged. Through data collection and analysis "categories should be interactive but remain distinct from each other at the same time," (Guba, 1978). Marshall & Rossman (1999) posited that connecting the data "is the most intellectually challenging phase of data analysis and one that can integrate the entire endeavor," (Marshall & Rossman, p. 154). The process of analyzing diverse sources of data to develop themes through the coding process resulted in both new meanings and findings for the researcher as well as the participants.

Participants

The participants in this study were selected because they taught within this large, urban school district where the study was focused. Each participant had created project-based learning units of studies for their eighth grade U.S. History classes as part of the district's professional development series on PBL conducted during the year and planned to implement them in the spring. The teachers were fully credentialed and highly experienced social studies teachers at the middle school level. All three volunteered to be part of the research study. The research subjects were guaranteed confidentiality to protect their anonymity. To validate the findings in this study, the researcher triangulated the data. Analysis of the interview transcripts, class observation notes, and documents were used to arrive at the research study's findings.

In using a phenomenological approach, the researcher aimed to develop an in-depth and comprehensive understanding of the participant's experience on the phenomena being studied. The researcher must use multiple sources of data which, taken together, provide a very "descriptive case study with case-based themes" (Yin, 2003). The participants in this study were social studies teachers at the middle school level. Two of the participants taught both seventh and eighth grade classes. One participant taught eighth grade students for all five teaching periods of her schedule. All three participants were social studies teachers of U.S. History. Each participant considered him or herself to have a good to very good understanding of PBL; they had all recently completed a months-long series of professional development on PBL in which they created units of study to implement in their classrooms; they had a range of prior experience using PBL

methodology; and all had significant experience as middle school social studies teachers. During the study, pseudonyms were used to protect the identities of each participant. All individual identifiers were removed from the data to protect their identities.

Participants were recruited through an email invitation sent within the school district to every social studies teacher who taught eighth grade U.S. history. The email specified that the research study aimed to focus on teachers who were implementing project-based learning into their classrooms and are willing to be part of a research study about their experiences. The initial email resulted in four teachers volunteering for the study and from the initial four, three teachers were selected. The teachers selected were currently engaged in a PBL unit or were just preparing to be involved in one; and all had taken part in the recent series of PBL professional development training. All the teachers had a diverse group of students with differing ability levels, this included the teacher at the school for gifted students. One volunteer was not chosen because her class would only be engaging in project-based learning as a small part of a unit later in the year. Initially the researcher was looking to investigate two case studies, however the diversity of the schools in which the participants volunteered, and their level of teaching experience convinced the researcher that the study would be more impactful with the perceptions of these three participants and that each would be able to contribute unique insights that may provide a model for a wider range of educators.

The research participants signed consent forms, which were approved by the university and the school district where the study occurred. The participants were also asked verbally by the researcher for consent to participate in the study during the first interview. None of the participants were compensated for their participation. They were

advised, both verbally and as part of the written consent, of their right to withdraw consent at any time without any consequences. The research participants agreed to participate in three interviews over a four-week period. Each PBL unit of study was planned and developed during the district's project-based learning professional development series, and each was expected to last approximately four weeks. During the course of the study, two of the participants invited the researcher to observe their classes virtually. The third participant had just concluded a PBL unit, and she shared artifacts from the unit with the researcher and participated in virtual interviews.

The participants shared certain characteristics that were important to this study. All were experienced educators who had advanced degrees in education and certification as middle school social studies teachers. Two of the participants had taught for 24 years and one participant for 17 years. All shared that their length of experience as teachers, having tenure in their school district, and their belief that PBL engaged their students more than traditional methods allowed them to fully immerse themselves in PBL methodology for this unit. Two of the participants had taught in this urban district for their entire careers, all at the middle school level; Participant 2 taught for 24 years and Participant 3 for 17 years. Participant 1 taught initially at the middle school level within another large, urban district for her first two years of teaching. She had been in the district where the study occurred for 22 years. She had several years of teaching high school U.S. History as well, transferring to the high school level after the district's first gifted middle school program closed and then relocated. After several years when an opening at the middle level at the newly reopened gifted school opened, she applied and was selected. Through the interviews on their life histories, it was also discovered that all

three participants had received formal training in gifted education. All discussed the indelible impact this experience had on their openness to create classrooms where they promoted more student voice.

All related to the researcher through the interviews, independently of each other, that they believed their prior experience teaching gifted students or through their experiences as students studying gifted education in their university programs or through workshops, was valuable and that the methods were similar to using PBL in their classrooms. Some of the common descriptors used by the participants in the interviews to describe the similarities of using PBL and gifted methodologies included the integration of "hands on learning," using a "student-centered approach," and using "driving questions" to launch student learning activities. Additional characteristics that gifted education and project-based learning share are that they are inquiry-based, allowing students a strong degree of choice as they collaborate to solve a real-world problem or question. In both gifted education and PBL, the teacher's role is more of a guide or facilitator than a provider of all information.

A possible limitation to this study was the relatively small number of participants that were included. The three participants in the study were all very experienced teachers who worked in the same large, urban school district. While the number of participants may preclude using the study to generalize about all teachers' experiences in using PBL, there are still important implications that can be derived from this study. Because of their long-term experience in an urban school district, the study may provide guidance and data for other school districts across the country that are investigating implementing PBL in their districts. The methods the teachers used to establish their classroom environments

may offer insights and experiences that can be replicated, including how they structured their classrooms and class routines to allow greater movement, collaboration, and choice. In addition, their length of experience as classroom teachers may provide additional insights into successful buy in and implementation by veteran teachers. A finding in this study was that veteran teachers would not only buy into this methodology, particularly when offered training and the opportunity to create units, but they would find success in engaging their students.

Each of the participants had different life experiences and pathways to teaching middle school students. Although all three schools were in the same district, they were diverse from one another. In addition, this study was conducted during the COVID-19 pandemic when students and teachers had recently returned to their classrooms. The study is relevant for in person and virtual classroom learning environments because this approach engages students more readily than traditional instructional methods in which the teacher is at the front of the room giving information. What many school and district leaders learned during the pandemic was that the traditional classroom teaching approach did not translate well to virtual environments, nor did it engage students who had been outside of the traditional school setting for a significant period of time. The pandemic highlighted the fact that teacher-directed instruction did not work well at all in the virtual environment. Not only did traditional teaching fail to engage most students during the pandemic when they were tuning in remotely, but teachers struggled to provide instruction in this environment as well.

The three participants' experiences teaching in an urban district at the middle school level provides important case study data for educators and policy makers to use

when determining if PBL is an instructional methodology that can be used in their districts to benefit both students and teachers. There is added value in conducting a case study in an urban environment on teacher perceptions of PBL in their classrooms as most of the case studies on using PBL in K-12 school districts are conducted in suburban systems. This makes sense as many suburban school districts have more resources than urban districts, so this study adds to the literature on urban districts. The study also takes place in very diverse middle school settings and the findings may be relevant to other diverse districts across the country. Again, while there are research studies at the middle school level, this study took place within three very different urban schools within one of the largest districts in the state.

This study may provide further guidance to school and district leaders who are seeking ways to establish PBL in their districts. Participant feedback to the researcher included details on how they established their classroom environments and routines for PBL to take place; each participant's class was set up differently from each other with variations on their approaches and norms. There was also much diversity within the participants' own life histories and how they implemented a PBL unit; the differences in their schools; and the differences in their student populations. The experiences of these three participants provide examples of different methods of implementing a PBL unit. The flexibility of the methodology and the exemplars provide further information to other educators.

Table 1
Participants

Participants	Gender	Years Teaching	Years in Current School Building	Advanced Degree
Participant 1	Female	24	10	Yes
Participant 2	Male	24	20	Yes
Participant 3	FemaleF	17	17	Yes

Data Collection Procedures

The researcher sought to gain a deeper and richer understanding of how teachers perceived the value of using PBL in their classrooms, particularly how they perceived the engagement of their students. The researcher examined the teachers' classroom routines, styles, and organizational strategies as they integrated project-based learning into a unit of study that they developed. Due to the impact of the pandemic on this school district, as well as most others across the country, organizational structures that incorporated social distancing for health reasons have changed the way many teachers have organized their classrooms and whether students working together could occur. The teacher participants in this study conducted classes in person. During the initial months of the pandemic, all teachers in the district taught their classes virtually, with varying degrees of success. When they first returned to their schools during the fall of the next year, the school district used a hybrid model whereas only half of the students in a class were in-person, wearing masks, often behind shields, and being socially distant, while the other half were taught virtually in their homes. The students spent two days in person learning and two

days virtually. This model proved difficult for teachers to navigate and students to learn. The teacher interviews and classroom observations were conducted virtually by the researcher using the university's WebEx subscription, even as all students returned to in person learning in the district.

The virtual platform allowed the researcher to see the classrooms and to both see and hear the participants. It provided additional safety for the students and teachers as classrooms during the pandemic did not permit most visitors. By viewing the classroom structure and observing the interactions virtually, the observer was able to have a degree of anonymity as students appeared to forget the observer was in the room creating a more realistic setting. This method of observation also provided the researcher with a view of how the teachers interacted with their students during the class periods, how they prepared their students to engage in project-based learning, and how they engaged with their students during the study. After each class observation, the teachers discussed their perceptions of their students' engagement. For the purpose of this study, engagement is defined as student excitement and investment, the "extra-classroom energy in action, observable and measurable in school-sponsored activities and tasks," (Lawson & Lawson, 2011, p. 439). Engagement was also measured by observing student participation, such as the number of minutes each day students were involved in group work activities and interactions with the teacher.

The findings of this research study will help to inform practices for teaching both in person and virtually. The results of the study may be compared to existing research in order to add to the literature in the field of PBL and to focus on the teachers' experiences using PBL with their young learners. To more fully understand the teaching environment

that must be created to implement the PBL approach, the researcher also explored the ways teachers prepared, including how they used technology in a project-based learning environment and how they organized their classrooms. By better understanding the experiences of the teacher participants, this qualitative study provides additional resources for school districts that wish to implement this constructivist approach to teaching and learning whether during in person instruction or in a virtual environment. The majority of research studies on PBL are centered at the secondary and post-secondary levels and have been conducted in traditional classroom settings in which students are sitting in classrooms with their teachers. When technology has been employed, it has been to facilitate instruction, for student research, or to produce digital products. Many of these studies have illustrated a connection between PBL methodology and increased content and skill acquisition. Increased student engagement, confidence, and achievement have also been linked to PBL (Fredricks et al, 2004, p. 71). This study adds to the research being conducted on teacher perceptions of student engagement while using a project-based learning approach.

Once IRB approval was obtained and invitations to participate were sent out and volunteers obtained, the researcher identified three teachers who fit the participant profile defined for this study: full-time social studies teachers who volunteered to utilize project-based learning to teach a unit of study in their eighth grade U.S. History course. The participants were all teachers who had participated in the district's professional development series on project-based learning. Teacher interviews occurred during the course of the study, with follow-up interviews used to clarify information gathered through the interviews, observations, or artifacts. The researcher initially contacted each

potential participant by phone or email to conduct an introductory dialogue and to answer any questions about the study. The participants who were selected, were each provided the university's research participation informed consent forms to sign and return to the researcher. The researcher fully disclosed the nature, scope, and goals of the research study.

After IRB approval was granted, the researcher finalized the interview instrument, scheduled initial interviews with the participants, and began to collect artifacts from the participants. All information from the interviews, class observations, and document analysis were recorded, transcribed, and coded. The researcher analyzed a variety of documents, including teacher created project and lesson plans, student work samples, and teacher feedback to students. Observations of the two participants' classes occurred twice during the research study and provided data on teacher directions and actions during the classes, how and what type of feedback they are providing to students, and the types and levels of student participation.

The study used a several data collection instruments including interviews, classroom observations and document analysis. "The processes of data collection, data analysis, and report writing are not distinct steps in the process. They are interrelated and often go on simultaneously," (Creswell & Poth, p. 185). Within the data collection process, the researcher organized the data and ensured that it was secure. The researcher secured all data, notes, audio, and video recorded interviews and class observations, and artifacts in a locked file cabinet within a locked office that only the researcher had access to. In a phenomenological study, the researcher often includes descriptive information about the setting, activities, and interviews to have a richer, more textual understanding,

and reflective notes are used. “Interpretation involves making sense of the data” as well as gaining a clearer understanding of the “lessons learned” through the research study (Lincoln & Guba, 1985). These notes were used for follow-up interviews with the participants to clarify meaning. In the process, the researcher developed themes, which “creates a point of view,” and “reports the data” (Creswell & Poth p. 187). The researcher sought to describe the “essence of the phenomena” and “develop significant” meaning and understanding of “what happened” as well as better understand “how was the phenomena experienced?” (p. 199).

The data was triangulated to uncover and analyze the research participants’ perceptions on the effectiveness of PBL in their classrooms. It was the triangulation of various data that increased the validity of a research study (Lincoln & Guba, 1985; Yin, 2014; Creswell & Poth, 2018.) The classroom observations and document analysis were used to support the results of the interviews. The researcher planned each interview with the three participants and observed Participant 1 and Participant 2’s classroom using the university’s WebEx account. The interview, observation, and artifact data were coded and analyzed allowing themes and patterns can emerge. These themes provided a deeper level for the researcher to understand the lived experiences of the participants.

Interviews

The researcher used Seidman’s three-interview series with each of the three participating teachers in order to gather the participants’ perceptions on the experience and their reflections on the meaning of the experience. By using this instrument for data gathering, both the interviewer and the participants found meaning from the experiences were able to place these experiences in the context of this study on project-based

learning. The questions were grouped into three parts addressing the following: 1) their backgrounds as they related to their current teaching assignment and how they organized their classrooms for PBL 2) their perceptions on the value of PBL as an instructional methodology and the impact they perceived on their students and 3) what they found to be their strengths as well as their challenges as teachers implementing PBL. Follow up interviews were employed only when necessary to further clarify earlier interview responses of provide explanation for a class observation or teacher artifact. By using a series of open-ended questions, the researcher provided time for the participants to describe in detail their perceptions about their students' engagement, their life histories and how they came to use project-based learning in their classes. The same interview questions were asked of all three participants (Appendix D).

The interviews were structured in 30 to 45-minute virtual sessions that were recorded and transcribed. By using this structure, validity was assured because the participants' responses were placed in the context of their implementation of PBL and their perceptions of PBL as an instructional methodology. Based on this structured approach, each of the interviews provided information that helped to create a deeper understanding of the processes for creating virtual PBL classrooms that engage students (Seidman, 2013, p. 22). The contextualization of the interviews deepened the meaning of the experience and permitted a closer examination and understanding of the teachers' roles in integrating project-based learning into their classrooms, their dispositions and points of view, and their background histories in relation to this study (Vygotsky & Cole, 1978; Seidman, 2013). "With each part it allows the interviewer and participants to

explore the participants' experiences, place it in context, and reflect on its meaning" (Seidman, p. 20).

The first interview focused on the teachers' life histories, their experiences using project-based learning, and what influenced them to become middle school social studies teachers. The researcher inquired about the teachers' decision to use project-based learning and their perceptions on their impact on students and their own pedagogy. The interviews used a structured but open-ended protocol to allow the teachers to speak openly about their pedagogical processes, choices, and perceptions as they participated in this phenomenological case study.

The second interview was planned to "concentrate on the concrete details of the participants' present lived experience(s) in the topic area of the study" (Seidman, p. 21). Participants were asked to describe how they prepared for project-based learning; how they initiated the unit; how they perceived the engagement of their students during the unit and how they used PBL with diverse learners in their classrooms. In describing the "engagement" of their learners, the teachers discussed student participation and attendance. In this series of questions, the researcher asked the teachers to discuss how they set up their classrooms for PBL and if this differed from other methods they used.

The third interview focused on reflecting on the process and the experiences of each teacher. The researcher asked them to describe their strengths and challenges of using PBL and provided time for them to discuss anything about the unit that they felt was important. The goal of this final formal interview was to connect the three interviews to provide a contextual understanding of their classroom organization for PBL and their perceptions on the impact of using PBL on their teaching and on student learning. This

final interview took place at the conclusion of the four-week study. This interview also allowed the teachers to discuss their observations and perceptions of their students' levels of engagement; how teaching using the PBL method was similar or different from teaching in a teacher-directed format; and the advantages and disadvantages of using project-based learning.

The interviews were recorded, transcribed, member checked, coded, and analyzed ensuring trustworthiness for this case study. This process ensured accuracy and trustworthiness (Bowen, 2009). Each interview was audiotaped with recordings being transcribed verbatim using numbers to identify each of the participants. The transcriptions and raw data were collected and secured at the researcher's home office. The computer data was stored on a removable hard drive and secured through passcode protection and locked within a desk in the locked office. The researcher was the only person who had access to the office. All notes, artifacts and transcriptions were locked within a file in the researcher's locked office.

Observations

By observing several classes during the four-week study, the researcher gained a deeper and more nuanced understanding of how the teachers' planned lessons were executed and received by students while also allowing the researcher to view the students engaged in the work, their interactions with each other, and their interactions with their teachers. The researcher virtually observed the teachers' classrooms during times when students were engaged in PBL activities as well as at the initiation of the unit. The researcher, due to COVID-19 restrictions in place at the district, was able to observe the classes virtually using her university WebEx account. The class observations were 45

minutes in length and included the teachers' interactions with students, student group activities and presentations, and teacher directions and mini lessons to the students. The names of the participants and their students were omitted from the recording, which only captured the audio portion of the classes while the researcher was able to see the class interactions and transcribe descriptive notes about the classroom setting, teacher directions and feedback, and student conversations. During the observation of the classes, field notes were taken, transcribed, and coded by the researcher. The observation focused on systematic note taking and the recording of events in the classroom, teacher and student behaviors, and student conversations and presentations. Since the observations occurred virtually, they were audio recorded and the researcher noted the tone in the classrooms, numbers of students in the classrooms, numbers in groups, and what students and teachers were doing during the observations. After each observation, the researcher interviewed Participants 1 and 2 about their class activity and lesson. The focus of these interviews was to clarify any questions that the researcher had about the activities the students were involved in and to discuss the artifacts that were viewed. Participant 3 provided the researcher with her observations and reflections on her class sessions since her unit was recently concluded when the study began.

Document Analysis

Document analysis permitted the researcher to review student work samples that occurred outside of the observations; teacher feedback on these assignments; the teachers' lesson plans; and the culminating projects. The researcher collected artifacts from each participant and these artifacts included the outline of the project-based learning unit that each teacher implemented, lesson plans and handouts as well as samples of

student work. The artifacts were reviewed, transcribed, and coded. No identifying information, other than numbers to help identify each participant for the researcher, was attached to the data.

Trustworthiness of the Design

To establish trustworthiness of the findings, the researcher used several strategies of data collection. These included transcribing notes from each of the interviews, collecting and reviewing artifacts, and conducting classroom observations virtually using the university's secured WebEx program. The observations were audio recorded to assist the researcher in accurately transcribing classroom conversations, teacher instructions, and student presentations. The researcher also took narrative notes on classroom routines, the groupings in each classroom, and materials used during the classroom observations. Artifacts collected included teacher lesson and unit plans, assessment materials and student work. All identifying information on student work was redacted. Each of the artifacts from the participants was labeled only by their participant number and the names of both research participants and students were redacted. All the data was transcribed and coded for patterns and themes to emerge. By triangulating the data, trustworthiness was established (Lincoln & Guba, 1985; Yin, 2014). To ensure that the findings of the study were transferable, the researcher included "thick descriptions" (Creswell & Poth, 2018). These descriptions provided rich detail about tone, expression, dialogue and the researcher's impressions and were included as part of the interview and observation processes.

Research Ethics

Although the researcher worked within the school district in which the participants taught, she was not their direct supervisor and had no role in their evaluations. To recruit participants, the researcher first sought permission through the university IRB and the school district's IRB office to conduct research. The purpose and format of the research was shared as well as the instrumentation. An email invitation was sent to the district's social studies teachers who taught eighth grade U.S. History. From the four volunteers, three were selected based upon their completion of the district's professional development and their status as full-time social studies teachers at the eighth-grade level.

Data Analysis Approach

This qualitative research study used a phenomenological case study methodology to analyze narrative data from participant interviews and then compared those findings against the established theoretical frameworks and concepts of the phenomenon (perceptions on project-based learning) under investigation. The researcher interacted with and interviewed the participants using a structured but open-ended interview approach and with the purpose of understanding the processes they used to implement project-based learning in a virtual environment. Their experiences and perceptions were collected and documented throughout the study. The participants' perceptions of the value of PBL and its implementation provided data in which to better understand its effectiveness not only at the middle school level but in general in the nation's K-12 schools. Researchers who choose to use the case study approach are concerned about the

generalization of their studies to the larger population (Bogdan & Biklen, 2014, p. 67) however in this case study, the results are highly transferable. Using an inductive approach, data analysis quickly emerged during data collection rather than by developing the study around a narrow set of research questions (p. 27).

The data collected and reviewed included virtual observations of the participants' lessons, the culminating project descriptions, student work samples and other artifacts. The data was organized through looking at themes and patterns that emerged through the data transcription and coding processes. "Identifying prominent themes, recurring ideas or language, and particular patterns of belief that link people and settings together is the most intellectually challenging phrase of data analysis and one that can integrate the engine endeavor" (Marshall & Rossman, 1999, p. 154). The themes and patterns that emerged through this process provided the researcher with several new avenues for exploration not seen in similar research studies.

Field notes were taken, transcribed, and coded of the observations. An analysis was conducted of the artifacts including student work samples and teacher lessons as well as of the structured interviews. From the field notes, patterns also quickly emerged that developed into themes. These themes helped to establish the essential meaning of each individual's experience and provided a rich contextual basis from which to draw conclusions. "Like coding, thematic analysis in the data is a strategic choice...one that includes the primary questions, goals, conceptual framework, and literature review" (Saldana, 2016, p. 200). This method of data gathering, and analysis guided the researcher in finding patterns as well as "repeated ideas, analogies, and even missing data" (Ryan & Bernard, 2003).

Researcher's Role

As a researcher and education professional for more than three decades who has practiced project-based learning and provided professional development to teachers, it was essential to maintain a distance from the research subjects. The researcher's early training as a journalist as well as training as a researcher allowed her to observe without judgment. Using WebEx also allowed physical distance which aided in objectivity. The interview questions were carefully vetted to avoid bias and each interview was transcribed verbatim. Questions and subjective notes were separated for the researcher to review them to see if they could be used to help clarify information provided by the research participants and to add textual background. The role of a researcher conducting a phenomenological case study is to try to get at the essence of the research subject's experiences. The open-ended interview questions, observations, and field notes detailing the classroom environments and class interactions allowed the researcher to be immersed in the experiences of the participants.

Conclusion

The researcher sought to present the data with sufficient narrative detail that allowed for themes to be easily identified. A thorough analysis of the participant interviews, classroom observations, and documents provided both context and results of this case study. This chapter provided context for the methodology and process that took place as the researcher set out to discover and understand the lived experiences of the participants as they implement PBL in their eighth-grade social studies classrooms. In the following chapter, the researcher describes in detail the results of the research study.

CHAPTER 4

Introduction

The purpose of this chapter is to present the findings related to the primary research question: What are teachers' perceptions of the value of Project-Based Learning (PBL) as an instructional methodology? By using a phenomenological case study approach, the researcher attempted to gain insights into teachers' perceptions on the effect of PBL on their students. The researcher also sought to examine teachers' perceptions of their own strengths and challenges as implementers of PBL in their classrooms as well as how they organized their classrooms for PBL. In this multiple case study approach, three eighth grade social studies teachers, each from a different school within the same school district, were selected for this research study. A phenomenologist studies "the common meaning from experiences of a phenomenon for several individuals" (Moustakas, 1994). This chapter provides the results from the data collected and discussed in Chapter 3. The research questions guiding this case study are:

1. What are the teachers' perceptions of the value of PBL as an instructional methodology?
2. What are the teachers' perceptions of their strengths and challenges in using PBL in their middle school classrooms?
3. How do teachers organize their classroom learning environments for project-based learning?

Description of the Case Study

This phenomenological case study sought to uncover teachers' perceptions of the impact of project-based learning (PBL) in their classrooms. PBL is derived from the constructivist theories of John Dewey (1930) and William Kilpatrick (1925). This instructional methodology, sometimes referred to as "inquiry-based learning," places the student at the center of instruction and connects academic content areas to the outside world. Each of the three research participants in this study took part in multiple interviews and provided artifacts from their PBL units. The school district in which the participants taught is one of the largest in New York State and one of the most diverse. There are a total of 39 schools and 23 of these schools are configured to have pre-kindergarten through eighth grade classes. In most of these 23 schools, there is only one eighth grade social studies teacher. In this case study, Participants 1 and 3 are the only eighth grade social studies teachers at their schools. Participant 2's school is a bilingual magnet school in the district, so he teaches next door to a seventh and eighth-grade bilingual social studies teacher. Participant 1 teaches only eighth grade social studies students; Participants 2 and 3 teach both seventh and eighth grade students. For this study, the participants used their experiences teaching eighth grade students. All participants were fully certified social studies teachers. The three participants were experienced educators who had been teaching middle school social studies between 17 and 24 years.

During the research study, Participants 1 and 2 initiated their PBL units with their students on "The Great Depression." Participant 3 had just concluded a PBL unit on the "Roaring 1920s." The researcher used Seidman's three-way interview protocol to

conduct interviews with each of the participants. Although the students and teachers were in the schools during the time period of the research study, due to the restrictions in schools during the COVID-19 pandemic and the Institutional Review Board stated requirements, the interviews and observations occurred virtually. The interviews were conducted using the researcher's university WebEx account and recorded. Classroom observations were audio recorded using this WebEx account. The interviews and observations were recorded, transcribed verbatim, and coded. The researcher observed Participant 1's fifth period eighth grade class and Participant 2's second period class two times each, both at the beginning of the PBL unit and in the middle. Participant 3 had completed her PBL unit on the "Roaring 1920s" and was able to describe in detail her perceptions, class routines and student artifacts.

The researcher triangulated the data collected from the interviews, observations, artifacts collected from the participants and through field notes. According to Lincoln and Guba (1985), the triangulation of data sources increases trustworthiness and ensures that the research findings are transferable between the researcher and those being studied (Creswell & Poth, 255). Reliability within this study was increased through the researcher's taking very detailed and descriptive field notes (Creswell, 264), which provided textual information including participant gestures and tone during the interviews and provided descriptive information on what students and the teachers were doing during the observations. "The researcher writes about *what* was experienced, a description of the meaning individuals has experienced" through textual description (Moustakas, 1994).

The three participants were selected for the research study because of the commonalities of their experiences. All were mid-career teachers with significant content

and pedagogical experience, all taught eighth grade social studies, and all had received professional development through the district in project-based learning recently. All participants had past professional experience implementing PBL into their courses, however, to varying degrees. All decided to implement new PBL units into their eighth-grade classrooms this spring. The participants had also been teaching in this urban school district for many years and in their respective schools for at least a decade. They believed that the experience of implementing PBL into their classrooms had allowed them to know their students more deeply. All expressed that they were very comfortable in their roles of being a teacher. Participant 2 said that he felt he was at a point in his career where he was less worried about making a mistake or having a lesson not turn out as he would have hoped, whereas earlier in his career, he reflected that he was less likely to take a risk and try a new approach because he was still learning the content and instructional approaches that worked best with his students.

All three participants were willing to share their life histories in relation to where they are today, to discuss their strengths and challenges as teachers developing and implementing PBL units into their classrooms, and to allow the researcher to observe their classes, and to analyze artifacts. “Because we seek to come as close as possible to a participant’s lived experience, as we select participants for our study, we choose to interview participants, if at all possible, who are currently engaged in those experiences that are relevant to the study” (Seidman, 2013, 20).

The participants were also willing to reflect upon the process and their roles as teachers and to describe the process as it was unfolding. The final interview was focused on their reflection of the process and their experiences. Phenomenology, as a research approach, is well suited to studies such as this one in which “it is important to understand

several individuals' common or shared experiences of a phenomenon" (Creswell, 79). By understanding these common experiences, "a deeper understanding about the features of phenomena," as in the case of project-based learning, can occur (79).

All three participants were interviewed using the same series of open-ended, in-depth questions. The researcher was primarily interested in hearing and exploring their perspectives on the experience of implementing PBL, particularly how they perceived their students' reactions during their PBL units. This was particularly relevant as two participants were currently engaged in using PBL with their students and the third participant had recently completed a PBL unit with her students. All three participants had completed their professional development series on PBL in March 2022. A phenomenological approach to interviewing focuses on the experiences of participants and the meaning they make of these experiences (Seidman, 16). The researcher was interested in using purposeful sampling that would result in the selection of participants to "target individuals with specific knowledge, experiences, or characteristics" (Vogt et al, 2012). In this case study, the three participants are experienced teachers, all currently teach eighth grade social studies, and all have received professional development in using PBL in their classrooms. All study participants have used PBL to varying degrees prior to this study. The researcher took extensive descriptive and reflective field notes to supplement the interviews and observations with a goal of better understanding the participants' experiences using PBL. "The goal of researchers' using a phenomenological approach to interviewing would be to come as close as possible to understanding the true 'is' of our participants' experiences from their subjective point of view" (Seidman, 17). Through the gathering of data, the researcher could "highlight 'significant statements,'

sentences or quotes that provide an understanding of how the participants experienced" PBL in their classrooms (Creswell, 79).

Participant and School Profiles

All three participants in the study are certified social studies teachers and all teach eighth grade U.S. History classes. They are veteran educators, having between 17 and 24 years of teaching experience. They work in three different schools within the same school district and their schools are in different geographical areas within the city. Each school site is different, with two being in more suburban areas of the district and one being in a very urban area, however because the school district is a district of choice, families enter a blind lottery to select the school that they would like their children to enter so students within the schools may be from diverse areas of the city. In this study, one school tended to have more students who resided in the local neighborhood, another had a higher percentage of English Language Learners because it is a bilingual magnet school, and one site houses the talented and gifted program. The selection process for the gifted program includes an interview and admission to the program. In all three schools, students whose families reside in the city typically enter a school and remain through eighth grade graduation. Afterwards, the students select one of the eight district high schools to attend. Some students, particularly those from the neighborhood school and the school for talented and gifted, leave the district for private high schools.

Participants 1 and 2 each have 24 years of teaching experience and have taught at their current schools between 10 and 20 years; both have been in this district for more than 20 years. Participant 3 has taught for 17 years, all within the same district and within the same school. The participants all have graduate degrees and have participated in the

district's professional development series on project-based learning during the 2021-2022 school year. Each developed a unit of study using the PBL methodology and were implementing the units into their eighth-grade classes during the Spring of 2022. Participants 1 and 2 implemented their units in March and Participant 3 had concluded a PBL unit in the Roaring 1920s in early March and was planning to implement a new unit in May. All three participants discussed why they entered the teaching profession and how they came to be where they are in this school district. These life histories became relevant as they revealed aspects of their lives and their philosophies on teaching that allowed them to engage more readily in PBL in their classrooms. Their lived histories provided meaningful context to the study. "Because we understand that meaning is best achieved in context, we take the time to establish a contextual history for the participants' current experience" (Seidman, 20).

Participant 1

Participant 1 originally had planned to enter law school after college; however, she revealed her passion for teaching and wanting to make a difference to the researcher during the first interview.

> "I wanted to do something positive and make a difference, I wanted to do something meaningful with my life. The decision for me was between law school and being a social studies teacher. However, I had this idea that a career as a lawyer would bring out the worst in me but that a teaching career would bring out the best in me, so I selected teaching. And that was the correct choice."

Participant 1 had 24 years of teaching experience; 22 years had been in the same district, and she has taught in three district schools; one high school and two middle schools. Prior

to teaching in this district, she taught in another large, urban school district as a middle school social studies teacher for two years but left that for a job in her current district as she felt it would be more stable. She discussed having an early interest in being a teacher.

> "I was always the kid that was helping the kid next to me. I was tutoring people from when I was in first grade through college. I was the one that teachers would select to help kids and stuff like that. I found very early on that, one, I was good at it and, too, that I enjoyed it. So, it didn't take much thought."

When she first began teaching in her current district, she worked in a middle school that had a program for talented and gifted middle school students. During her first years teaching students identified as gifted, she participated in professional development that taught her how to use strategies to increase more student-centered instruction, cooperative teaching methods, and inquiry-based design. Participant 1 also participated in a weekend conference at the University of Connecticut designed for teachers of gifted students. "I learned a lot about teaching the gifted and talented through trial and error and then I was in a program at the university and that is where I learned all of the ins and outs of teaching the gifted and talented." She described how she took that experience and has used the same philosophies of hands-on learning and collaborative learning for all her students. When the middle school she was teaching closed and the gifted program moved to another school, Participant 1 taught high school social studies at one of the six high schools that existed at that time within the district. After several years, there was an opening at the middle school level in another school and she moved into a position teaching eighth grade social studies teacher. The students in Participant 1's classroom were almost evenly divided between Hispanic/Latino, Black/African American and white

students. The school was in an area of the city that had both a high poverty rate and a high crime rate. Participant 1 said that she has been using project-based learning approaches throughout most of her career due to her early training in gifted and talented classes.

Participant 2

Participant 2 also has 24 years of teaching experience and has worked in his current district for his entire teaching career. He first began thinking about being a teacher when he graduated from high school. Participant 2 wanted to become a basketball coach and initially teaching provided the flexibility and time to coach. "However, as I began taking education courses and working with students, I realized that this was the profession I wanted to explore. I started teaching middle school in 1997 and still look forward to entering the classroom every morning." Participant 2 began working in a middle school for the gifted at the district for his first years of teaching. Both Participants 1 and 2 taught together for their initial years at the district's school for gifted and talented as middle school social studies teachers until the school was shut down.

During his years teaching talented and gifted students, Participant 2 participated in professional development on strategies for teaching talented and gifted middle school students. When it was announced that the school would be closing, Participant 2 decided to apply to work at one of the bilingual schools in the district. "The greatest benefit of working in a bilingual school is learning about the cultures of different students and being able to incorporate their interests into my lessons." Participant 2 taught two eighth grade social studies classes and three seventh grade classes at this bilingual school. He often works with the bilingual social studies teacher who teaches in the classroom next to his. By teaching both seventh and eighth grade students, Participant 2 said that he can get to

know many of his students better because they are in his classes for two years. “Some of them I have known for three years because I am involved with mentoring them through the school’s My Brother’s Keeper” program. Participant 2 has implemented a new PBL unit in his eighth-grade classes on the stock market to coincide with the students’ learning about World War II and The Great Depression.

There were 18 students present in Participant 2’s second period class, an eighth grade U.S. History class during the observation. Eleven students were boys and seven were girls. The majority of the students are Hispanic/Latino, with two students identified as Black/African American. There are no white students in this class. While this is not a bilingual class, the English language abilities of the students vary widely with some students having recently been moved out of the English as a New Language program (ENL). The school is in a middle-class neighborhood and many students ride buses from diverse areas of the city.

Participant 3

Participant 3 has 17 years of teaching experience, all of which were within this district and at the same school. Her undergraduate degree was in psychology and education, and she planned to work in the field of psychology. While she was in college in another state, her family moved to a home within the city where she would eventually begin her teaching career. After considering a career in psychology, Participant 3 decided to go into teaching. She said that she had taken many education classes and particularly enjoyed those that were in the social studies. She applied and was initially hired as a seventh-grade social studies teacher and was split between two schools in the district in which this study is taking place. During her second year, she was placed in one of the two schools she taught at on a full-time basis, teaching seventh and eighth grade history.

Participant 3 obtained her first master's degree in creative teaching and learning and earned a certificate in gifted education. The master's program "used a lot of inquiry methods, it wasn't just geared towards gifted children. It was really just trying to bring all children up to their strengths and I learned a lot about creative ways to do that."

Participant 3 earned a second master's degree in educational leadership and her administrator's certificate. She explained that most of her family were educators, and her mother was a long-time school administrator until she retired. "I come from a family of educators so that is really why I went into teaching," she laughed, "I tried to avoid it to do something else but nope that was not my path. So, I came back to it." She explained that her mother is her "inspiration and I am following in her footsteps, in a way unconsciously. I have never regretted it at all, I love what I do." Participant 3 had been teaching at her current school for 17 years. While most of the students at her school were Hispanic/Latino, there was also a large population that identified as white. The school is in an area of the city in which many families are considered middle or upper middle class. This school is one of the top schools of choice in the district and is a neighborhood school.

Findings

This next section provides the findings of the research study using descriptive excerpts from the participant interviews to answer the three research questions. The descriptions support the data analysis. During the transcription and coding of the interview data, several themes emerged. Two common themes that emerged were: the influence of talented and gifted training early in their teaching careers and their overall experience as educators on their decisions to implement PBL. All three participants had

received formal training in using diverse instructional methodologies, including project-based learning, with students who were identified as talented or gifted. Participants 1 and 2 both received ongoing formal training on strategies during their initial years in the district's middle school for talented and gifted students. Participant 3 received her certification in talented and gifted education through her master's degree program. All three participants commented in their interviews that the number of years of teaching experience they had provided them more confidence in their decision to integrate PBL. Participant 2 said that he felt comfortable that he knew the content and skills required in his position as a middle school social studies teacher so he could focus more on trying a different way of teaching.

While the researcher found that the participants shared several similar characteristics and experiences, there was little interaction between them as their schools were in different areas of the city. Participants 1 and 2 had taught at the same middle school at the beginning of their careers but since that time they only saw each other at district professional development opportunities or at the beginning of the year district meeting. At the time of this research study, two participants were implementing new PBL units that they had developed during a district PBL series over the course of five months; Participant 3 had concluded a PBL unit and was preparing to launch a new unit.

Overview of Themes

There were several themes that emerged through the interviews with the three participants. These themes included the value of their early training as teachers of the gifted, how their years of experience as teachers helped them to better implement PBL, and their perceptions that their students were more engaged in their classrooms during

PBL. They also shared the belief that PBL requires more time for planning than traditional, teacher-directed instruction. The themes of engagement, teaching experience and time needed for planning were integrated within the three research questions.

The phenomena of PBL and teacher perceptions of its effectiveness as an instructional methodology were explored through teacher interviews, observations of classroom practice and a review of artifacts. Relative to the three research questions this study attempted to answer, the following major implications emerged.

- All participants had received training in gifted education early in their careers and have used their formative training with all their students.
- All participants believed that implementing project-based learning into their classrooms engaged their students more than traditional methods. Although all said that direct instruction was also required at times to cover the required content.
- All participants believed that PBL took more planning time than traditional teacher-directed instruction, but that when students began to work on their own in groups it was more effective and enjoyable.

Combined these implications suggest that teachers perceive that they have much stronger connections with their students when they use this methodology, that students are more engaged in their learning and have increased their independence, and that student achievement also increases.

Table 2
Interpretive Themes

Theme	Data Source
Engagement	Interviews/observations
Gifted Education Experience	Interviews
Experience	Interviews
Time	Interviews/artifacts

Theme of Engagement

All the participants used the word "engaged" or "motivated" to describe their students when they were involved in PBL. They also spoke about the comfort level the students felt in the classroom both with the teacher and with their peers. Participant 2 noted that through implementing PBL, he feels he knows his students better.

> "It's been a little different for me as well. I've been able to get to know them a little bit better as well as I have a better sense of their personalities. I have found that even those who were shy at first and wouldn't say a word in the traditional class format, they are a bit more open to talking. And for others, the work in the PBL units has carried over to other areas of instruction in my classroom because they are more interested now even when we are doing other topics. They seem much more focused, and I see that they are more motivated to do a better job."

Theme of Gifted Education

During the interview process, the researcher found that all three participants received formal training in gifted education. They described how they have used the strategies and principles they learned from their training in their classrooms. This early

training in gifted education and work experience in the gifted program within the district was described by Participants 1 and 2 as being very similar to project-based learning as an approach. Although the first school for gifted education in the district closed and then was relocated, both participants cited this early experience as being important in their development as teachers. “I learned a lot about teaching the gifted and talented through trial and error and then back at the program at UCONN back in the early 2000s. My fear is that there is a shift moving away from gifted education. I understand that there are all different levels of instruction. In math, differentiation occurs by ability but in social studies it is by interest to increase engagement.”

Research Question 1: What are the teachers’ perceptions of the value of PBL as an instructional methodology?

The researcher sought to examine how each of the participants perceive the value of using project-based learning in their classrooms. Interview data revealed that each of the participants believed that this instructional methodology engaged their students to a greater degree than traditional, teacher-directed instructional methods. When asked to define what they considered engagement, they used descriptors such as “active participation,” “student collaboration,” “excitement,” “student-driven learning.” The researcher observed Participant 1 and Participant 2’s classes on two separate occasions. The purpose of the observations was to view the interactions between the teachers and their students and to use the class observations as a way to discuss the teachers’ perceptions of student engagement in their classrooms. The researcher also wanted to see and hear what the participants perceived as student engagement. The second interview

focused on how the participants structured their classrooms for PBL and their perceptions of PBL as the students were involved in their projects.

Participant 1 said that students in her class want to learn, and they enjoy project-based learning. She spoke about her school and how she develops a classroom community through inquiry-based learning.

> "We have an environment here where it is not cool not to learn. If you are hanging out with a bunch of kids who think school is not cool, then they don't want to do it. Here the kids don't want to hear that, they will say 'what do you mean you are not interested in what is going on here?' They always find a way in this project. If they don't like something they can also speak their mind. If they have a question, they will ask it."

During the first classroom observation using WebEx on March 31, students were observed by the researcher transitioning from taking notes during the teacher's initiation of the project into their group work. The observation took place during the fifth period eighth grade class. Twenty-four students were present, and the classroom was arranged in table groupings. Students were in groups of three to five at six table groups. Through the observation of the classroom the researcher could see and hear students discussing their projects and the teacher working with each of the six groups. The students' task was to decide how they would address the driving question. Students appeared animated and interested in what they were learning. Students were observed readily discussing their ideas and research with each other and with the teacher as Participant 1 circulated to each group. The teacher was seen moving from table to table to check in with students and to answer any questions they had. Participant 1 explained in her interview after the class

observation that she saw PBL as a "powerful instructional method" especially for middle school students because it allowed them to engage in "brainstorming, critical thinking, analysis, and other 21st century skills."

> "Students have more of an interest in learning and are engaged in the content more when they are involved in the learning activities rather than just reading and writing notes. So, it is inquiry, critical thinking and analysis and couple that with differentiation, so we address individual learning styles. Couple those with incorporating 21st century skills and these things taken together maximize the potential for successful outcomes for kids. Kids are engaged, kids have buy in," said Participant 1.

In the second class observation of Participant 1's class on April 8, students were observed by the researcher working together in their small groups for the majority of the 47-minute class period. Participant 1 provided a mini lesson of seven minutes in which she reviewed the objective for today, which was to continue to research information for their group projects and to review the state standards that would be relevant to this unit. She reviewed the project guidelines and the rubric for the project in which they would be assessed. Upon arriving at class, the students sat at their seats in table groupings of four to five students. The students were in the same six groups, comprising 24 students in this fifth period class. Students in each group were observed by the researcher speaking with each other about their projects. At each table grouping, there was one laptop that was shared because there were not enough computers for each student in the classroom. Several students were using their phones to conduct research. Midway through the period, Participant 1 chose three groups to present their findings so far to their

classmates. Each student group provided a four-to-five-minute digital presentation of their research beginning with the name of their project, the connections to the state social studies standards, and their sources. Students in the classroom were able to ask questions about each presentation. Participant 1 said that she sees a great deal of value in PBL as an instructional strategy.

> "Students thrive when they are empowered with challenging questioning, working collaboratively, and conducting their own extensive research. Inquiry at the middle level is often the first time that students really get to hone, develop, and express their critical thinking skills and analysis There is abstract, open-ended questioning and learning. The highest levels of engagement and outcomes are achieved when using this methodology and when differentiated instruction is part of the instruction, as it is in PBL."

Participant 2 said that PBL has "engaged" more students, particularly those who are more reticent to speak in class. "Some of the students who were shy are much more open in the small groups. They open up more and talk." Another advantage Participant 2 said was that he felt he was able to get to know his students better through their work in PBL groups. In a school in which most students are English Language Learners of diverse abilities, Participant 2 said that using PBL in his classroom where students collaborate on a project together, he has seen his students become more "involved in the class activities than they were when I was giving them content and speaking to the class. At first, I was wondering how I would keep all of the groups engaged and wondering how one could manage and luckily, they adapted right away to it. When they come into

the classroom on days that we have the PBL they get in, get the task and they get to doing the work and they get it done. It's been nice and a little different for me as well."

While most of Participant 2's students are Hispanic/Latino and all are classified as proficient in English, there are varying proficiency levels however "when they work together, they are talking more, and they are talking about the project." Participant 2 said that several times each week, the bilingual social studies teacher will visit this class during her prep period and work alongside Participant 2 and his second period class to help ensure that students who have limited English proficiency are able to understand the directions. He described this partnership as providing another level of support to his students while they engaged in PBL.

According to Participant 2, because of the interest the students have shown in the PBL unit, the bilingual social studies classes taught by his colleague are also participating in a similar unit of study. During his preparation period in the afternoon, Participant 2 said that he works with the bilingual eighth grade social studies teacher and her class. Participant 2 said the higher interest level of his students during PBL has also led to higher interest levels in other class activities. "Even when we do other topics or activities, they seem more focused, and they want to do better." Through the class visitations, Participant 2 said he feels that he knows students, even those he does not teach, on a much deeper level because of the structure of PBL with collaborative groups and his role as a teacher transitioning to one of a guide for instruction. He said he believes the level of student achievement has improved during the time he has implemented PBL.

> "I definitely think right now having given the more traditional assessments and now providing different types of assessments that some of the students who are not typically engaged are definitely making big strides because I feel they can see

their work in their groups. They can see the documentation they are creating in building their (projects)."

Participant 2 explained that he has changed his teaching practices because of the higher student engagement that he is seeing in his classes with PBL. "Students are more motivated." According to Scheer et al (2012), when PBL is used in classrooms it can change the dynamic of learning. "School leads students to work to know more, to engage with their learning, and to make connections between school and the outside world" (Scheer, 2012). Participant 2 said he uses more group work and structured his class around activities in which the students can find the answer or solution instead of him providing that information to the students. "I think this has improved [the classroom experience] for a lot of them." Prior to this unit, Participant 2 said that he had used PBL at times for short projects, particularly during the summer school programs; however, implementing a full unit with his students was a new experience and that he was also learning along the way. This current PBL unit is the longest unit he has implemented using this methodology in his classroom. The unit is one month long.

Observations of Participant 2's class occurred on April first and April 8 during his second period class while the students were involved in PBL activities. Both observations were conducted via WebEx during the period two class, which meets from 8:30 a.m. to 9:17 a.m. The first observation of Participant 2's classroom occurred on April first during his second period class. After Participant 2 explained the activity for the class period, the students moved their desks from rows into their groups. The students were asked to continue their research on the three companies they chose and to find the day's stock market prices for each and to compare it to the other data they had collected. Participant 2

said that most of his students enjoy working together in groups and the classroom groups ranged in size from two students to five students. One student worked alone. According to Participant 2, there are several students in his class who have a high number of absences, meaning 10 days or more. The single participant is one of those students with a significant number of school absences exceeding 20 absences. The student requested to work alone. Initially, Participant 2 assigned the student to a group, "but the student was missing a lot of class time. I have found that when he works alone, he comes to class more often and he is highly engaged in this class activity. He is actually doing the work." During the observation, Participant 2 asked students to move into their project groups.

> "You have selected the three companies that you wish to study and have looked each day at the stock prices for these companies. Now you will begin to look at some trends that you are seeing, either positive or negative. Our next step is to create your own company and to develop a mission statement, the name of your company, and to decide on a logo. This will become the first page of your portfolio."

After the students moved into their groups, Participant 2 met with each group. During the last few minutes of class, he asked each group to complete one exit ticket in which they posed a question that they did not know the answer to about the stock market but that they wanted to know. "Think about some of our themes and how sometimes outside events can impact stocks."

During the observation on April 8, Participant 2 conducted a mini lesson of 15 minutes on how to write a mission and vision statement for their projects. He provided paper copies of four different company mission and vision statements and reviewed the

elements of each in a full group setting. Participant 2 showed sample mission statements from two companies by projecting abbreviated versions on the whiteboard. He asked his students to read the statements and to use them as models to determine what they would like their companies to stand for. Students moved their desks into their groups. The teacher sat with each group of the six groups in the classroom. At one group of three students, one student said: "This is really fun. It helps to look at these stocks because I want to go into the business industry. I know it is helpful to take a business class and to learn things like this." Participant 2 told the class that they should begin to develop mission and vision statements for the companies they were creating. According to Participant 2, during the class sessions when the students are working in PBL groups, they "get excited."

> "They quickly move into their groups and begin discussing the task that they are working on. I have been pleasantly surprised, and they have just jumped right in. They seem to be motivated to learn more and any time we give them a task to do, they stay focused, and they get it done. I think they are enjoying it., I think they look at it as a different approach and it breaks up the day for them a little bit (laughing) because it is different than what they are used to."

Participant 3 said that her students are more involved in the class activities when they are involved in project-based learning "and the word that comes to mind is engagement, I mean they really want to come into my class." Participant 3 discussed her role as a "guide" during PBL to better assess student understanding during PBL. "When the class lesson and tasks are already established, and the students are working through

them, the teacher is on the sidelines guiding everyone along. I can make more of an impact on their understanding of the concepts by circulating around the room."

She said that by incorporating PBL activities into her classroom starting early in the school year, she can better understand their learning styles and she uses these to get to know her students and to place them in heterogeneous groups for PBL activities. Participant 3 said that she has seen her students' confidence levels group because of how the PBL units are structured. She described the importance of students learning from each other in groups and the independence they learn by "figuring solutions out."

> "They all have strengths; they all have something to offer and that is something that a lot of middle school students need. They need to build that confidence in themselves because it is a tough time. I find that doing these types of projects builds their confidence to see that they can do these things. Kids come out of their shells, kids that you wouldn't necessarily want to do something will do it. Of course, you always have kids that are having a rough day or who need a little push, but I find overall that there is a lot of engagement among my students, and they want to learn about the topics when we do projects like that."

Participant 3 said that while PBL offers her students more independence, "they know I have expectations for them." These expectations, she said, include "respect for each other and respect for the materials."

Research Question 2: What are the teachers' perceptions of their strengths and challenges in using PBL in their middle school classrooms?

The participants in this case study described their personal and professional strengths and what they perceived as the challenges they face in implementing PBL in their classrooms. All discussed the value of having many years of classroom teaching experience as they implemented PBL as well as their training in gifted education.

Strengths

Theme of experience as classroom teachers

All three participants revealed in their interviews that they were more confident in implementing PBL in their classrooms because they had many years of experience as teachers. They also described their class structures that they used while PBL was in effect. Participant 1 discussed how teaching was something she found that she was very good at but added that she worked hard at it and continues to take the opportunity to be involved in professional development. "I took tons of professional development, and I learned a lot from my classes. I pay attention and I take what I need to know and use it." Participant 1 also spoke about how she found that teaching was a good fit for her personality. This theme of the importance of experience surfaced in all three interviews.

> "I learned about goodness of fit from one of my professors in graduate school. You have to find something that you enjoy and that you are good at and that is the goodness of fit. I love teaching. I liked teaching high school, but you cannot beat the kids in middle school, they are like sponges. They love everything about interactive learning. In hindsight, I won't say it is the only thing I am good at, but

I discovered that it was the thing I was best at. That is something I learned about myself very early on like in grade school," according to Participant 1.

According to Participant 2, his years of experience allowed him to not be as worried that other teachers might view his classroom when there was a higher level of noise as "out of control." At his school [the upper middle school teachers] have both seventh and eighth grades. He discussed the value of both having experience as a teacher and the value of knowing his students over multiple years.

> "So, I have worked with the eighth grade now for two years, some of them I have worked with for three years in other capacities, so I know them, so it is easier to [use project-based learning] when there are clear expectations, and they know what to expect and I don't have to worry about students getting off task or fooling around. It's more that we will have our normal disciplinary stuff but I'm able to trust them and they trust the process as well and they realize that they are still learning but in a way that is different than they are used to. I guess another strength is over time I feel much more comfortable now with the content that I can think of it differently whereas when I first started teaching, I was learning the content almost at the same time; I was learning teaching skills, and this was overwhelming at times. I have also had an opportunity to work with a lot of teachers throughout the district, with different social studies teachers…so I've learned what they have done and seen some of their work and I am then able to use some of the work they have said is real good and motivating and put my own spin on it."

According to Participant 2, there is value in learning how to integrate PBL after having experience as a classroom teacher, largely because he is much more confident in his abilities, and he has established rapport with his students.

Participant 3 said that one of her strengths is that her years of experience allow her to identify the strengths of each more easily and quickly of her students. She uses this knowledge to place them in groups that are heterogeneous. She uses the first month of the school year to integrate class activities that will help her to observe her students and see their learning styles. She does this through interactive activities at learning stations set up around her classrooms which encourage her students to move around and work with others.

> "I like the kids to recognize that they all have a strength and whether they realize it or not we are going to find it. I find that even a kid can recognize that they have something to offer their community and when they do it brings them to another level of confidence. I think that is something that is really important in the classroom. I don't know if people know this, but everyone needs to find their strength and everyone has something to offer, whether you think so or not. You have to believe you have something to offer and you have a purpose, and it is hard to know what that is at eleven or twelve years old. A strength that you are an artist, that you can write, that you can write songs, that you are a person who likes to learn by rewriting your notes, that you are a person who has a strength of auditory learning or speaking out loud about something. So, finding each kid's strength in the classroom is something that I try to focus on when I first meet the students. I want them to know that it is okay if I'm an auditory learner or an aesthetic learner. We all have something to offer. This goes to respecting each

other. We are all different, we are all unique, we all can learn, we all learn differently. We all have something to offer this world."

According to Participant 3, she values having students recognize their strengths and spends the first weeks of the school year getting to know her students and helping her students get to know themselves. She added that she groups students once she has spent the initial weeks getting to know them.

One of the most significant findings was that all three participants perceived that their skill level and experience as teachers allowed them to have more positive relationships with their students. Participant 2 said that he still worries about ensuring that he has everything set up correctly in his classroom but that he is less worried about making mistakes explaining that he knows how to correct for that and to keep instruction moving forward. He said he also has so much more "content knowledge and skill" from 24 years of teaching.

> "Content knowledge is not something I have to spend a lot of time on and I can devote it to planning and implementing the project. When I was a new teacher, I felt like I was learning along with my students. I was learning how to be a teacher and also learning how to provide the content to them in a way they could understand."

Challenges

Theme of planning time

The challenge of needing a large amount of time to plan PBL units surfaced in each participant's interviews, although it was not considered an insurmountable

challenge. Through the interviews, the participants all referred to the value of having time provided in their district to develop units as planning PBL units took longer to develop but that when PBL began, the instruction was much easier. When the students began their role as the teacher transitioned to that of guide and they saw students more active in the learning. All mentioned in their interviews that they enjoyed their roles as teachers more during PBL because of this shift towards learner-directed instruction.

> "With inquiry comes a lot of preparation. It took me a long time to get the materials, to plan, to really get a knack for how it works. It didn't go so smoothly when I first started incorporating PBL in my classroom as a newer teacher, but I have been doing it for years now and I find that it is the best way. I wish I could build all of my units this way, but it takes time," according to Participant 3.

The noise level in a PBL classroom

However, some of the common challenges they faced were getting used to a noisier classrooms and students moving around the room. "The movement can be districting for some students," according to Participant 3. "Some may become more distracted and off task and I will have to work with those students more closely when we move into project-based learning." Participant 1 said that once she can establish a routine in the classroom for students working in PBL groups, the noise level lessens. However, she explained that students speaking in their groups is a part of inquiry work that she had become used to since being in the gifted program.

According to Participant 2, the movement and "noisiness" of the classroom were more of a concern when he was a newer teacher. "I didn't want others, including the principal, to think my classroom was out of control." He explained that he is still a little

uncomfortable with the higher volume of noise but that he sees the students working and enjoying the class more.

> "The classroom environment is different; I think it is noisier. I think it is more active than in the more traditional learning environment, but I also find there is a better exchange of ideas, questions, and enthusiasm for the topic than when I do more traditional style lessons. What I find is that they have a lot of questions that they want to figure out and sometimes they don't know how to formulate a question but once they get comfortable doing that then they are able to take ownership of it and take off on their own. It's definitely much more student driven but what I try to do in my role is in the beginning give them a mini-lesson so they have some type of focus on what we are trying to accomplish and something they can use on their own later in the lesson and then as they are working, I try to bounce around to each group just to check in and get some feedback on how it is going. If they are having a bit of an issue with anything I try to steer them back on track. That is the environment I am envisioning. I hope I will continue to improve on helping them to feel they are in charge and that they look at me as the helper and the guide as opposed to just giving them the information and them taking it and working on it on their own."

The challenge of interdisciplinary teaming

Each of the participants said that they enjoyed working with their colleagues but that often it is difficult to convince other teachers to be part of the planning process necessary for PBL. Participant 2 said that he had envisioned working with his grade level colleagues so that the PBL unit was interdisciplinary. "At the beginning we were trying

to bring in other disciplines, like math and science, but those teachers were concerned." Participant 2 explained that the amount of planning that the other teachers perceived was needed was a major barrier to enlisting them and that they had not had experience or training in PBL. Instead, Participant 2 and the bilingual social studies teacher worked together and involved their eighth-grade classes in a unit of instruction that tied together World War II and The Great Depression through a unit they developed on the stock market. The PBL unit's goal was to have students understand the stock market through the development of their own companies after studying three actual companies of their choice and charting the price of stock market shares over the initial weeks of the unit. Participant 3 said she began to develop her new unit with other teachers but that many dropped out because of the time commitment required to plan together. Participant 1 has had some success working with other colleagues on projects however it depends on the unit and the timing. When she does work with another grade level teacher, it is usually the eighth grade English Language Arts teacher.

State testing presents challenges

Another challenge faced by the three participants in implementing their units in the spring was the state testing schedule, which led to some interruptions of their units. The English Language Arts testing schedule for grades three through eight begins in late March, followed by state math testing. According to Participant 2, "Next year what we were thinking about doing differently is instead of having it broken up over several weeks we will have a more condensed unit and that might be a little easier to manage. It would also be better for the kids because they would not have to flip flop back and forth." Participant 3 said she waited until the testing was over to begin her next unit of PBL.

Participant 1 said she took a pause in working on the PBL unit during the testing schedule. She said she found the students even more engaged because they could meet together to work and discuss the project after the state testing was completed.

Middle school students' developmental levels and shifting to student-centered learning

Participants 1 and 3 both referred to the developmental level of middle school students as a challenge, particularly in the beginning of the year. Participant 3 said that she found her students entered her class at the beginning of the year still between "being elementary children and becoming young adults." She explained that most of her students were still looking to the teacher for the answers in September and October, and some of them even later. "When I tell them 'I don't know you will have to find out,' they are annoyed, they want to know right away. Even small issues of having them problem solve and getting them to realize that when you face a challenge it is up to you to find a solution" can cause some angst. Participant 3 said that sometimes students look to adults for answers they are used to getting quick responses. "So many times, we do too much for the younger ones because we think that they cannot do too much, and they are not equipped to solve a problem. However, by engaging in this process and having them find solutions, it builds their confidence, and they start to recognize that they can do it on their own."

Participant 1 said that most of the students at her school have been there since they first began school. "Many of our students have been here since Pre-K, they began at this school when they were only four-years-old, so this is the only school they know. By eighth grade, though, they start to go through a transformation and near the end of the year [there is a shift and] they are ready and prepared to go to high school." Participant 1

said that she has a structured classroom. The learning objectives are posted each day on her board and the unit is divided into different tasks and activities. Objectives were posted during both Participant 1 and 2's observations. All three participants said that they regularly post learning objectives in their classrooms to structure and guide their students.

Participant 2 said that shifting his teaching style from teacher directed to student-directed learning, can be a challenge for him.

> "I have the tendency to take over and not on purpose but instead of giving them the time to go back and fix I'll try to give them the quick fix. So, trying to take a step back and let them figure it out can be tough. They may not know where they are heading, and they may need more time to figure it out and sometimes I get nervous, and I feel this is downtime and I want to keep it moving. 'Alright, very good, let's fix it quick and let's go.' Whereas I may need to give them more independence and time to figure it out."

Table 3
Strengths and Challenges

Sub themes

Strengths	*Challenges*
Organization and Structure	Time to plan
	Higher noise levels
	State testing
	Middle school student developmental levels

Research Question 3: How do teachers organize their classroom learning environment environments for project-based learning?

Through the interviews, participants discussed their grouping styles and ways that they organized their classrooms for PBL. All three participants said that having a "structure" in place was important in PBL, particularly at the middle school level. According to Participant 3, she is highly structured in her approach. She organizes her classroom into stations and begins to group her students once she understands their learning styles so that the groups are heterogeneous.

> "It took me a long time to get the materials, to plan, to really get a knack for how PBL works. It didn't go so smoothly when I first created it but I have been doing it for years now and I find that it is the best way, even going into it at the beginning of the year, I don't know the students well and I like to put them in groups once I know the personalities of who works together. I still set it up with expectations and understanding, structure and discipline. It is not a free for all."

Each of the participants organized their classrooms in different ways however all attempted to group their students heterogeneously. Participant 1 and Participant 3 said they grouped students so that there was a range of abilities and styles and that they determined the student groups in their classrooms. Participant 2 said he grouped students heterogeneously however sometimes students were grouped based on which students worked together best. Participant 1 said that trying to coax shy students to be more involved is part of the process of how she sets up her class.

> "A couple of kids are shy but if you are creating the right classroom environment and kids feel safe there and other children will encourage them to take a risk. It happened just this morning when we were playing a class game for review of a concept. A student did not look like he was eager to get involved and someone said, 'you can be on my team, and we can play together.' The next thing I knew they were with the rest of the students. Our projects are inclusive. Having an inclusive environment is something that grownups take for granted sometimes."

Heterogeneous groups

The participants explained that they form their student groups after getting to know their students better and try to group students together who they believe will work well together. In discussing how the teachers organize their classrooms, there were several commonalities. All used heterogeneous grouping and tried to set up class structures that provided routines. The pandemic has impacted how their groups were structured in their classrooms but when the restrictions on distancing were relaxed, all three participants reverted to table groupings for PBL instead of using rows, which were easier to distance students.

All participants said they attempted to group their students heterogeneously for PBL units. In all three cases, the participants, themselves, determined the student groups and occasionally needed to regroup students if they found that certain students cannot work well together. Participants 1 and 3 said that they spend the first few weeks of the school year getting to know their students' strengths and areas of challenge and then group them. Participant 2 said that he knows most of the students since he was their seventh-grade teacher when they come into his class. Some, he said, he has known since their sixth-grade year where he is a mentor for young men of color. However, he has

students in rows until they are in the PBL units. Participant 1 spoke about the importance of teaching her students about the inquiry process at the beginning of the year.

> "When you teach the students what this all means and why we are doing it, they learn what inquiry is, they learn what differentiation is. In the beginning of the year, we went over all the standards. It is grueling in the beginning; it is not the most fun thing, but I tell them this is something we have to do to set up for all the fun things we are going to do." Participant 1 added that she tries to build a classroom community that is "inclusive and structured at the beginning of the year."

On grouping and the effect of the pandemic

Participant 1 explained that she regularly grouped student desks for PBL and changed the composition of the groups for each new PBL unit that they used. When students returned to classrooms this year, there were still significant occurrences of COVID-19 in the schools so most classrooms placed students in rows so there was more space between them.

> "But I was still able to do my group work by where I placed students in the rows. We were able to remain socially distant and students shared documents through the use of their individual computers. They were able to sit close enough that they could hear members of their groups talk. On days we did not have enough devices for every student, the one who had the best seat for everyone to see had the laptop."

After the restrictions were relaxed, Participant 1 moved the student desks into groups of three to four students. “My first arrangement this year was because of contact tracing, and I placed students in alphabetical order. Ideally it is better to have heterogeneous groups and to change them with different projects but that was not possible during the pandemic.” She explained that the heterogeneous groupings students who may not have as strong skills as others “rise to the challenge.” Participant 1 said the way she groups students depends on the class. “One class may be able to handle a change in groups, but another may have certain students who cannot sit next to each other. Sometimes we are more limited in what we can do.” She also pointed out that at the middle school level, sometimes established groups in which students are working well together should continue.

Changing groups only if students don’t work well together

All three participants said that if a group does not work well together, they will make changes in the groups but that this does not happen often. Participant 2 said that while he likes to keep the same groups, occasionally it does not work out. He explained that one student in a class that is participating in PBL prefers to work alone and that he noticed the student, when alone, is “more engaged” and completed tasks. “The student is still absent from school a lot but at least when he comes into my room now during PBL he gets right to work. This wasn’t always the way with him.” Participant 1 said she tries to avoid changing groups once they are established.

> “You don’t want to change it for the reason of change because doing group work is not always easy. If you have something working well and the kids are accustomed to it and they like it, sometimes it is better to leave well enough alone. You can change it and they don’t like the change and now you made things

worse. Moment to moment you make these judgment calls." She explained that by keeping the groups that are working well together through the year more time can be used for the project-based learning activities. "Sometimes it is better because you don't have to start from scratch every single time and we can do more creative, thorough inquiry research. When they are in the same group, they also get to know each other. They have their routines and specialties and they like the familiarity of working together."

Conclusion

In conclusion the evidence presented in this study qualitatively validates the finding that the participants' experiences in using PBL and their perceptions about its effectiveness had a perceived advantage for their students. The research illustrates through these case studies that teachers perceive that when they implement PBL in their classrooms, students are more engaged in classroom activities. The teachers also discussed their personal strengths that have helped them to organize their classrooms and instruction so that they can successfully implement PBL. Finally, the findings and implications in this study suggest that teachers believe that PBL in middle school classrooms can transform teaching and learning so that students are using higher order thinking skills. An unintended finding that was raised during this study was that teacher engagement also increased during PBL units, all expressed heightened interest and closer connections to their students.

CHAPTER 5

Introduction

The purpose of this qualitative research study was to examine the perceptions of teachers, through a phenomenological case study approach, as they implemented a unit of study in their middle school social studies classrooms using project-based learning. This chapter provides a discussion of the findings of this research study conducted within one of the largest urban school districts in the northeast and it describes its implications for future research. The case study was conducted in the spring of 2022 in one of the largest districts in the state where the research was conducted. The study took place during the second year of the COVID-19 pandemic after students had fully returned to in-person learning, however some safety protocols were still in place, and as the impact of the pandemic has continued to disrupt schools nationwide.

The findings of this research study indicate that the implementation of PBL in middle school classrooms can increase both student engagement and achievement, as described by the study participants and supported by prior research studies. Additionally, the study uncovered several factors that may have also influenced the results. The themes that arose through the interviews with the three middle school teachers were that project-based learning engaged their students, the importance of professional development, and the impact of being experienced as a classroom teacher and having strong content knowledge. The following research questions guided this study:

1. What are the teachers' perceptions of the value of project-based learning as an instructional methodology?

2. What are the teachers' perceptions of their strengths and challenges in using project-based learning in their middle school classrooms?

3. How do teachers organize their classroom learning environments for project-based learning?

Implications of Findings

Relative to the three research questions this study attempted to address, the following major implications emerged:

- All participants perceived that PBL engages their learners much more than traditional, teacher-directed instruction.
- Professional development in both PBL and gifted education were perceived as beneficial to the participants' successful implementation.
- Organizing classrooms in ways that allow for students to collaborate, move out of their seats when needed, and be involved in different activities instead of remaining stationary in classrooms that may be organized in rows was perceived by participants as important to encouraging student collaboration and experimentation.
- Having access to technology was an important aspect of student engagement and the work they were doing.

Relationship to Prior Research

Project-based learning is a constructivist approach first described by Dewey and Kilpatrick in the early 1900s. The approach is centered around problem solving through an inquiry process that requires students to work together in small groups, investigate, explore and finally to create solutions to driving questions or compelling problems (Dewey, 1916, 1959; Kilpatrick 1918; Vygotsky, 1975). It is this social aspect in which students work together that engages them as they construct solutions through projects that show a clear connection between their academics and real-world problem solving (Dewey, 1933; Scheer et al, 2012; Vygotsky, 1975; Blumenfeld et al, 1991). Inherent in the process of answering the driving question or the compelling problem is the development of a plan and testing it "against reality" while students design it (Dewey, 1938; Wurdinger et al, 2007).

With students in school districts across the country showing a loss in learning and a lack of engagement, as measured both qualitatively by teacher observations and by national and state education studies (NAEP) as well as the headlines on national news stories, implementing student-centered, inquiry-based approaches such as project-based learning, may be one solution. It became very apparent during the pandemic years that traditional learning methods did not translate through virtual instruction when students and teachers were at home trying to navigate this new educational landscape. What educators found was that traditional teaching methods did not work in the digital age, and even still, they had limited success even pre-pandemic. The most recent news articles, studies, and assessment results showing a significant loss of learning is blamed largely on the pandemic. According to recent results released by the National Center for the

Improvement of Educational Assessment (October 2022), student learning gaps were exacerbated during the pandemic and impacted every state in the nation. However, decreased student engagement has been endemic in many urban districts, particularly at the middle school level where nationally student engagement and achievement show a decline in student achievement.

The first research question in this study addresses this issue of student engagement and is connected to social constructivist theories. The research study found that all three participants perceived a marked increase in their student's engagement when they were involved in the classroom project-based learning activities. Vygotsky and Cole's (1975) research showed when students collaborate, particularly as they engage in inquiry learning, their social interactions and collaborations "increase cognitive development" (p. 86). However, the "social dynamic" that occurs between students actually "increases cognitive growth at a higher rate when collaboration occurs with more capable peers or with the teacher than if he or she worked independently" (p. 86). In other words, as students acquire the skills and capabilities to engage in effective problem solving, they begin to take more ownership and pride in their learning. "With collaboration, direction, and some kind of help the child is always able to do more and solve more difficult task than he can independently" (p. 205). The importance of collaboration was seen as important by the three participants as they saw students who they had been perceived as reticent to share or participate in class activities become much more active in their PBL groups and in full class discussions. This study supports prior research findings on the importance of student collaborations in problem solving and

increased cognitive development (Vygotsky and Cole, 1975); and higher motivation levels, particularly among students of color (Moll and Gonzalez, 1994; Schunk, 2012).

Connecting academic learning to the outside world is at the basis of PBL. It is this connection that leads to meaningful learning as students believe their classroom activities and the skills, they must use are similar to those in the real world (Novak & Iulo, 1995; Ausubel, 2000, Dewey, 1933). Rote lessons, those tasks that often are prevalent in classrooms, particularly in urban school districts, are not engaging for students. "The prevalence of low-level tasks contributes to students' lack of understanding of content and process and their poor attitudes toward learning and schooling" (Blumenfeld et al, 1991, p. 371). All three of the case study participants discussed in their interviews the importance of having students who were engaged in class activities, particularly after spending the past year using mainly digital means to instruct students. Theorists have linked classrooms that have meaningful learning experiences, such as PBL with its connections to the outside world, and increased student engagement and academic achievement (Yeager & Dweck, 2007; Ausubel, 2000; Novak, 2002).

The second research questions discussed the participants strengths and the challenges they faced in implementing a unit of PBL instruction into their U.S. History classes. All the participants demonstrated a true passion for learning to improve their pedagogy. Although mid to late career educators, they took advantage of their district's professional development series on PBL to further develop and refine their use of this methodology and they made a commitment to implementation of a unit of study. They all had experience teaching gifted students at a formative time in their careers. All spoke about implementing what they had learned in their gifted classes or professional

development in their current classrooms. Researcher Carol Dweck presents a compelling case for children being able to increase their achievement if they believe they can learn and be successful, and this view was shared by the study participants. Dweck refers to this as having a "growth mindset" (Dweck, 2010 pp. 16). While implementing the unit that was recently created, the participants allowed the researcher to observe classroom interactions, review artifacts, and they participated in interviews. Their shared perceived strengths included their experience levels as classroom teachers, their experience in teaching the core subject of U.S. history, and their training in gifted education and PBL. "The growth mindset" where teachers believe that challenging work can increase achievement and that intelligence is not fixed "empowers and motivates students (p. 20).

The participants also discussed the importance of planning for PBL as part of their professional learning. The planning aspect was the most rigorous of PBL, according to the study participants, who believed that once students were involved in the projects, their roles as facilitators and guides made the process for them more enjoyable. "Establishing a classroom environment in which collaborative groups function well is a skill that needs to be taught to students. It is one in which many teachers, when transitioning from teacher driven to student driven, think is most important (Moll & Gonzalez, 1994, p. 439). They needed to keep in mind the focus of inquiry-based learning as being student-centered and the importance of developing that driving question or compelling problem that would engage students. The launching of the inquiry must connect academics and the outside world, while being large enough for students to construct solutions that may be varied from one another (Blumenfeld et al, 1991; Dewey, 1933) and at the same time "well defined" and "learner centered" (Roessingh &

Chambers, 2011) so careful planning is a significant aspect of the process for teachers. The PBL unit must "engage the learner in the task that supports deeper learning. It must be a carefully organized project design with inherently motivating task and questions allowing learners to exercise choice and control," (Blumenthal p. 376). For students of differing abilities to be successful, the projects must include scaffolding so that each student is able to connect prior knowledge with new knowledge (Roessingh & Chambers, 2011; Ausubel, 2000; Novak & Iuli, 1995).

The third research question discussed the classroom environment and how the participants established their rooms for PBL. All three participants established student setting so that students worked in groups of generally three to five however the groupings were flexible in each classroom to allow some changes if team members did not get along or in one case in which a student wished to work alone. The collaborative nature of PBL "with its emphasis on problem solving… requires a more flexible instructional setting to permit students to talk with one another" throughout the process (Sheer et al, 2012; Beneke & Ostrovsky, 2008; Novak, 2002; Blumenfeld et al, 2000). They also utilized formative assessments so that they could ensure that students were learning and progressing in their classroom activities. Formative assessments allow for teachers to ensure understanding and to teach the content that may be missing. (Krajckik et al, 2007; Blumenfeld et al, 1991). The collaborative nature of PBL comes with it a noisy environment that not all teachers are comfortable with. The higher noise level that is part of students working in teams, was something of note to the study participants. Participant 2 noted that earlier in his career he would have been much more reticent to have a noisy classroom because he perceived that administrators might believe his students were not

working. However, his years of teaching, knowledge of content, and his established credibility as a highly proficient teacher within his district has allowed him to experiment more, he said. It is important to note, however, that even the best designed project will not motivate children and the role of the teacher as guide and participant is essential (Blumenfeld et al, p. 381).

Combined, these implications demonstrate that the teachers strongly perceive that PBL is engaging for their students and that their academic progress increased substantially. All three participants stated in their interviews that they felt they got to know their students better as learners and as individuals during the PBL process. They also perceived themselves as much more effective as teachers when they employed PBL strategies that allowed for students to engage in problem solving and group work. Additionally, they felt that being experienced in the classroom, and being considered highly proficient teachers in their schools, allowed them to have the confidence to try a different methodology that is more open ended than traditional instruction. Through this study, it became even more apparent how important the role of the teacher is to ensure that learning is occurring. In PBL, teachers must shift their roles to that of a guide rather than the expert at the front of the room providing information (Scheer et al, 2012). This requires both teacher confidence and the ability to take a risk by ceding some control to students as they engage in their own learning. By shifting the paradigm and taking on the role of guide to provide content knowledge when needed and to facilitate student groups for collaboration, teachers who embark on PBL units and activities will have greater success (Scheer et al, 2012; Blumenfeld et al, 1991). This is not easy to do particularly when PBL classrooms are noisier and more active than traditional classrooms. Teachers

using PBL must also learn to allow students to grapple with problems and not to provide the answers. "Great teachers encourage students to embrace rather than fear adversity, as mastery over such fears allows for persistence through practice, disappointment, and even failure (Subotnick & Jarvin, 2005, p. 344). This hands-on experimentation where students must work together, solve a problem, and reflect on the process leads to higher achievement (Roessighn & Chambers, 2011, p. 60). This is central of the process and is motivating to students (Katz & Chard, 1989, p. 33).

Limitations of Study

A possible limitation to this study is the relatively small number of participants that are included. However, the three participants comprising the case studies are all very experienced teachers who work in the same large, urban school district. While the number of participants may preclude using the study to generalize about all teachers' experiences in using PBL, there are still important implications that can be derived from this case study approach. Because of their long-term experience in an urban school district, between 17 and 24 years, the study provides additional guidance and data that indicate that teachers who are experienced in the skills and content of their pedagogical practice may be successful in implementation of PBL. The three participants in this research study are certified social studies teachers who have been teaching in urban middle schools. All the participants believed they had an advantage when trying a new methodology because they had content expertise and felt they had solid pedagogy. The experiences of these participants provide important case study data for educators and policy makers to use when determining if PBL is an instructional methodology that can be used in their districts to benefit both students and teachers.

Recommendations for Future Practice

The findings from this study can be used to inform practices for teachers implementing PBL in their middle school classrooms and the types of pedagogical strategies that should be put into place. The study also provides a valuable case study that contributes to the PBL literature demonstrating how teachers' perceptions of PBL strategies increase engagement levels in urban middle school classrooms. As the major effects of the pandemic are subsiding and policy makers and school and district leaders are culling lessons learned from teaching during the pandemic, this study plays an important role.

Recommendations for Future Research

The findings of this study indicate that future research in the following areas would be useful. In addition, this study may be extended to other urban districts as well as rural and suburban districts to measure the perceived impact in different environments. The research data in this study could also be used to compare teacher perceptions at the elementary and high school levels in addition to other middle schools in other districts. As there are relatively few research studies measuring the effectiveness of project-based learning following a pandemic, additional studies that replicate this one are recommended.

Conclusion

In conclusion, the evidence presented in this research study validates the finding that teachers perceive that the implementation of project-based learning engages their students and that their preparation and planning for the PBL unit is significant. The study

also illustrates how the teachers prepared themselves and their classrooms for implementing project-based learning in their eighth-grade social studies classrooms. Finally, and perhaps most significantly for educational policy makers and district leaders following two years of the pandemic, the findings and implications of this study strongly suggest that by implementing PBL school districts can address and make up for learning loss through changing instructional methodologies from teacher-centered to inquiry-driven. The COVID-19 pandemic caused significant disruption in K-12 education across the country. However, this disruption has also opened the possibility for school districts to transform teaching and learning through examining instructional practices that more closely meet the needs and learning styles of today's students. While PBL is not a new methodology it is one that has shown that when implemented well, it engages learners, and this engagement can lead to higher achievement levels. To implement it well, however, requires high-quality professional development that provides strategies and guided practice. Right now, education is ripe for innovation and transformation to best meet the needs of all learners, the pandemic and resulting studies showed that traditional means of teaching did not meet the needs of many learners. This case study has demonstrated how one school district's implementation of PBL engaged a diverse population of middle school learners within an historically low-achieving, large urban school district with limited resources. Now is the time for large-scale transformations of the nation's schools and the middle school setting may be the place to begin to implement these strategies.

APPENDIX A: CONSENT AND RELEASE FORM

INFORMED CONSENT AND RELEASE FORM

You have been invited to take part in a research study to learn about the effect of integrating Project-Based Learning into middle school classrooms. This study will be conducted by Principal Investigator Dawn Bartz, School of Education, St. John's University (SJU), New York, as part of her doctoral dissertation. Her faculty sponsor is Dr. James Campbell, SJU School of Education. If you agree to be in this study, you will be asked to do the following: take part in two or three interviews concerning your experiences using project-based learning. Your interview will be recorded. You may review these recordings and request that all or any portion of the recordings be destroyed. Participation in this study will involve two to three hours of your time. The interviews will be held over the phone or by Zoom. The interviews will be held within one week of each other.

There are no known risks associated with your participation in this research beyond those of everyday life. Although you will receive no direct benefits, this research may help the investigator gain a deeper understanding of the perceptions of teachers on the effects on student motivation when integrating project-based learning into their classroom practice. Confidentiality of your research records (e.g., audio or video recordings, transcribed interviews, documents/artifacts) will be strictly maintained by using codes for all personal identifying information to make sure that you name and identity will not become known or linked with any information you have provided. Participation in this study is voluntary. You may refuse to participate or withdraw at any time without penalty. For interviews, you have the right to skip or not answer any questions you prefer not to answer.

If there is anything about the study or your participation that is unclear or that you do not understand, if you have questions or wish to report a research-related problem, you may contact Dawn Bartz at xxx-xxx-xxxx, dawn.bartz14@stjohns.edu or the faculty sponsor, Dr. James Campbell, campbellj@stjohns.edu, Department of Administration & Instructional Leadership, The School of Education, Sullivan Hall, 520, St. John's University. For questions about your rights as a research participant, you may contact the University's Human Subjects Review Board, St. John's University at xxx-xxx-xxxx. Please return this signed form to the investigator if you decide to volunteer for this research study. Thank you.

Sincerely,
Dawn Bartz

____ Yes, I give the investigator permission to use my name when quoting material from our interview in her dissertation.

____ No, I would prefer that my name not be used.

Agreement to Participate

_____ _____

Subject's Signature Date

APPENDIX B: UNIVERSITY IRB APPROVAL

IRB #: IRB-FY2022-243
Title: A Phenomenological Case Study of Teacher Perceptions on Project-Based Learning as an Instructional Methodology to Increase Student Engagement
Creation Date: 2-6-2022
End Date: 3-17-2023
Status: Approved
Principal Investigator: Dawn Bartz
Review Board: St John's University Institutional Review Board
Sponsor:

Study History Submission Type Initial

Key Study Contacts

Review Type Expedited

Role Co-Principal Investigator

Role Principal Investigator

Role Primary Contact

Decision

Contact Contact

Approved

campbelj@stjohns.edu

James Campbell

Dawn Bartz

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APPENDIX C: IRB APPROVAL FROM SCHOOL DISTRICT

Date: February 24, 2022

To: Dawn Bartz

From: Rachel Cole

February 24, 2022

Re: Letter of Approval for proposal "A Phenomenological Case Study of Teacher Perceptions on Project-Based Learning as an Instructional Methodology to Increase Student Engagement"

Please accept this letter as official approval of the above titled research proposal. The terms that we agreed upon are detailed in Ms. Bartz's research proposal, as well as the following:

- Ms. Bartz must gain principals' permission before approaching their teachers for recruitment and inform the relevant Assistant Superintendent.
- Each participant will sign a detailed informed consent form.
- Ms. Bartz must specify that the data she collects will not be shared with school administrators (unless for mandated reporter requirements) or otherwise used for evaluative purposes.
- Names of schools and participants will not be shared and published.
- Any changes to the study design must be resubmitted for approval.

If there are any questions or further information is required, contact Rachel Cole at 914- 376-8234.

Best of luck!

APPENDIX D: INTERVIEW INSTRUMENT

1. Can you please discuss your educational background, why did you decide to become an educator and how did you arrive at your current position in this district?
2. How would you describe yourself as an educator (e.g., your educational philosophy and your views on teaching and learning)?
3. What are your views on using project-based learning in the classroom?
4. Have you participated in any professional development sessions or programs on project-based learning and if so, where, and when?
5. Have you used project-based learning in your classes before and if so, in what context?
6. What impact do you think project-based learning will have on your students and why?
7. How would you describe your students' engagement in social studies lessons?
8. Would you please describe in some detail how you first became involved in Project-Based Learning and what motivated you to institute this instructional methodology into your class?
9. How can you determine if your students are engaged in your lessons?
10. Can you please describe your expectations for this unit using project-based learning?
11. Can you please describe your perceptions of student engagement in your social studies classroom?
12. How did you begin this new project-based learning unit with your students?
13. Now that project-based learning has been initiated in your class, how would you describe the reactions of your students?
14. Have you noticed any difference in the level of engagement of your students and if so, what are some of your observations?
15. Has there been any change in classroom routines since you initiated project-based learning?
16. How has your role changed in the classroom?
17. What, if any, are the challenges you are facing with implementing project-based learning through this historical unit?
18. Based on your experiences, can you describe some of the challenges and successes you have had in using project-based learning?
19. Can you please describe what you are noticing about your students' participation in class activities?
20. Based on your experiences, what are your perceptions on using project-based learning to raise student engagement?
21. Based on your experiences, what are the barriers to implementing project-based learning in a middle school classroom?
22. Is there anything that I have not asked you that you believe is important to understand?

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Vita

Name	Dawn Bartz
Baccalaureate Degree	Bachelor of Arts, University of Rhode Island, Kingston, Double Major: Journalism & Speech Communications
Date Graduated	May 1985
Other Degrees and Certificates	Master of Arts, Teachers College Columbia University, New York Major: Social Studies Education
Date Graduated	May 1987
Other Degrees and Certificates	Master of Arts, California State University, Fullerton Major: Political Science
Date Graduated	May 2000
Other Degrees and Certificates	Sixth Year Professional Diploma Southern Connecticut State University, New Haven Major: Educational Leadership
Date Graduated	May 2006
Other Degrees and Certificates	Advanced Diploma, The College of New Rochelle, New Rochelle, NY Major: School District Leadership
Date Graduated	May 2013