

Gardner-Webb University

Digital Commons @ Gardner-Webb University

Doctor of Education Dissertations

College of Education

Summer 2021

Impact of Student Voice on Self-Efficacy

Melanie Shaver

mshaver@gardner-webb.edu

Follow this and additional works at: <https://digitalcommons.gardner-webb.edu/education-dissertations>



Part of the [Educational Methods Commons](#), and the [Secondary Education Commons](#)

Recommended Citation

Shaver, Melanie, "Impact of Student Voice on Self-Efficacy" (2021). *Doctor of Education Dissertations*. 54.
<https://digitalcommons.gardner-webb.edu/education-dissertations/54>

This Dissertation is brought to you for free and open access by the College of Education at Digital Commons @ Gardner-Webb University. It has been accepted for inclusion in Doctor of Education Dissertations by an authorized administrator of Digital Commons @ Gardner-Webb University. For more information, please see [Copyright and Publishing Info](#).

IMPACT OF STUDENT VOICE ON SELF-EFFICACY

By
Melanie R. Shaver

A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Gardner-Webb University
2021

Approval Page

This dissertation was submitted by Melanie R. Shaver under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

Stephen Laws, EdD
Committee Chair

Date

Larry Putnam, EdD
Committee Member

Date

Sara Newell, EdD
Committee Member

Date

Prince Bull, PhD
Dean of the School of Education

Date

Acknowledgments

I would be remiss if I did not acknowledge a long line of individuals and groups who have lifted me on their shoulders and carried me through encouragement, tutelage, wisdom, and support every step of my journey.

I want to extend my deepest gratitude towards my parents, Tom and Rosanne Handford, my husband Nick Shaver, and my daughter Maggie. You sacrificed time, money, and energy to ensure that I met my goal of becoming Dr. Shaver. Thank you for your unwavering support and love through anything and everything that is encountered on life's journey. The love you give me overflows my cup and inspires me to show and share love with others. Your influence in my life is the reason I want all kids to have their best opportunities to explore, learn, and develop a passion for the world around them while discovering their purpose.

I would like to thank Dr. Stephen Laws, my esteemed, knowledgeable, and lively dissertation chair. Your encouragement and coaching have kept me laughing and learning more and have pushed me to try things that have inspired learning far beyond what is written on these pages. Thank you to my dissertation committee: Dr. Larry Putnam, who also served as my coach and consistently provided feedback to motivate me, and Dr. Sara Newell, who gracefully assisted me in navigating all things relating to data.

I would like to extend my thanks to my cohort; our work together has bettered me and broadened my perspective. I appreciate each of you for the gifts and value you brought to the conversations and beyond that to the field of education.

Last, I would also like to gratefully acknowledge and thank my colleagues within my district. You have supported me and encouraged my ideas. Without each of you, the

chance to offer something different to the students would not have happened. You have made the dream work, and do so every day! A big thanks to my superintendent who patiently answers my never-ending questions and has been a mentor since we began our work together. I have appreciated the opportunity to continue my work as I grow my capacities as a leader and educator.

Abstract

IMPACT OF STUDENT VOICE ON SELF-EFFICACY. Shaver, Melanie R., 2021:

Dissertation, Gardner-Webb University.

The purpose of this study was to (a) relate the impact of the development of student voice in middle school to the perception of achievement measured by self-efficacy and (b) explore how the transformative learning theory affects developing adolescents through the development of student voice in a project-based learning model. The theory is grounded in Mezirow's (1991) Transformative Learning Theory. The study explored if an instructional method such as project-based learning allows the development of student voice and builds self-efficacy. Utilizing the explanatory sequential model, survey and achievement data were collected and compared between treatment school to nontreatment school to determine if there was a difference in the perception of achievement in students, parents, and teachers. The quantitative data collection process was followed up by a qualitative data collection process that resulted in individual interviews of students and parents from the treatment school. Findings on the development of student voice in middle school using the project-based learning instructional model to the perception of achievement measured by self-efficacy were inconclusive. Limited findings on how the transformative learning theory affects behavioral change in adolescents were noted. Study findings might inform professional development for teachers and education for families and identify areas in which more research would be beneficial to developing student voice and improving self-efficacy.

Keywords: self-efficacy, student voice, transformative learning theory, project-based learning, adolescent development, college and career readiness

Table of Contents

	Page
Chapter 1: Introduction	1
Introduction.....	1
Historical Background	4
Problem Statement	5
Theoretical Framework of the Study	6
Purpose of the Study	9
Research Questions	9
Significance of the Study	10
Role of the Researcher	11
Overview of Methodology	12
The Setting of the Study	12
Treatment School	12
Definition of Terms.....	14
Assumptions.....	15
Possible Limitations to the Study	16
Delimitations	17
Scope	18
Summary	19
Chapter 2: Literature Review	21
Introduction.....	21
Theoretical Framework	21
Transformative Learning Theory	23
Adolescent Development	29
PBL	34
College and Career Readiness	41
Student Voice.....	43
Self-Efficacy	48
Summary	50
Chapter 3: Methodology	52
Introduction.....	52
Research Questions	52
Nature of the Study	53
Research Design.....	58
Research Procedures	58
Steps of Data Collection	59
Summary	60
Chapter 4: Results	61
Introduction.....	61
Quantitative Data: Students	62
Quantitative Data–Parents	70
Quantitative Data–Teachers.....	72
Quantitative Summary	74
Qualitative Interviews	76

Qualitative Summary	83
Chapter 5: Discussion	85
Discussion of Research Questions	85
Student Voice Discussion	88
Self-Efficacy Discussion.....	90
PBL and Transformative Theory Discussion.....	91
Adolescent Development Discussion	93
College and Career Readiness Discussion	95
Limitations of the Study.....	96
Recommendations for Further Research.....	99
Summary for Implications of Practice	100
Conclusion	103
References	106
Appendices	
A New General Self-Efficacy Survey–Parents/Teachers	127
B Panorama Student Success Survey	130
C Interview Questions–Students	133
D Interview Questions–Parents	135
Tables	
1 School A Raw Data Proficiency End-of-Grade Tests.....	14
2 Panorama Survey Results	63
3 Panorama Student Success Topics for Study.....	63
4 Panorama Student Success Topics, Percent Favorable Responding Disaggregated by Treatment/Nontreatment Schools	64
5 Student Success Question Analysis	66
6 Disaggregated Panorama Student Success Questions Treatment/ Nontreatment Schools.....	67
7 Academic Achievement: Percent of Students Performing at the Proficient Level	69
8 Cohort List of Dropouts	70
9 Parent Responses to the New General Self-Efficacy Scale (Chen et al., 2001), Percent of Favorable Responses	71
10 Teacher Responses to the New General Self-Efficacy Scale (Chen et al., 2001), Percent of Favorable Responses	73
11 Student Interview Questions and How They Align to Research Question 1	77
12 Parent Interview Questions and How They Align to Research Question 2	79
Figures	
1 Theoretical Framework.....	22
2 Comparison of Hattie’s (2009) Research With Project Based Teaching (Mergendoller, 2016)	36
3 Types of Student Voice.....	44
4 Implementation of Strategies to Incorporate Student Voice Is Critical (Benner et al., 2019).....	47
5 Explanatory Sequential Mixed Methods Design Flow Chart (Dhanapati, 2016)	54

6	Phase, Procedure, and Product Chart of the Explanatory Sequential Design Method (Dhanapati, 2016)	55
7	Research Questions and Proposed Answers	57

Chapter 1: Introduction

Introduction

When we think of a high school graduate, a college graduate, or a young adult looking to enter the workforce successfully, we do not think of someone sharing how many mathematical problems they can do, vocabulary terms they can recite, or retelling when the Declaration of Independence was signed. Instead, we think about characteristics such as problem-solving, responsibility, how they work with others or independently, if they are critical thinkers, how they manage time, do they work effectively, and can they communicate with a wide variety of people (North Carolina Science, Mathematics, and Technology Education Center, 2020). These skills are widely agreed upon as needed and necessary for lifelong success but are rarely explicitly taught in classrooms (Landon, 2019). North Carolina, like most states in the United States, has developed its own standards to ensure students are receiving equitable instruction on topics across the state (North Carolina Department of Public Instruction [NCDPI], 2020). There is a growing sense nationally that students need more than a long list of facts regarding a variety of topics to graduate and be successful. In the modern era of internet searches, data and information are more readily available than ever before, with the goal being to apply the learning to create and produce quality work and products (NCDPI, 2020). When classrooms are converted to learning spaces that require reflection on the impact of curriculum, the experience, the knowledge learned, and how it can shape or morph their current views of the world, students engage in a transformative learning experience (De Angelis, 2020).

The U.S. Department of Education (2010) stated a major goal of the American

Education system is that all high school graduates are ready for college or a career. In North Carolina, more than 59% (2.9 million) of available jobs will need additional training or education above a high school diploma (North Carolina Science, Mathematics, and Technology Education Center, 2013). There is an alarming amount of research that shows students who graduate from high school are not adequately qualified to complete coursework at a higher level or enter the workforce. This lack of preparedness is evident in the recent generational collapse in the workforce as 18- to 21-year-olds have gone from 80% holding a job in 1968 to 58% in 2018 (Busteed, 2019). The Ewing Marion Kauffman Foundation (2019) survey, seeking to understand the relationship between education and workforce preparedness, found only 42% of students are career-ready. These results indicate similar concerns as the 2016 ACT National Curriculum Survey provided an analysis of information from educators, workforce supervisors, and employers to determine educator priorities and how they matched employers and college admissions. The survey found workforce respondents highly valued nonacademic skills to prepare individuals for success in the workplace, specifically behavioral skills can be classified as acting honestly, persistence, cooperation, and maintaining composure (ACT, 2016).

The U.S. Department of Education (2014, 2017) released guidelines on what is expected of high school graduates with college and career standards. These standards were quickly adopted and defined by states. In North Carolina, the State Board of Education, the University of North Carolina Board of Governors, and the State Board of Community Colleges agreed students should possess the necessary knowledge base to enroll and matriculate in any 2- or 4-year program without needing additional supports

(Southern Regional Education Board, 2015). They agreed these same characteristics and benchmarks of success are necessary for entering into the workforce, higher education, the military, or directly into gainful employment (Hunt Institute, 2015). Despite these regulation efforts, overwhelmingly, adults and students are looking for a curriculum to be more relevant with practical connections supporting academic studies but integrating collaboration, problem-solving, and other 21st century skills (Klein, 2019). Forbes reported only one in three classrooms asks students to apply the information they are learning (Busteed, 2019).

The Quaglia Institute for Student Voice and Aspirations (2016) stated that adolescents who feel their voice is heard while in school are more prone to be motivated academically than those students who do not feel their voice is heard in school. In school reform, student voice plays an important role. Elias (2010) recognized that a healthy school culture includes student voice. We know from research such as that conducted by the Quaglia Institute for Student Voice and Aspirations (2016) that beginning in middle school, the crux of adolescent development, student viewpoints of school begin to decline, going from 70% positive in elementary to an average of 50% positive in middle school, decreasing further to around 40% in high school.

Furger (2008) asserted some students choose to drop out of school because of the lack of connection between educational content and real-world skills. This lack of meaningful connection to academics for students causes a lack of motivation and engagement leading to poor academic performance and higher dropout rates (Bridgeland et al., 2006). Busteed (2019) reported that promising practices to engage and motivate students, such as project-based learning (PBL), that mimic real-work experiences are

increasing, but there is still a long way to go.

Historical Background

PBL has long been valued as a student-centered or learner-centered approach to education. By engaging learners and allowing them a sense of voice within the solution to a dilemma, students are empowered to make decisions, self-examine their feelings, assess their assumptions, explore options for actions, create a plan of action, and acquire new cognizance to enact and persist through a plan. Through this process, students build competency and self-efficacy that can be related to new situations or dilemmas, all of which are critical phases of transformative learning (Mezirow, 2003).

Confucius, Aristotle, and Socrates were early teachers who embraced the application of learning by doing (Peters, 2015). Li (2012) asserted these early teachers understood a world of greater interconnectedness and global convergence that still have not been diminished. According to Tan (2015), Confucius has been associated with rote-memorization; but Tan argued Confucius stressed taking ownership of one's own learning, engaging in critical thinking, and introspectively applying life's experiences to enhance our lives. John Dewey endorsed experiential learning that is based on student curiosity; experiential learning includes those activities that help prepare learners through continuous development about our complex world (Sikandar, 2015). Maria Montessori initiated a crusade founded on the idea that learning occurs, not by attending lectures but by experiencing them within their surroundings (Boss, 2011). PBL puts all these ideas into action through the application of content knowledge.

PBL was put into place as an experiential learning model when medical schools began to use this teaching method to support student learning. PBL, an instructional

method whereby learners gather information and expertise, is obtained by working for increased periods to explore, respond, and engage in a real-world problem or challenge (PBLWorks, 2021). Over 80% of medical schools in America use some form of PBL to support student learning (Wurdinger & Carlson, 2010).

Problem Statement

In 2014-2016, through work within the Regional Workforce Development Board, I was able to work directly with local businesses on an education task force. During this time, I learned a lot about our local manufacturing companies, health care, and our local government. As we started discussing the current educational needs and skill attainment requirements for the entry-level workforce, it became clear the views of the local employers of our region did not match the skill sets our students were learning. This feedback from local employers, coupled with the 2013 STEM (Science, Technology, Engineering, and Math) Scorecard entitled *Strategies that Engage Minds, Empowering North Carolina's Economic Future* (North Carolina Science, Mathematics, and Technology Education Center, 2013), looked at preparation needs of highly skilled workforces that will be transforming in North Carolina's ever-changing economy and depicted areas of application to better prepare young people for postsecondary experiences. The research from the North Carolina Science, Mathematics, and Technology Education Center, business leader discussions, as well as the fact that the percentage of ninth-grade students in the studied school district (between the years of 2010-2015) not moving on to 10th grade was an average of 8% led to consideration for a newly designed school curriculum. Key indicators of dropouts are identifiable in middle school (Furger, 2008), and 47% of high school dropouts said their learning was irrelevant

(Bridgeland et al., 2006). By targeting middle school students, School A was created to put a relevant curriculum into place to support student learning and engagement through application and creation to solve complex problems or design solutions. The advances in neuroplasticity have shown adolescents can steer their thinking to ensure productive and positive directions toward success if they are taught to do so (Wilson & Conyers, 2020), building self-efficacy and a sustainable growth mindset needed for the ever-changing horizon within future careers and the economy. As a researcher, I wonder if by creating a middle school that provides complex situations and asks students to solve them, will students develop the skills needed for future success, and is 3 years enough time to develop those skills for lasting success?

Theoretical Framework of the Study

Work for the study is framed by the Transformative Learning Theory, which is based on constructivist ideas. This framework suggests powerful, long-lasting learning results from the transformation of meaning and understanding of content through connections and perspectives (Mezirow, 1991). A transformation of perspective begins when an event triggers a disorienting dilemma and prompts examinations of preexisting ideas and knowledge, requiring incremental dilemmas that need a prompt examination of knowledge, beliefs, and/or attitudes. Reflection is a critical part of the process, requiring discourse and examination of other perspectives to assess expectations, knowledge, beliefs, and attitudes to develop and plan in order to resolve a dilemma (De Angelis, 2020). Slavich (2005) described transformational teaching as an approach in which life-changing experiences are expected. These experiences are not random but instead help the student internalize the course content. The process of transformational learning begins

with awareness and finishes as an action (Mezirow, 1991). The Transformative Learning Theory was formally proposed as an adult learning theory in 1978 by Mezirow and has continued to be one of the most discussed, cited, and reconceptualized theories (Taylor, 1997).

Transformative learning occurring in a middle school setting challenges student beliefs, their ways of viewing the world, their ways of experiencing the world, and the behaviors that underpin their core values. Values are beliefs that lead to expressed actions that transcend circumstances while informing personal decisions which are ordered by importance (Schwartz, 1992). Literature is available which states transformative learning can occur in the classroom (Badara, 2011; Brock & Abel, 2012; De Angelis, 2020; Moore, 2005).

Interdisciplinary PBL is a teaching method that proposes dilemmas to middle school students, requiring them to work together and examine what preexisting ideas they may have and incrementally provides more opportunities to gather information and examine the group's collective knowledge, beliefs, and attitudes to develop a plan and propose a solution (PBLWorks, 2021). Many of the projects at the treatment site, School A, require students to take action and showcase their learning throughout the community. Through this process, student voice is evident in the curriculum through buy-in, creativity, and research (Fletcher, 2015). Because students are expected to utilize their voice throughout the process, they develop the critical skills of self-efficacy through mastery experiences of setting a goal, persisting through challenges, and enjoying the results (Bandura, 2008). The repetition of this process builds the self-belief that sustained effort and perseverance through adversity will lead to success. When students are active

decision makers in the planning, learning, and leading within the classroom, students develop their voice. This bottom-up approach to education causes a transformative shift in philosophical teaching practices by acknowledging each person regardless of age, socioeconomic status, race, or gender has some knowledge that can be attributed to the learning process (St. John & Briel, 2017). The differences between instrumental and communicative learning are important parts of the Transformative Learning Theory (Habermas, 1984).

Conventional techniques require students to give responses in probable situations after being habituated but failed to convey the application of knowledge outside the classroom; communicative approaches allow students to grapple and discuss situations and attempt application of knowledge (Nunan, 2001). Communicative approaches allow for the development of connections between beliefs or values and the content students are learning. The communication skills students learn in a PBL environment are authentic. Kovalyova et al.'s (2016) research allows for the development of new vocabulary which increases the average length and appropriateness of a response, improves grammar within speaking and writing to allow students to perform oral and written communication more effectively, allows for more in-depth analysis of written nonfiction text, and supports technology-infused presentations that enhance learner communication skills. Instrumental learning, unlike communicative learning, depends on the control and manipulation of one's surroundings, with a focus on improved performance and the ability to forecast outcomes (Mezirow, 2003). According to Habermas (1984), the distinction between communicative and instrumental learning is reasoning with a focus on differing points of view which creates a more tolerant and sensitive learner who is then better prepared to

immerse themselves in moral discussions and willing to explore their own perspectives, thereby creating the self-development of a producing individual.

Purpose of the Study

The purpose of this study was to (a) relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy and (b) explore how the Transformative Learning Theory affects developing adolescents through the development of student voice in a PBL model. It is not known at this time if and to what degree or extent Transformative Learning Theory affects adolescent academic and developmental learning. While the literature on adolescent development indicates they begin to look toward adults to mirror abstract, multidimensional decision-making, it is not known if the practice of transformation through connections of meaning and understanding of content can cause long-lasting empowered learning results.

Research Questions

This study was guided by the following research questions, focusing on student, parent, and teacher perceptions of how the development of student voice through a PBL model affects the perception of achievement (measured as self-efficacy).

1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?
2. What is the impact of developing student voice through a PBL instructional model on parent perception of student achievement?
3. What is the impact of developing student voice through a PBL instructional model on teacher perception of student achievement?

This research sought to guide curriculum and school-based leaders into better understanding the independent variable of student voice development through PBL and the impact it has on the perception of achievement as measured by self-efficacy.

1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?

H₀: The development of student voice through PBL will have no impact on the student perception of achievement as measured by self-efficacy.

H_a: The development of student voice through PBL will have an impact on the student perception of achievement as measured by self-efficacy.

2. What is the impact of developing student voice through a PBL instructional model on parent perception of student achievement?

H₀: The development of student voice through PBL will have no impact on the parent perception of achievement as measured by self-efficacy.

H_a: The development of student voice through PBL will have an impact on the parent perception of achievement as measured by self-efficacy.

3. What is the impact of developing student voice through a PBL instructional model on teacher perception of student achievement?

H₀: The development of student voice through PBL will have no impact on the teacher perception of achievement as measured by self-efficacy.

H_a: The development of student voice through PBL will have an impact on the teacher perception of achievement as measured by self-efficacy.

Significance of the Study

The findings of this study will benefit middle grades curriculum development to

determine if interdisciplinary PBL assists in developing student voice to encourage and sustain the long-term development of self-efficacy. The current development of humans and information requires persistence when problems or life become difficult. A developed sense of self-efficacy supports a positive growth mindset (Dweck, 2015). The development of this highly needed attribute justifies the need for an effective, student-centered, life-changing teaching approach. The findings in this study will expand the body of knowledge on how transformative learning affects adolescents as they are beginning the developmental transition to adulthood. The findings of this study will allow a reproducible model that can guide and support school and curriculum leaders on effective methodologies that will develop student voice and encourage self-efficacy.

Role of the Researcher

My interest in project and/or problem-based learning began as an undergraduate student while working with a physical science instructor at the University of North Carolina at Pembroke to engage students in learning that was more interactive. My interest transitioned to PBL as I became a teacher in my own classroom. Informal observations alluded to increased student engagement and understanding with the ability to transfer ideas between subjects. My curiosity continued as I worked as an administrator to propose, implement, and execute the opening of a new school in a western North Carolina district in 2016, School A, a sixth- through eighth-grade middle school whose instructional framework model is based on interdisciplinary PBL. I currently serve as the principal for School A, the treatment school discussed in the study. My informal observations have continued over the last 15 years in education, and I wonder if there is a direct correlation between the development of student voice, self-

efficacy, and the PBL model.

Overview of Methodology

The methodology for conducting this study is a sequential explanatory mixed methods design. A mixed methods approach is defined as “a type of research design in which quantitative and qualitative approaches are used in types of questions, research methods, data collection, analysis procedures and inferences” (Teddle & Tashakkori, 2009, p. 711). This methodology framework is the best approach to provide better inferences and minimize bias (Teddle & Tashakkori, 2009). The sequential explanatory mixed methods design utilized a two-pronged data collection process, first collecting quantitative data from survey results and then following up with a qualitative data collection in the form of interviews.

The Setting of the Study

Spanning 446 square miles, the small rural district in western North Carolina serves the educational needs of eight distinct communities within the county. Located in the state’s 58th most populated county, the district serves a variety of students. Currently, the district consists of three high schools (one comprehensive high school and two early college options), three middle schools (two comprehensives, one magnet), and eight elementary schools (seven comprehensives, one magnet) utilizing a K–5, 6–8, 9–12/13 grade-level configuration.

Treatment School

The treatment school, School A, is a STEM (science, technology, engineering, and math) magnet middle school enrolling 200 students in Grades 6-8. The school opened in the fall of 2016 to scholars in Grades 6-8 and operated with combined data from the

district alternative school until 2018. School A is a part of the small western North Carolina district and located in the same facility as School B. School A has 10 teachers assigned (two science, two math, two social studies, two English language arts, one exceptional children's teacher, and one wellness teacher) and shares support from School B, the comprehensive middle school for non-certified positions and electives. The demographics for School A are 80% White, 9% Hispanic, 8% African American, and 3% Other.

All content courses at School A are interdisciplinary, weaving relevance into the courses through a project each 9 weeks. The school uses the Buck Institute for Education PBL model to plan and organize units. Buck Institute for Education is rooted in the theoretical belief that learning by doing is the most effective way to understand information (PBLWorks, 2021). The PBL instructional model Buck Institute for Education utilizes addresses core content through relevant, hands-on learning that challenges students to solve real-world problems.

All students can take advanced classes through the use of multi-grade classrooms. In English language arts, science, and social studies, students have the opportunity to explore and expand on their knowledge by diving deeper into content and advancing as needed. In math, students use the NCDPI compaction model of middle school acceleration to ensure that students are ready for high school-level math classes. School A offers traditional Math 6, 7, 8 curricula and compacted Math 6 and 7, Math I, Math II, and additional courses as required. In science, School A offers Earth and Environmental or Physical Science on a rotating basis. Students also have the opportunity to engage in the School of Math and Science enrichment activities throughout the year.

The students at School A take state-mandated tests in math, reading, and science. Student proficiency rates have increased from the first year at a steady rate (Table 1). In Table 1, the raw data proficiency end-of-grade tests are listed as G (grade) in R or M (reading or math) or O (overall).

Table 1

School A Raw Data Proficiency End-of-Grade Tests

	G6R	G6M	G7R	G7M	G8R	G8M	G8S	OR	OM
2018-19	74%	55%	67%	62%	68%	40%	93%	69%	52%
2017-18	75%	55%	65%	50%	66%	57%	90%	69%	57%
2016-17	59%	44%	64%	38%	42%	35%	92%	59%	42%

Table 1 indicates the average cohort performance increase in academic achievement. At School A, all students are required to engage in interdisciplinary PBL. This middle school (Grades 6-8) is located in rural western North Carolina and has approximately 200 students enrolled. The PBL instructional strategy served as the development of student voice tool. The effect of how that student voice impacts the development of self-efficacy was measured in students who have transitioned to the high school setting. The two additional middle schools in the district, School B and School C, have student populations of approximately 700. These two schools were treated as nontreatment schools for this study since they maintain a traditional instructional framework and will be discussed more in Chapter 3.

Definition of Terms

Adolescence

Defined based on Piaget's age of development as the age above 11 years old (Piaget, 1976).

PBL

An instructional method whereby learners gather information and expertise; obtained by working for increased time periods to explore, respond, and engage in a real-world problem or challenge (PBLWorks, 2021).

Self-Efficacy

An individual's belief in their capacity to execute cognitive behaviors necessary to exert control over their own achievement (Bandura, 1977, 1986, 1997).

Student Voice

Defined as student input in their education ranging from input into the instructional topics, the way students learn, school design, and their ability to discuss and share publicly their learning efforts through presentations, service, or other active public models (Benner et al., 2019).

Transformative Learning Theory

An adult learning theory that utilizes disorienting dilemmas to challenge student thinking, then process using critical thinking, questioning, and discourse with others to consider if their underlying assumptions and beliefs about the world are accurate (Mezirow & Taylor, 2009).

Assumptions

A mixed methods research design, specifically the explanatory sequential method, has a philosophical assumption that the use of quantitative and qualitative approaches in combination provides a better understanding of the research problem than either approach alone (Creswell, 2006). All research studies have elements that are outside of the researcher's control. When considering this, I assumed that participants who participated

in the surveys and the interviews felt they could be honest. To ensure this feeling of trust, I ensured that participation was optional and participants remained anonymous.

Another area of assumption is that based on research, student voice and self-efficacy are a causation instead of just an association. This assumption is based on research that empowering and motivating students gives them a voice and leads to higher self-efficacy so they may remain calm when approaching rigorous tasks (Lupoli, 2018). Wolf (2007) suggested that low self-efficacy leads to lower student achievement and avoidance behavior, while high self-efficacy enables one to set high expectations for future performance while activating student voice.

I also assumed there would be an interest in participation. No coercion methods were utilized by offering external rewards or recognition. Students still received the high-quality education they were used to receiving. Participating in the survey neither positively nor negatively impacted any group. Consideration of participant feelings was part of the process as well; participants had the right to withdraw from the study at any time with no ramifications if they felt uncomfortable or no longer wanted to participate.

Possible Limitations to the Study

No study is flawless nor does it include all of the aspects that could present throughout the research process. Consideration of limitations helps to identify the potential weaknesses of the study (Creswell, 2003). Due to COVID-19 procedures and protocols during the proposal of the study, all schools within the study district were virtual. Due to the unpredictability of the Centers for Disease Control recommendations as well as governmental guidelines, the general recruitment of and communication to students and families were considered to ensure an adequate sample size. The two-

pronged data collection based on beginning in mid-February and ending in late May was an aggressive 3-month window to gather quantitative data and conduct the number of qualitative interviews that were intended. This time constraint limit should be considered as part of the recruitment and sample size.

The study was conducted in my district, which led to a convenient sample population. Because of the specificity of the sample population, results should not be generalized for all districts but instead be utilized to guide the possible implementation of efforts to build student voice. Due to the study being conducted in my district, the possibility of bias could have influenced the study. Steps were taken to increase the validity of the study by ensuring the students surveyed were no longer under my supervision at Treatment School A, by clearly articulating I had no influence in their future educational success or failure, by ensuring participation was optional, by providing no incentives for participation, and by the ability of participants to withdraw from the study if they did not feel comfortable participating with no ramifications.

Because the research for student voice, self-efficacy, PBL, Transformative Learning Theory, and college and career readiness are contemporary subjects, the research connecting them is limited. This limited the scope of the work and the scope of quality discussion.

Delimitations

In addition to the limitations, there were choices within the study I made that could have impacted the results. The delimitations to the study were the research design choice, the chosen survey instrument, and the developed questions to answer the research questions.

The explanatory sequential research design model starts with the quantitative data and follows up with qualitative data collection. This method was chosen because, based on the literature review, there was enough research that showed a possible causation between student voice development and self-efficacy that I predicted a correlation could be shown with the analysis of the quantitative data and could be further explained by qualitative interviews with participants.

The New General Self-Efficacy Scale (Chen et al., 2001; Appendix A) and Panorama Student Success Survey (Appendix B) that were chosen to serve as the self-efficacy measures could also lead to variants in quantitative results. Possible issues could have been that the narrow focus of the survey left out the opportunity for any explanation or justification by participants. This narrowed the scope of the responses, and it was possible that it limited the ability to share additional information that would have been beneficial to the study.

Last, I developed the questions for the interview to align with expected results as well as research questions (Appendices C and D). There was an opportunity for bias within the questions developed as well as a narrowed scope that focused only on connecting the variables within the study. Though the questions were designed to be open-ended, the intention to connect student self-efficacy and student voice was evident and possibly leading to the participants.

Scope

This dissertation follows a five-chapter dissertation format (Dunham, 2016) including Chapter 2 as a literature review, Chapter 3 providing an overview of the methodology, Chapter 4 presenting the results, and Chapter 5 providing a discussion of

the results as to how it relates to the research, a conclusion, and future implications.

Chapter 2 presents the literature that supports the topics being studied to provide a thorough review of the problem. Chapter 2 provides a historical and current look at the research that frames the study which includes transformative learning, student voice, self-efficacy, PBL, adolescent development, and college and career readiness. Chapter 3 explains the study, the participants, the methods of data collection, and the data analysis process. Chapter 4 presents the results of the study broken into quantitative results and summary first and then qualitative results and summary. Chapter 5 summarizes the findings regarding the purpose of the study and the research questions. Chapter 5 disseminates the results into further research needed as well as implications for future practice.

Summary

Students shouldn't learn the material just for the sake of passing the test. They should learn for the sake of learning. Students should enjoy going to school. The practical solution to accomplish this lies in two key improvements that must take hold in today's education system: relevant, holistic curricula and freedom of subject choice. (Ahmad, as cited in Strauss, 2013, para. 9)

There is so much more than a multiple-choice test at the end of a year or semester that ensures students are ready for the complex thinking they will engage in during their postsecondary experience. This study sought to determine if students have the opportunity to explicitly develop nonacademic skills specifically through the development of student voice in adolescence through a project-based methodology, as well as if there was an impact in high school of the perception of achievement of students

who completed middle school in a treatment school vs. a nontreatment school.

Chapter 2: Literature Review

Introduction

As Robinson (2010) suggested, the best evolution in education can be made by moving from a factory-style to an organic model of teaching that adjusts to the people being taught. There is emerging research regarding the work of Mezirow's (2003) Transformative Learning Theory and how the United States can continue to support a thriving educational system through transformational teaching. The effects of how transformative learning models impact student achievement is still a limited body of knowledge.

The goal of this literature review is to summarize the history of the transformative learning model and provide background on five groups of literature that are relevant to this study: adolescent development, PBL, college and career readiness, student voice, and self-efficacy. Each section will give a brief description of past and current work within the contextual area and how it relates to education. Finally, a brief overview of the connections between transformative learning, adolescent development, PBL, college and career readiness, student voice, and self-efficacy is given.

Theoretical Framework

When I took an in-depth look at the development of student voice, I hoped to produce findings that would support the utilization of the PBL model to develop student self-efficacy. The convergence of complex theories and concepts such as Transformative Learning Theory, student voice, self-efficacy, and adolescent development requires both open and close-ended questions through a mixed-methods design. For this study, I used an explanatory sequential method that sought to elaborate on or expand the findings of

quantitative data taken from surveys and existing student achievement data and follow up with interviews. As described by Creswell (2003), sequential procedures begin with a quantitative method in which theories or concepts are tested and then followed by a qualitative method in which there is a more detailed explanation. Figure 1 details the theoretical framework that defines the study in which the research and literature review has been developed.

Figure 1

Theoretical Framework

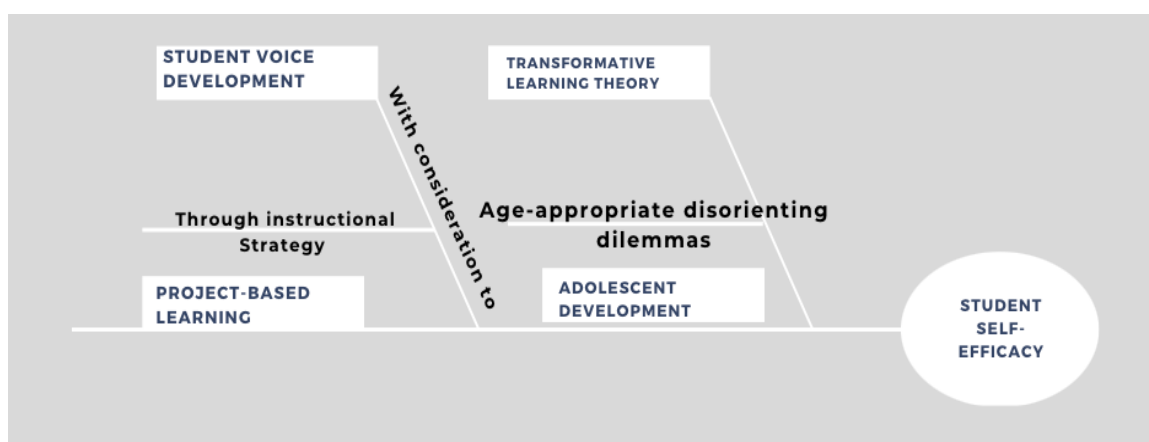


Figure 1 highlights that student voice development purposefully and explicitly occurs through the instructional strategy of PBL. Adolescent development of age-appropriate disorienting dilemmas must be considered when considering that the acquisition of new knowledge will lead to transformative learning, resulting in a higher level of self-efficacy for students. For the explanatory sequential design, we will focus on a backward design that considers quantitative student, teacher, and parent perceptions of self-efficacy and achievement, then the qualitative follow-up will explore how student voice was developed and elevated in the middle school and how that currently applies to the student's life. The development of student voice through these pathways will be

considered and included in the literature review when determining the impact of student voice on self-efficacy.

Transformative Learning Theory

Mezirow (1981) defined transformative learning as, the emancipatory process of becoming critically aware of how and why the psycho-cultural assumptions have come to constrain the way we see ourselves and our relationships, reconstructing this structure to permit a more inclusive experience and acting on these new understandings. (p. 3)

Dirkx (2000) went on to address the emotional aspects of transformative learning when he stated, “this leads to a deepened sense of wholeness by naming and elaborating on all the different selves that make up who we are as a person” (p. 4).

The theoretical underpinnings of transformative learning include the principle of the constructivist theory that learning most productively occurs when students take an active role in the process of revelation (Piaget, 1926), and their instructional activities carry more weight when they revolve around social interactions (Vygotsky, 1978, 1986). The perspectives of understanding the important aspects of self-efficacy and student development using the social cognitive theory are also critical when examining the effect of transformative learning (Bandura, 1986, 1993, 1997, 2001). These ideas and perspectives helped to shape Mezirow’s (1991) Transformative Learning Theory, although he proposed the theory as a lens to understand adult education. Mezirow’s (1981) initial research came from his work with women taking part in a workforce re-entry program. Within the framework for transformative learning Mezirow (1991) proposed, he had 10 key elements:

- (1) a disorienting dilemma;
- (2) self-reflection;
- (3) an assessment of assumptions;
- (4) comparing similar experiences of discontent;
- (5) exploring options and solutions;
- (6) building understanding;
- (7) action planning;
- (8) acquiring resources/knowledge to implement the plan;
- (9) try it, assess feedback; and
- (10) a new perspective integrated into society.

Due to the lack of peer-reviewed, published research articles that involved Mezirow's theory, Taylor (1994) asserted that the lack of published evidence prohibited the expansion of the Transformative Learning Theory. In recent years, critics have voiced concern that Mezirow's Transformative Learning Theory is too narrow and only considers the socio-cultural, socioeconomic, and personal dimensions of learning. Boyd (1989, 1991) continued to expand on the Transformative Learning Theory to focus on deeper emotional and spiritual connections of learning that may be underdeveloped within Mezirow's Transformative Learning Theory. Boyd's (2009) work was developed with references to Jung's (1921) work regarding individuation, the action in which unique beings are formed and develop an individual personality. Transformative learning experiences taught by educators seeking to teach for change in young adolescents can be a powerful tool to develop identity and voice.

Dirkx (1998) continued to expand upon the holistic Transformative Learning

Theory that blends experiences, texts, and subject matter (our outer worlds) with our values, behaviors, and beliefs (our inner worlds) to explore more deeply. Mezirow's (2012) definition of transformative learning was much more concise to join these ideas of inner and outer worlds (conscious and subconscious) as "a process by which previously accepted assumptions, beliefs, values, and perspectives are questioned and become better validated through exploration" (p. 73). While discussing Mezirow, Dirkx said that his focus is to better understand the interaction between our inner and outer selves and how as practitioners we can provide curricular and pedagogical experiences that fully integrate the interactions between inner and outer selves to transform (Dirkx et al., 2006). Dirkx (2000) argued that "constructivist, active and experiential forms of teaching and learning, marked by high levels of uncertainty, ambiguity, contradiction, and paradox, invite expressions of soul" (p. 3). These experiences bring the entirety of the learner to light, and both the inner and outer worlds collide. Plotkin (2003) argued that if the relationship between the conscious and subconscious is not nurtured at a young age, it will be traumatically forced at a later time:

All too often the soul finds that the ego has become too hardened, too entrenched in its routines so that almost nothing can budge it. In contemporary Western culture, our egos often develop in such a way that we are both underdeveloped and overly hardened. If in our youth, there had been elders about, they would have provided initiatory experiences to soften us up or crack us open. Without elders, the soul waits for—or creates—a trauma, something extreme that will loosen the ego's grip on its old way of belonging to the world. (pp. 108-109)

Christie et al. (2015) tested Transformative Learning Theory by putting the theory

into practice. By completing a values exercise, students can acknowledge their beliefs and become aware of the ingrained views they hold about the world. Teachers then led students through subsequent steps to change assumptions and misconceptions and also the behaviors and actions based upon them. Christie et al. (2015) stated that when students are given the opportunity to share, learn, critically assess, confront, and change their predispositions, they will become lifelong learners capable of acting for the best in a rapidly changing world. Once students have the ability to become more critically aware of the tools and skills, they develop in transformative learning experiences, they will be able to transfer the obtained learning to unscripted situations. Transformative learning defined by Christie et al. (2015) is another term for independent thought. Using transformative learning methods helps us critique thought processes, points of view, culture, religion, and education and it adds value by training people how to think for themselves.

Michelson (2018) argued that transformative learning, “fails to account fully for how deeply embedded people’s way of the world actually is” (p. 145). Michelson (2018) went on to assert that an individual’s “personal identity is built on social relationships, religious and political beliefs, habitual practice and experience” (p. 146); however, Mezirow & Associates (2000), Dirkx (1997), and Cranton (2002) all asserted the personal identity that leads to a perception shift requires a critical piece of self-reflection. Michelson (2018) pointed out that if teachers focus only on the world view that they want and the way students should change to align with their beliefs, all that is learned is the educator’s worldview. Mezirow (1996) asserted that the collaborative piece of transformative learning that exposes students to other perceptions and the practice of

collaboration is critical but also warned against the indoctrination of values, morals, and beliefs by one group member, teacher, or facilitator. Hoggan and Kloubert (2020) pointed out in their response that Michelson (2018) described the inappropriate implementation of transformative learning. Hoggan and Kloubert stated that the implementation of any practical theory, if done incorrectly, can be adjusted by reflection and improved practice. They went on to acknowledge that the most critical piece is the deep dialogue and self-reflection that can be present in the hands of a skilled educator, allowing time, an open atmosphere of trust, and a balance of power to be built (Hoggan & Kloubert, 2020).

Both Michelson (1998) and Hoggan and Kloubert (2020) shared concerns that the “practical implementation of transformative learning is challenging and reduced by the practical constraints and the professional skills of the educators themselves” (Hoggan & Klouber, 2020, p. 299). The Second Chance Schools in Greece have come to understand that leveraging diversity and experiences of the trainees to encourage new learning experiences helps them to strengthen critical reflection and self-reflection so they may experience a “holistic reconsideration of the way they perceive, think, feel and act” (Kokkos, 2007, p. 11) through transformative learning. By providing this training to the adult learners in their schools, they can “facilitate and transfer power to their class to help learners realize their potential to make more informed choices in an uncritical acceptance of the influences of the socio-cultural environment” (Mezirow, 2007, p. 68).

Mezirow discussed that the limitation of the theory is that the majority of research has been limited to adult education (Williams, 2013). One of the reasons Transformative Learning Theory is considered an adult education theory is that the interlinked, integrated parts of transformative learning may be possible in less mature minds, due to the

prefrontal cortex which contains the psychological and cognitive capabilities that look beyond self are not fully developed (Merriam, 2004). Merriam (2004) maintained that this plane of critical thought might not be achievable until an individual is in their 30s or 40s. Piaget (1976) acknowledged that his proposed age of adolescence, 11 years old, might be too premature for adolescents to amass the skills they need for speculative imaginings.

In the last 40 years, the Transformative Learning Theory originally proposed by Mezirow has been reimagined, postulated, and criticized; it continues to be researched and examined for implications in education (Taylor, 2009). Williams (2013) argued that while many adolescents have not developed the self-reflection and critical-thinking skills of adults, it is still possible for them to participate in transformative learning. Williams elaborated that adolescents do not have the lived experiences and are still acquiring the perspectives and habits that will lead to their adult decision-making, so exposing them to situations and ideas that challenge their beliefs will assist them in developing inclusive reflective worldviews from a young age.

Larson (2017) found that adolescents (specifically high school-age students) could explore transformative learning through identity and relationship exploration. Transformative learning in Larson's research focused on how learning experiences are not only connected to the conscious and subconscious but also to others. Most of the transformative incidence listed in the phenomenological study was in reference to relationships (romantic or mentoring), service, problems/projects, extracurricular, or travel in which students self-described that they were transformative because they could clearly compare versions of themselves before and after the experiences (Larson, 2017).

In Homan's (2017) study of transformative learning in adolescents, he found that venturing into the unknown provided the backdrop as a disorienting dilemma as a group of international adolescents traveled to Honduras to experience cloud forests and coral reefs. Participants were exposed to other cultures, biological inundation, the inner self of emotions (excitement, anxiety, anticipation, fear), and the processing of the experience which allowed for reflection. Homan argued that all of these elements had to be in place to see the transformative learning that equated: lifestyle, postsecondary knowledge, and attitudes towards non-human nature. He asserted that the same experience had different transformative learning experiences on each participant (Homan, 2017). Each participant brings their own background, ideas, and personality to the learning experience.

Adolescent Development

Adolescence is a period of remarkable growth and development, stuck in the "middle" between childhood and adulthood. Middle school, Grades 6-8, mark this time in school while students are developing physically, cognitively, morally, psychologically, socially, and emotionally as well as spiritually (Scales, 2010). Factors that are influencers during this developmental time include gender, culture, family, community, race, ethnicity, and environment. During early adolescence, students develop the concrete logical operations needed to develop and test hypotheses and analyze and synthesize data while struggling with intricate ideas and while introspectively contemplating experiences (Manning, 2002). Middle school students sometimes are still motivated by a desire to please or get good grades, but far too many are compliant within their engagement (Kellough & Kellough, 2008).

The understanding of adolescent development is interdisciplinary, requiring an

understanding of physiological, cognitive, affective, and social development. UNICEF (2011) described adolescence as the age of opportunity, making the argument that reaching this age group is more difficult and more expensive, but the effects are long-lasting. UNICEF also saw opportunity since most adolescents seek to be heard and treated more as if they are an adult. They are the perfect audience to tackle the millennium global goals focusing on climate change, hunger, poverty, equity, and education. By engaging students within this larger community, you give them a voice to be heard. Princess Mathilde of Belgium is quoted as saying, “Adolescents do not consider themselves ‘future adults’ they want to have a voice now” (UNICEF, 2011, p. 8).

Recent research shows that during adolescence, students are attuned to reward and aware of social hierarchies, so a curriculum that allows them to explore and take safe risks will have the longest-lasting impacts (Rimm-Kaufman & Jodl, 2020). Developing a safe and secure learning setting with adults who are viewed as people with their best interests in mind is essential to healthy adolescent development and optimal learning environments (National Academies of Science, Engineering, and Medicine, 2019). Recent research also shows that the brain is integrated across developmental domains, so adolescents meet cognitive developmental milestones while they are also meeting physical, social, and emotional developmental milestones (Rimm-Kaufman & Jodl, 2020). This means that the interconnection of domains can affect each other, so emotional distress can interfere with cognitive processing. Adolescents learn best when the content feels relevant to them and they can engage authentically with the learning.

Adolescent development is characterized most by the development of puberty in which the biological relationship between brain development and the increase of

testosterone and estrogen affects behaviors (specifically dramatic mood swings) causing confusion and frustration (Arnett, 2000). This influx and disruption to neural pathways does not prevent them from engaging with transformative learning based on brain science discoveries (Dahl, 2016). Based on the revelations that have been made possible through magnetic resonance imaging, it has been found that there is a considerable amount of thickening of myelin sheath synaptic connections, which is known as exuberance (Giedd et al., 1999). Exuberance happens in the frontal lobes and prefrontal cortex in which higher brain functioning occurs, such as executive functioning skills (Keating, 2004). Adolescence is the initial period when a person would be able to utilize parts of the brain needed for critical-thinking skills (Larson, 2017). Mezirow (1991) shared that the ability to critically reflect and have rational discourse is the precondition for transformative learning. Although there is rapid and immense development in the frontal and prefrontal cortex of the brain, it will not be fully developed until they are in their mid-20s or older (Arnett, 2000).

Wiggins (2014) noted that students reported being under stimulated and suggested that educators make learning exploratory, with opportunities for manipulatives and discussions of their ideas with others. Young adolescents construct their reality from experiences and knowledge that assist them in explaining the world around them (Piaget, 1960). Their participation in school and life plays a central role in helping the brain to develop, and the construction or transformation of information is contingent upon what they comprehend and believe (National Research Council, 2000). This suggests that middle school is the perfect time to introduce transformative learning experiences. The experiences for this age group must be developmentally appropriate and supply authentic

experimentation that is meaningful and based on student interest (Scales, 2010).

Adolescents are still considered immature, and researchers found that adolescents still use the hindbrain, which is identified as the R-complex and limbic system, and cannot accurately discern emotions but instead react through anger (Blakemore, 2012). This suggests that in order to empathize, they must use the prefrontal cortex to understand even the most basic emotions: fear, anger, joy, and sadness. Young adolescents grapple with making informed moral and ethical decisions, while they begin to contemplate complex issues (Kellough & Kellough, 2008). Continuous exposure to emotional situations allows for more development of the cerebral cortex to give them a greater sense of empathy (Dahl, 2016). As the anterior part of the frontal lobe evolves, young people can become more sensitive in their emotional reactions, which is considered imperative to the development of empathy (Larson, 2017). The National Middle School Association (2010) asserted that by posing unanswerable questions or questions that require students to investigate outside of their understanding, middle school students will develop values, begin problem resolution, and build a sense of community. The prefrontal cortex can be further developed through environmental experiences by exploring topics and interests, allowing adolescents to develop an identity that is all their own as they seek to find their individual sense of identity (Brown & Knowles, 2007). Young adolescents start having emotions in their hindbrain, a curated experience with scaffolding that will ensure the necessary brain growth for empathy to advance (Dahl, 2016). A teacher constructing these experiences of disorienting dilemmas or driving questions must be aware of the conflict that can arise due to competing allegiances between family and peers versus the student's own self-discovery of identity

(Brookfield, 2006). Transformative learning for this age group of students can be extremely powerful if there is attentiveness to the practices that can lead to the development and deeper understanding of self (De Angelis, 2020).

When adolescents are asked to move beyond the facts of content and the disorienting dilemma (or driving question) pushes past the limits of social structure or cultural conditioning, we gain the capacity to gather alternative facts and use them to transform our understanding (Dobson, 2008). The adolescent brain's thirst for social contexts and sensitivities to emotion make adolescence a more open and malleable time for learning (Dahl, 2016).

Because adolescence is a social age in which students begin comparing themselves, searching for how they fit in, they assume that others are judging them based on preconceived ideas as well (Arnett, 2000). At this age, adolescents have difficulty determining what is their perception and the perception of others (Arnett, 2000), which can decrease their self-esteem. Adolescents also seek out peer and non-parental approval (Parks, 2011). The ability of most adolescents to engage with transformative learning must include regular, complex social opportunities in their lives (Kerr, 2014). Exposure to people, cultures, and ideas is significantly more impactful for adolescents and can be influential and greatly affect the development of their own perspective (Arnett, 2003) and create disorienting dilemmas (Mezirow, 1991) that are a hallmark of the Transformative Learning Theory.

Dobson (2008) asserted there is supported evidence that teachers can lead students through exploration within the disorienting dilemma, to recognize and reflect on their own values, assumptions, and beliefs through classroom discussions, providing the

opportunity for students to share and consider perspectives that are different from their own. There is an assertion that not all teachers strive to teach in a transformational manner. For transformative learning to occur purposefully, there must be a desire of the teacher to “teach for change” (Taylor, 2006, p. 11) or to engage in “powerful teaching” (Brookfield, 2013, p. 2).

PBL

Boss (2011) outlined that PBL has a long history starting with Confucius, Aristotle, and Socrates to the more modern Dewey, Montessori, and Piaget that helped to support the constructivist model of learning. Medical and engineering field educators were early adopters of the concept of PBL more than 50 years ago. The problems are defined by instructors, are convoluted, and cannot be determined by just one answer. Since 2000, trends have begun to look at this practical teaching method again as cognitive scientists have advanced the process of learning, developing expertise, and thinking at a more complex level. Advances in neuroscience continue to advance the understanding of the skills and tools students need for success.

PBL is a form of instruction that encourages students to accomplish a shared objective through cooperation and collaboration. Students face challenges that must be focused in-depth to imagine and create a solution; the end product is a response to the driving question that culminates in a public presentation (Kovalyova et al., 2016). PBL seeks to develop what neuroscientists describe as “usable knowledge,” or information that is not remembered for recollection’s sake but integrated to a point that it can be applied in real-world situations that require critical thinking (National Research Council, 2000). Helle et al. (2006) shared that the work completed in a PBL environment is a

shared, social, and collaborative learning experience. It is critical that in the process, all participants contribute to the solution and that elements of experiential learning are intertwined with active reflection and thoughtful engagement. The key to effective implementation of PBL in educational settings is in the teacher's ability to scaffold student learning by motivating, supporting, and guiding them through the process (Kovalyova et al., 2016). Effective scaffolding requires teachers to intertwine high-quality experiences with targeted instruction to reduce the cognitive load of students and enable them to make small steps for growth that build confidence and persistence (Hmelo-Silver et al., 2007). Helle et al. explained that allowing some student control throughout the learning process is mandatory; this allows teachers and students to work cooperatively to reflect on the project objectives, set clear and realistic goals, and compromise on factors such as the pacing, sequencing, and academic content of learning.

Organizations such as Buck Institute for Education have dedicated years of research, professional development, coaching, and development of high-quality PBL standards. In 2018, Buck Institute for Education released a framework for high-quality PBL. The effectiveness of PBL has been under fire since Hattie's (2009) *Visible Learning* was published. Hattie's research focused on more traditional teaching styles which were included in the meta-analysis. Mergendoller (2016) argued that though discovery or inquiry learning had low effectiveness rankings, the foundations of high-quality PBL are aligned to some of the largest *Visible Learning* (Hattie, 2009) effective teaching and learning strategies (Figure 2).

Figure 2

Comparison of Hattie's (2009) Research With Project Based Teaching (Mergendoller, 2016)

Comparison of John Hattie's Research with Project Based Teaching				
		Impact on Learning		
		Largest	Greater than Average	
Project Based Teaching Practice	Build the Culture	Teacher-Student Relationships (.72)	Classroom Cohesion (.53)	Positive Peer Influence (.53)
	Manage Activities		Effective Classroom Management (.52)	
	Scaffold Student Learning	Structured Classroom Discussion (.82)	Cooperative Learning (.59)	Learning & Thinking Strategies (.63 - .69)
			Peer Tutoring (.55)	Success Examples (.57)
			Direct Instruction (.59)	
	Assess Student Learning	Usable Formative Feedback for Students (.75)	Clear & Challenging Learning Goals (.50)	
	Engage & Coach	Teacher Competence, Trustworthiness & Caring (.90)		

The Buck Institute for Education lists five project-based teaching practices that are associated with factors that have an overwhelming impact on student achievement: build the culture, manage activities, scaffold student learning, assess student learning, and engage and coach (Mergendoller, 2016).

Building the culture in the classroom is critical to ensure a thriving PBL classroom. A culture of trust in classroom relationships is critical so students perceive safety and fairness, take the needed risks to share their ideas, and engage in deep discourse. Camp (2011) asserted that teacher-student relationships are so critical that he recommended courses be offered at a college level to help teachers understand how to

develop healthy and positive relationships with students. Camp went on to discuss that the culture that is built in the classroom encourages effort and supports collaboration and motivation through strong relationships, expectations, and norms. This importance has proven true over again from Jerald (2006) referring to it as “*The Hidden Curriculum*” where the importance of positive, accepted vision is touted as an essential piece in developing a school culture that reflects positivity. Because of the importance of safe risk-taking, developing a set of shared classroom or school beliefs, values, norms, protocols, and routines must be focused on deliberately (Boss & Larmer, 2018).

In PBL, teacher facilitation includes two major components. Teachers must manage activities in order to ensure deeper learning and assist in the development of success skills that will support project completion. These success skills are needed for life. One of the biggest management pieces for teachers is collaboration and teamwork. Supporting healthy communication of ideas, developing problem-solving skills, and conflict resolution in a small team for adolescents is ideal (Council, 2018). Teachers work to ensure that classroom culture is in place, so students can understand how and why collaboration works on the front end, which will support teaching and learning efforts. No project in life is managed the same way by different people. By helping students assess different tools and strategies, students will understand the process of learning through projects. These tools can help students plan, organize, and recognize their progress. Teachers must ensure that there is time for the rich discourse and assessment of ideas that are critical to learning different perspectives and solutions (Boss & Larmer, 2018).

Scaffolded learning activities in PBL are essential to help support students in

accessing the content by stretching to reach learning targets. As students develop competence and confidence, scaffolds are withdrawn (Boss & Larmer, 2018). Tomlinson (2017), a leading expert in differentiated instruction, explained that “the teacher figures out where a student is in relation to a learning goal and then will push the learner further and faster than what is comfortable through coaching and support if the goal is out of reach” (p. 45).

A comprehensive assessment is critical to PBL success through “a balance of formative and summative assessments that provide student feedback from multiple sources” (Boss & Larmer, 2018, p. 104), while helping students achieve deep learning and produce high-quality work. Garrison and Ehringhaus (2014) identified the key element of cumulative assessments as a way to indicate, at a specific juncture in time, student learning of content standards. Formative assessment helps teachers determine the sequence of the learning process as the teaching and learning approach the cumulative assessment so appropriate scaffolded instruction can take place (Garrison & Ehringhaus, 2014).

In order to build lasting conceptual changes in the belief of a student’s self-ability to persist through a task, using coaching and engagement strategies builds intrinsic motivation and supports students in achieving their goals. Classroom coaching in PBL will require learning, unlearning, updating, and replacing traditional teaching habits (Boss & Larmer, 2018). This key element of successful PBL strategies once again builds relationships and enhances the classroom culture. Teacher knowledge of individual students and their strengths, interests, backgrounds, and lives is used to motivate students in the academic content and inform instructional decision-making (Boss & Larmer,

2018).

Lattimer and Riordan (2011) asserted that when PBL is thoughtfully designed, middle schoolers can be engaged in learning, and the process is more effective than conventional teaching and learning methods at increasing academic achievement on standardized end-of-course or end-of-grade tests and is especially effective in supporting lower-achieving students. Lattimer and Riordan went on to discuss that PBL often fails if the project is activity-based and not learning-based. Often, this is seen when assignments are hands-on instead of mind-on. Mergendoller (2016) affirmed that good teachers are activators of learning instead of merely facilitators. Hattie (2009) confirmed those affirmations:

The aim is to get the students actively involved...their role is not simply to do tasks as decided by teachers, but to actively manage and understand [their]... learning gains. This includes evaluating their own progress, being more responsible for their learning, and being involved with peers in learning together. (p. 134)

The driving question regarding the research for PBL is what proof is available that defines the effectiveness of PBL on student understanding in academics. PBL can bolster student achievement and may be more effective than conventional instruction in core content areas. The brief lists some important considerations that highlight the findings are not exhaustive or conclusive and only depict how PBL can increase student achievement (Kingston, 2018). The research also showcases the PBL weaknesses which include the lack of experimental studies, the fidelity of PBL, implementation challenges, and lack of reliability measures (Kingston, 2018).

Because there are so many variables to high-quality PBL and teaching, Whitaker (2019) identified the perceptions of four teachers as they implemented a PBL curriculum in a high-poverty middle school in South Carolina. The action plan resulting from the work suggested changes to planning times, assessment expectations, and embedded and ongoing professional development. The research study was not as successful because the participants did not produce an authentic, multi-discipline product. Although the authentic, multi-discipline product was missing, two themes within Whitaker's data emerged. The first theme was a concern with organizational culture and climate. Theme 2 was the organizational knowledge and skills needed to successfully implement a high-quality PBL experience.

Project-based instruction is no more cognitively taxing than instruction in a traditional setting with respect to time, energy, and resources (Al-Balushi & Al-Aamri, 2014). Cheng et al. (2008) discussed the success of PBL is dependent on the high-quality work of the group. This is based on group members being able to demonstrate positive interdependence, individual accountability, equal participation, and social skills. The purposeful development of high-quality group work becomes critical when challenges such as socioeconomic disparities as well as gender and attainment hierarchies lead to unequal exposures and a decrease in learning possibilities with some students enjoying more agency than others (Crossouard, 2012). To achieve this, Crossouard (2012) advocated that teachers utilizing PBL need to have appropriate support within initial teacher education programs and professional development to develop a better understanding of the social and emotional development that leads to student success in PBL environments.

Curtis (2002) found that differentiated projects met the needs of diverse students, increased retention, learned application of content, student interest, perspective integration, increased attendance, and a noticeable decrease in behavioral issues. Curtis's findings supported preparing students for college and careers and building self-efficacy by increasing retention and attendance and decreasing behavioral issues that are at-risk-for-dropout indicators.

College and Career Readiness

The college and career readiness standards were developed in 2009, as a call to action to support the alignment in expectations at the K-12 level to postsecondary levels. This was due to 80% of students exiting high school and being required to take remedial college reading and/or math courses (Chatlani, 2016) as well as an overwhelming number of students and employers who did not feel that high school graduates were prepared for the workplace (Busteed, 2019). According to the U.S. Department of Education (2010), states should have developed and adopted standards in English language arts and mathematics that are rigorous and construct student abilities to be ready for college or a career by the time they graduate from high school. The adoption of the most recent Elementary and Secondary Education Act required that states engage in developing standards that raise expectations for student academic performance as well as adopt or develop assessments to ensure that the high rigorous standards set are being met by students and teachers (U.S. Department of Education, 2010).

Although overall in North Carolina the state is only at 2.39% of high school dropouts (NCDPI, 2018), the ramifications from disengaging in school lead to students who are ill-prepared for the future. Variables that were beyond the control of school

systems began to be questioned after *A Nation at Risk* was published in 1983. At that time, research was designed to identify school-based factors affiliated with dropping out (Whelage & Rutter, 1986, cited in Jerald, 2006). The documented research identified demographic factors related to dropping out, but student educational experiences were found to be equally important. The studies demonstrated that adolescents who did not finish high school reported that they did not like school because it was boring and not relevant to their life needs (Jerald, 2006). Research that supports the college and career readiness standards has identified explicitly taught nonacademic success skills in smaller schools with positive school culture, relevant curriculum, and supportive teachers help reduce dropout rates and keep students engaged and motivated about school (Croninger & Lee, 2001).

Students who drop out of school demonstrate indicators much earlier than high school. At-risk evidence indicators become evident between Grades 5-8. Practitioners can provide interventions in the middle school grades to support student engagement and motivation through enriching and relevant curriculum that pays attention to nonacademic skills such as problem-solving, communication, collaboration, and creativity. ACT's (2009) research showed the academic preparedness students have by the eighth grade has a bigger impact on their readiness for college "than anything that will happen academically in high school" (p. 8). According to Larmer et al. (2015), in a well-executed PBL, students are explicitly taught, assessed on, and asked to reflect upon career and college readiness skills they are required to use.

Nichols-Stock (2016) explored how teachers ensure all students are ready for college or the workforce by utilizing PBL. The research findings were that by building

relevancy, student engagement increased and students were prepared in college and career readiness skills: content integration, problem-solving, collaboration, creativity, and time management (Nichols-Stock, 2016). This supports Pyle's (2017) research that shows that PBL affects student motivation positively when they can be vocal and active participants in the learning process.

Student Voice

In our current educational climate learning new skills and taking initiative is a prerequisite to success, but a students' lack of agency is a lost opportunity to develop critical skills and accelerate learning (Benner et al., 2019). The New Teacher Project (2016) showed that students see less value in their schoolwork each subsequent year. This is confirmed by a 2016 Gallup Poll (Calderon, 2017) that showed 75% of fifth graders reported engagement in school, while that number decreased to 50% in middle school and 30% in high school. This information is also reported in a research project done by the Quaglia Institute for Student Voice and Aspirations (2016) with some variation.

The Glossary of Education Reform (2014) clarified that student voice is "the values, opinions, beliefs, perspectives, and cultural backgrounds of individual students and groups of students in a school, and to instructional approaches and techniques that are based on student choices, interests, passions, and ambitions" (para. 1). Student voices in education began gaining attention in the early 2000s as educational reforms worked to improve achievement and performance-based accountability began to rise as an educational norm. Student achievement on summative assessment is often considered bottom line; rarely do students have a voice at that point in the educational practices or school improvement process (Cook-Sather, 2002). "Student voice can take on many

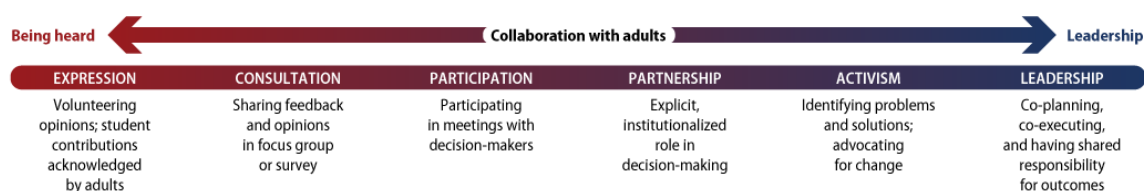
forms (e.g., self-expression, feedback, opinion, choice, self-determination, representation, and empowerment), it connotes a level of involvement and investment that holds implications for students' engagement in school and in learning" (Smith et al., 2001, p. 4). Benner et al. (2019) created a figure to show the spectrum of types of student voices in schools (Figure 3).

Figure 3

Types of Student Voice

Types of student voice

Adapted version of Toshalis and Nakkula's "The Spectrum of Student Voice Oriented Activity" and Mitra and Gross' "Pyramid of student voice"



Sources: This graph is adapted from Eric Toshalis and Michael J. Nakkula, "Motivation, Engagement, and Student Voice" (Boston: Jobs for the Future, 2012), available at https://fforg-prod-prime.s3.amazonaws.com/media/documents/Motivation_Engagement_Student_Voice_0.pdf; Dana L. Mitra and Steven Jay Gross, "Increasing Student Voice in High School Reform: Building Partnerships, Improving Outcomes," Educational Management Administration & Leadership 37 (4) (2009): 522-543, available at <http://www.buildingpublicunderstanding.org/assets/files/increasingstudentvoiceinhighschoolreform.pdf>.



As can be seen from Figure 3 utilizing student voice is more than just listening to what students say or collecting information via a survey; it is using what they say and the data that are collected to help guide and run the school through collaboration with adults (Benner et al., 2019). Benner et al. (2019) went on to review that there must be a clear purpose and strategy to increase the buy-in of student voice. Student voice goes beyond that of the classroom to school, district, state, and even national levels. This can be seen as students called out President-elect Biden asking that the U.S. Department of Education recognize that sharing responsibility with students as partners in policymaking improves America's system of education (Strauss, 2020).

Fielding (2001) asserted that the value of student perceptions is often for accountability purposes to alert schools of deficits in their current performance and

possible solutions to address deficiencies. In an effort to build student voice through school improvement, Fielding developed a cohort of students who were trained in action research and were of mixed ages and genders at various education levels. In Year 1, there were 15 students exploring student voice, student experience with cooperating teachers, and the school benchmarking and summative assessment program. The project went for 3 years to build and develop different pedagogies that support the learning and led to transformational changes and innovative practices within the school. The work of students as researchers to evaluate the conditions for student voice led to an intellectual framework for student involvement instead of superficial placation of student voice and involvement (Fielding, 2001).

It is imperative for educators to know the benefits of having students engaged as partners in education and how empowering student voices will affect the context of learning and education (Fletcher, 2015). Fletcher (2015) listed nine potential outcomes for including student voice:

- The first outcome is a powerful lever to improve student learning through representation and engagement. By investing and owning their educational activities, their learning is greatly increased.
- The second outcome is by involving students throughout the teaching processes leading to an increase in teacher efficacy, teacher confidence, and teacher retention. When students are engaged as partners, relationships are built and classroom teaching is more effective.
- The third outcome is that student involvement and voice lead to improved adult leadership throughout education. School improvement is more effective

and is prioritized as outcome-based when students are engaged as partners.

- The fourth outcome is that students are more effective learners when their emotional, intellectual, and social needs are met. This leads to an increase in student leadership abilities.
- This directly affects the fifth outcome which is that student voice transforms the school culture through meaningful partnerships, and classrooms are mutually supportive for both students and teachers.
- The sixth outcome Fletcher (2015) addressed is that student voice embraces a diversity of perspectives—cultural, racial, economic, and social—to reinforce the investment in schooling of high-risk students.
- The seventh outcome is that student voices can save money by addressing what works in schools for them. The majority of a school building is made up of students (92%), but the majority of decisions are made by adults, which only accounts for 8% of the school population (Fletcher, 2015).
- The eighth outcome was partnering with students, you can save money to support student needs. Fletcher (2015) also asserted that though students may be asked, student needs are rarely met.
- The ninth outcome is that student voice can increase civic engagement, building stronger communities and students who are actively engaged throughout their lives.

Lupoli (2018) asserted that empowering and motivating students is about giving them a voice to express their beliefs, cultural backgrounds, and perspectives.

Understanding what student voice is versus what it is not (answering questions for

understanding) is about listening to their rationales and learning why they are thinking what they are thinking, helping them set goals, and assisting them with perseverance when things get tough (Lupoli, 2018). Benner et al. (2019) introduced a table of common strategies to elicit student voice in classrooms and schools (Figure 4).

Figure 4

Implementation of Strategies to Incorporate Student Voice Is Critical (Benner et al., 2019)

TABLE 1

The implementation of strategies to incorporate student voice is critical

Poor to ideal implementation, affected grade levels, and areas of influence of each strategy

Elementary school

Middle school

High school

Strategy	Area of influence	Poor Implementation	Ideal Implementation	
Student Surveys <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies• District policies• State policies	Data are collected occasionally and are not reported to key stakeholders or used to influence key decisions. This strategy includes only superficial topics.	Data are collected regularly. The survey covers important topics such as school climate, instruction, and teacher and administrative quality and effectiveness. Results are given to stakeholders and influence decisions.	Students contribute to the survey design or a subset of survey items. Students analyze survey data and create a plan for student action.
Student Perspectives on Governing Bodies <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies• District policies• State policies	The governing body has one student representative who is an advisory, nonvoting member and who is hand-picked by an administrator.	The student has to be elected by their peers to become the student representative on a governing body; the student is able to vote on limited issues.	The governing body has multiple student representatives, and every member has the same power and responsibilities. There are diverse perspectives among the student representatives.
Student Government or Councils <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies• District policies	Turnout is low and nonrepresentative of population. Elected student leaders manage or consult on superficial student activities irrelevant to school structure, such as prom or community service events.	The student government partners with the administration to propose initiatives that can shift school culture, such as coordinating a schoolwide student and community survey.	The student government is autonomous with budget authority and diverse representation. The body has a structure to regularly collect opinions of the full student body.
Student Journalism <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies• District policies• State policies	Students cover limited, often superficial topics; readership is low.	Students identify topics, with input from teachers, that are important to the student population and school community.	Students are responsible for the production of the newspaper from start to finish, including selection of content, editing process, and release. Teachers ensure content is appropriate.
Democratic Classroom Practices <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies	The class brainstorms classroom rules at the beginning of the school year. The teacher rarely revisits them or reengages students to adjust the rules.	The class brainstorms and votes on topics or projects to explore in a unit of study.	The class regularly brainstorms solutions to challenges, including conflict resolution, and co-creates curriculum and assessment methods. The teacher periodically asks students for feedback on classroom processes.
Student-led conferences <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction• School policies	The student leads a short, scripted portion of a parent-teacher conference; the teacher and parent do not ask for the student's opinion during the rest of the conference.	Students prepare a portfolio of work for the conference, and a teacher describes how the work reflects learning goals.	Students describe how their work meets learning goals; the teacher and parent consistently engage student to develop solutions to academic, behavioral, or social challenges.
Youth-led Participatory Action Research <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• School policies• District policies• State policies	A research question is developed by adults, and students serve as data sources and/or data collectors.	Students partner with teachers to create a research question about an issue in their school or area. The group is not given dedicated time to work on their project nor training to support quality research and policy analysis.	Students create a research question that addresses an oppressive issue in their school or area. Students develop a plan for data collection and present recommendations to a decision-making body. Students take action to effect change.
Personalized Learning <div><div></div><div></div><div></div></div>	<ul style="list-style-type: none">• Instruction	Students can choose between three options for essay topics.	Students work with teachers to develop questions to explore in each area of study.	Students work with teachers to create their own learning plan. Each student can demonstrate mastery of learning goals in various ways, including project-based learning, at their own pace.

Source: For more information about the implementation of youth participatory action research, see YPAR Hub, "Continuum of Youth Participation & Engagement" available at <http://yparhub.berkeley.edu/get-started-lessons/continuum-of-youth-participation-engagement> (last accessed June 2019).

CAP

Each of the strategies listed in Figure 4 and the spectrum of student voice within Figure 3 showcase the implementation of character development through perseverance, grit, and leadership skill development. Beaudoin (2005) explained that students must

have the latitude to discover what their interests are and embrace their individual strengths with individualized educational experiences. To do this, schools must elevate student voice so students have a sense of belonging and know they are safe and supported (Benner et al., 2019). Schools have to envision frameworks and cultures that allow students to harness their potential and pursue their interests. Seibert et al. (2006) showed that people who take initiative and demonstrate leadership skills are more likely to succeed in their careers. Utilizing student voice to foster character, build leadership skills, and support engagement helps to empower and build self-efficacy (Hattie, 2009).

Self-Efficacy

In 1977, Albert Bandura proposed a new theoretical framework that connected a relationship to a person, behavior, and outcome through the belief that it could be achieved at a certain level. Bandura (1977) asserted that by creating and strengthening a person's belief, they could accomplish something and they were more likely to produce the desired outcomes. Since Bandura (1977) first introduced the theoretical framework of self-efficacy, Wolf (2007) asserted that the framework, in relation to tasks that relate to persistence and motivation, can be measured and influenced and can correspond to the probability of success.

Margolis and McCabe (2006) discussed how this can affect students in the classroom. If a student exhibits a sense of effectiveness, they are more likely to explore solutions to challenging tasks. Students with strong senses of efficacy can be classified as highly committed, attribute failure to things within their control, will rebound from disappointments, and will fulfill self-determined goals and objectives. Conversely, students who have not had a history of success, those considered to have low self-

efficacy, will look for easy wins, will avoid demanding tasks, and typically have low academic goals that will lead to a self-fulfilling prophecy (Margolis & McCabe, 2006).

Self-efficacy begins developing during the first few weeks after birth; contributing factors include closeness to a mother during breastfeeding, skin-to-skin contact, and a safe and loving physical and emotional environment which directly correlates to the way an individual thinks about themselves (Keating, 2004). As we begin to develop and have diverse lived experiences, our sense of self also begins to enhance feelings of love, autonomy, support, and encouragement, which is a catalyst for growing one's self-efficacy. Self-efficacy continues to grow throughout our lives as we have new experiences and take risks. Bandura (1977, 1997, 2001) recognized four sources of self-efficacy that help us to grow our belief or disbelief in our ability to achieve an outcome: self-mastery, vicarious experience, role models, and our emotional and physical experiences. Bandura (1977, 1997, 2001) elaborated on these sources to assert that self-mastery requires resilience. Bandura (1977, 1997, 2001) went on to say that vicarious experiences to see others around us to whom we can relate succeeding or hearing their success stories lead to visualization of success. Bandura (1977, 1997, 2001) also discussed the importance of having a role model to follow, admire, and want to replicate. The last source is how we experience the world around us through our emotional and physical experiences. Each of these factors are important sources of self-efficacy that help us to grow our belief or disbelief in our abilities. Bandura (1977) voiced that our conscious and subconscious states at any point in time and our perception of those cues help to shape our current sense of ego. Our present emotional and physical states greatly affect our current level of self-efficacy.

Wilson (2011) investigated the area of how a student's academic performance plays a part in perceived self-efficacy. Wilson asserted that Bandura (1977) paired academic performance to one's self-efficacy in order to understand student success and behavior. Wilson went on to outline that Bandura looked at self-efficacy as more of what people felt they could do instead of the skills they actually possessed. Wilson went on to look at the research of Jinks and Morgan (1999) and discussed that students who demonstrate higher self-efficacy will attempt a variety of strategies to be successful. Conversely, students with a delayed or suppressed sense of self-efficacy will purposely avoid difficult situations or give up on tasks. A delayed sense of efficacy can lead to accelerated levels of anxiety and negative self-talk, which can lead to the perception of vulnerability that can lead to lower academic performance and efforts (Jinks & Morgan, 1999).

Learning environments can play a pivotal role in recognizing self-efficacy across a variety of ages (Fencl & Scheel, 2005). When students are placed with teachers in traditional classrooms that are teacher-led, students have a lower sense of self-efficacy than those in constructivist classrooms (Chowdury, 2019).

Weber (2016) evaluated the development of self-efficacy of PBL curriculum on at-risk high school students. The study found that all students had statistically significant increases in all six constructs of self-efficacy: motivation, problem-solving, resilience, teamwork, confidence, and course skills (Weber, 2016).

Summary

From research completed on transformative learning, adolescent development, college and career readiness, student voice, and self-efficacy, it is evident that there are

some overlapping characteristics and attributes into how these fields intersect. Although Mezirow (1991) acknowledged that more research should be completed before accepting that adolescents are able to experience transformative learning, Tisdell (2012) suggested that adolescents are able to experience something that can alter who they are, their beliefs, and their core sense of self. Adolescents do not have the ability for critical reflection and rational thinking to the depth and breadth of adults, but it affords them the opportunity for exposure to pedagogically appropriate experiences. As Whyte (1994) wrote,

The seat of the soul is not inside or outside a person, but at the very place, they overlap and meet the world.... The voice carries the emotional body of a person speaking. Without verbal explanation, it tells us who is speaking and who has come to work. The voice is as important to our identity as anything we possess.

We ask ourselves if we really have a voice...and we want reassurance that we can give our voice...if we cannot we only speak sotto voce. (p. 90)

By providing the exposure and experiences through PBL to develop voice and experience different perspectives in a safe and supporting environment, students will develop skills to ensure success and become college and career ready.

Chapter 3: Methodology

Introduction

The purpose of this study was to (a) relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy and (b) explore how the Transformative Learning Theory affects developing adolescents through the development of student voice in a PBL model. The explanatory sequential mixed method research design was applied in this study to investigate how the development of student voice through a PBL model affects achievement (measured as self-efficacy). In this chapter, the research design, research context, sampling, research instrument, research procedure, data processing, and analysis are discussed.

Research Questions

Three questions guided this study focusing on student and parent perceptions of how the development of student voice through a PBL model affects the perception of achievement (measured as self-efficacy). The research sought to guide curriculum and school-based leaders to better understand the independent variable of student voice development through PBL and the impact it has on the perception of achievement as measured by self-efficacy.

Three research questions and hypotheses guided the research in quantitative and qualitative methods:

1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?
2. What is the impact of developing student voice through a PBL instructional model on parent perception of achievement?

3. What is the impact of developing student voice through a PBL instructional model on teacher perception of achievement?

The data that were collected to answer these research questions were obtained through the New General Self-Efficacy Scale (Chen et al., 2001) and Panorama Education (2021) data. Follow-up interviews with students, parents, and teachers were conducted to determine if the development of PBL instructional models implemented at the treatment site of Treatment School A affected the development of the student voice in comparison to the nontreatment sites of School B and School C.

Nature of the Study

The method of sequential explanatory mixed methods design first looked at quantitative data; in the case of this study, the results of the Panorama Education (2021) student self-efficacy survey of both treatment and nontreatment population samples. The parents of each of these students rated their view of their student's self-efficacy. The data were then interpreted and reviewed to determine what questions should be asked to further explain, clarify and elaborate on the topic. The rationale for this approach (Creswell & Plano, 2011) was that the quantitative results from the self-efficacy survey provided a general picture of the research topic, while the interviews conducted to collect the qualitative data provided the information needed to refine, explain, and expand on the general picture of the research topic (Figure 5).

Figure 5

Explanatory Sequential Mixed Methods Design Flow Chart (Dhanapati, 2016)

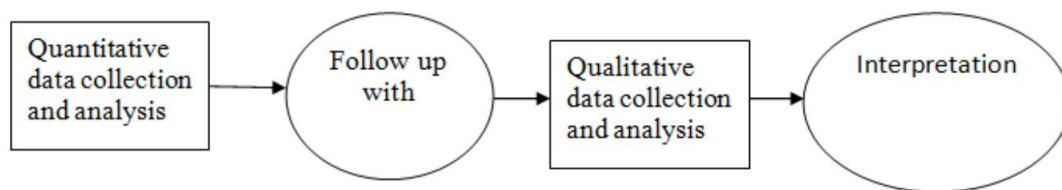


Figure 5 shows the process for the explanatory sequential mixed method design. This aligns with the research questions first reviewing the self-efficacy ratings then exploring the development of student voice through instructional methodology through in-depth, semi-structured student interviews and parent focus groups.

Beginning with high school students in Grades 9-12, student aggregated data were collected from the Panorama Student Success Survey. A section of this survey mirrors the New Self-Efficacy Survey and contains questions that determine student overall preparedness and enjoyment in school. The flow chart design can be seen (Figure 6 as a phase, procedure, and product chart (Dhanapati, 2016).

Figure 6

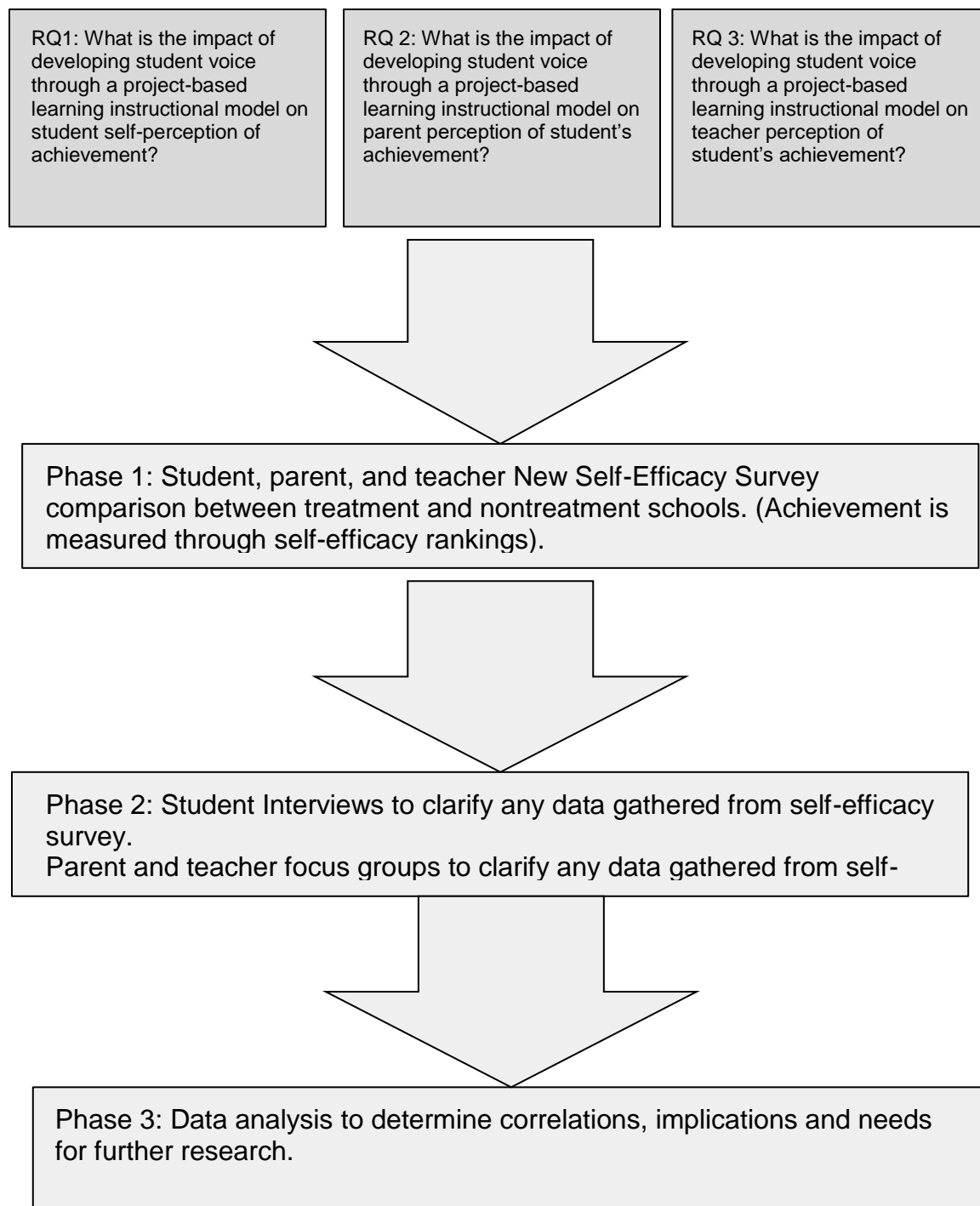
Phase, Procedure, and Product Chart of the Explanatory Sequential Design Method

(Dhanapati, 2016)

Phase	Procedure	Product
Quantitative Data Collection	Cross sectional survey	Numeric data
↓		
Quantitative Data Analysis	Use of descriptive and inferential statistics	Meaningful measures
↓		
Connecting Quantitative and qualitative Phase	Selection of participants purposefully and interview questions development	Interview protocol
↓		
Qualitative Data Collection	In- depth interview	Textual data
↓		
Qualitative Data Analysis	Coding and thematic analysis Theme development cross thematic analysis	Codes and themes similar and different themes and categories cross thematic matrix
↓		
Integration of the Quantitative and Qualitative results	Interpretation and explanation of the quantitative and qualitative result	discussion implication future research

Figure 6 is a basic outline of the steps that were taken in this design study. To understand the design more in-depth, student data from the Panorama Student Success Survey were reviewed, then parents and teachers submitted a self-efficacy survey after giving consent and reviewing any precautionary information. This gave cross-sectional data between the treatment and nontreatment schools. The quantitative data recorded in the Panorama and self-efficacy surveys were analyzed using descriptive statistical procedures to determine correlations between self-efficacy and the middle school the student attended. Achievement data (grades and dropout data) were also collected and reviewed. At that point, the selection of the interview participants was randomly

determined and interview questions developed. At that point, an in-depth, semi-structured interview protocol was developed and implemented for student, parent, and teacher interviews. Both the interviews and the focus group ensured in-depth information that were transcribed, initially coded, thematically coded, and analyzed according to the process developed by Braun and Clarke (2006). Finally, the integration between the quantitative data and the qualitative data took place and implications and further research that may be needed were reviewed. Figure 7 demonstrates how each of the research questions was answered.

Figure 7*Research Questions and Proposed Answers*

Research Design

The research design was an explanatory sequential mixed method study that first determined the treatment group's and nontreatment groups' self-efficacy ratings. Student data were collected through the county-administered Panorama Student Success Survey, and their parents were recruited to participate in ranking their students on the New General Self-Efficacy Scale (Chen et al., 2001). Data were gathered and analyzed to determine the quantitative research information needed to determine the impact of developing student voice on student and parent perceptions of achievement measured by self-efficacy. Based on the data collected, qualitative research questions were developed to determine how the development of student voice through PBL affects students in middle school with how they perceive their own achievement as measured by self-efficacy ratings. The overall intent of the explanatory sequential mixed methods research design according to Creswell and Creswell (2018) is to "have the qualitative data help explain in more detail the initial qualitative results" (p. 222). The design for this research is a typical procedure (Creswell & Creswell, 2018) in collecting survey data, analyzing the data, and following up with qualitative interviews to help explain confusing, contradictory, or unusual survey responses.

Research Procedures

In order to conduct my research, I first needed approval from the Institutional Review Board and the studied district's school board, per policy. The research I collected is from high school students from the ages of 14-19 and was in the form of self-efficacy ratings that were identified only as treatment or nontreatment schools. The other participants involved in the study were their parents and teachers. The purpose of the

collection of the data was to determine if the purposeful development of student voice utilizing a PBL teaching strategy in middle school impacts a student's development of self-efficacy.

Steps of Data Collection

1. The initial step was to collect participants; for the focus of this study, I sought to use high school students in Grades 9-12.
 - a. The high school freshmen and sophomores had experienced 3 years of middle school PBL and the development of student voice.
 - b. The high school juniors had experienced 2 years of middle school PBL and the development of student voice.
 - c. The high school seniors had experienced 1 year of middle school PBL and the development of student voice.
2. I worked with the principal at each of the three high schools to identify students who attended School A (treatment site) at each grade level and students who attended School B or C (did not receive the treatment).
3. The Panorama Student Success Survey is conducted during the year; students complete at their schools with their teachers. Dropout and student achievement data (grades) were collected. All aggregated data were analyzed.
4. Their parents and teachers were asked to complete the New General Self-Efficacy Scale (Chen et al., 2001).
5. At least one treatment and nontreatment student from each grade level (six total) were asked to participate in interviews.
6. At least one parent from treatment and nontreatment schools for each grade

level was asked to participate in a focus group.

7. At least two teachers from Schools A, B, and C as well as feeder schools were asked to participate in a focus group (eight total).

Summary

By completing this sequential explanatory mixed methods data collection and analysis, the purpose of this study was to (a) relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy and actual student achievement scores (grades, dropout rates); and (b) explore how the Transformative Learning Theory affects developing adolescents through the development of student voice in a PBL model. The explanatory sequential mixed method research design method gathered quantitative data to analyze in regard to student, parent, and teacher rankings of efficacy for the student. Comparisons were made between treatment School A and nontreatment Schools B and C. After looking at these data, questions were formed for student, parent, and teacher interviews to ensure I understood how or if the development of student voice through a PBL model affected the efficacy measures. Those interviews were analyzed through transcription and coding protocols to look for themes and trends, determining whether or not the development of student voice through PBL plays a role in achievement as measured by self-efficacy.

Chapter 4: Results

Introduction

The results of this study aimed to (a) relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy and (b) explore how the Transformative Learning Theory affects developing adolescents through the use of student voice in a PBL model. This was done through a sequential explanatory method in which student data from the district's Panorama Student Success Survey were reviewed, New General Self-Efficacy Survey data were collected from teachers and parents based on their students, and requests for interviews were solicited through email and parent notifications from me, the principal, and teachers.

Chapter 4 first reviews the quantitative data from each of the groups: students, parents, and teachers. The reviewed student data were the overall Panorama Student Success Survey, the gathered academic achievement data, and the current cohort dropout count. The data were analyzed for any patterns or trends that could be established to determine any follow-up questions that may be needed to clarify information during the student interviews. The reviewed parent data consisted of parent survey responses that were gathered throughout the month of open recruitment for survey responses. The parent data were analyzed for any patterns or trends that could be established to determine follow-up questions for the parent interviews. The last piece of quantitative data reviewed was the teacher survey information that was collected during the open recruitment period. The teacher survey responses also looked for patterns or trends and established follow-up questions for teacher interviews. The qualitative data section of Chapter 4 looks at any

trends that were established through the coding process of the interview transcripts of students, parents, and teachers. The trends and themes identified were related back to the research questions and how this is supported by the theoretical framework that was established in Chapter 2.

Quantitative Data: Students

The first pieces of data analyzed were the district student Panorama Student Success Survey results. These results were aggregated into each of the three high schools. A total of 737 students in high school completed the Panorama Student Success Survey that was administered by the school district. Of those 737 students, 181 attended the treatment school for at least 1 year. Each student was reviewed and placed into a designation of treatment school attendance or nontreatment school attendance. Each percentage shown as related to the Panorama Student Success Survey is a percentage of favorable responses. Students ranked themselves on a Likert scale score of 1 to 5 with 1-2 being negative responses, 3 being a neutral response, and 4-5 being a favorable response.

The Panorama Student Success Survey measures supportive relationships, classroom effort, social awareness, growth mindset, learning strategies, positive feelings, and challenging feelings. I started by analyzing the district's overall high school data set to determine any observable differences in the information. Table 2 gives an overview of each of the high school's percentage of favorable rankings of the following topics: supportive relationships, classroom effort, social awareness, growth mindset, learning strategies, positive feelings, and challenging feelings.

Table 2*Panorama Survey Results*

	Challenging feelings	Classroom effort	Growth mindset	Learning strategies	Positive feelings	Social awareness	Supportive relationships
High School 1	38.0%	60.0%	46.0%	39.0%	39.0%	54.0%	82.0%
High School 2	44.0%	69.0%	61.0%	55.0%	60.0%	69.0%	87.0%
High School 3	47.0%	60.0%	47.0%	46.0%	53.0%	57.0%	83.0%

Though there is a plethora of illuminating data that are housed in the topics and survey results in Table 2, I focused on the topics of classroom effort, growth mindset, and learning strategies because these topics highlight the development of student self-efficacy. Table 3 has been paired down to only include the results for each high school and student percentage of those who answered favorably. High School 1 had a total of 71 students surveyed, High School 2 had a total of 84 students surveyed, and High School 3 had a total of 582 students surveyed. The total number of students surveyed was 737.

Table 3*Panorama Student Success Topics for Study*

	Classroom effort	Growth mindset	Learning strategies
High School 1 (n. 71)	60.0%	46.0%	39.0%
High School 2 (n. 84)	69.0%	61.0%	55.0%
High School 3 (n. 582)	60.0%	47.0%	46.0%

Table 3 indicates High School 1 had the lowest favorable responses on average, while High School 2 had the highest number of favorable responses. Of the 737 high school students who completed the survey, 181 students had at least 1 year at the treatment school, while 556 were classified as nontreatment schools for not attending the

treatment school. When the overall information is broken down by treatment school or nontreatment school (Table 4), the information shows that 64% of the 181 students from the treatment school thought they exerted a high level of classroom effort, while only 47% demonstrated a presence of a growth mindset, and 46% said they had a variety of learning strategies they could apply when learning. This is slightly different than information for the nontreatment schools which shows that of the 556 students surveyed, 60% felt they exerted a high level of classroom effort, 51% demonstrated a presence of growth mindset, and 45% said they had a variety of learning strategies they could apply when learning.

Table 4

Panorama Student Success Topics, Percent Favorable Responding Disaggregated by Treatment/Nontreatment Schools

	Classroom effort	Growth mindset	Learning strategies
High school students overall (737)	64%	48%	46%
Nontreatment (556)	60%	51%	45%
Treatment (181)	64%	47%	46%

Within the topics displayed in Table 4, the following questions that were asked in the survey are considered as to the development of student self-efficacy.

Classroom effort:

- How much effort do you put forth in your classes?
- How confident are you that you can learn all the material put forth in your classes?
- If you fail to meet your goal, how likely are you to try again?

Growth mindset:

- How possible is it for you to change by putting forth a lot of effort?
- How possible is it for you to change how likely you are to give up?
- How possible is it for you to change your level of intelligence?

Learning Strategies:

- When you get stuck while learning something new, how likely is it for you to try a different strategy?
- Before you start on a challenging project, how often do you think about the best way to approach that project?

Table 5 provides the aggregated data collected for these questions at each of the high schools. Table 6 shows that the trends for these questions mirror the overall trends for each school, with High School 1 having the least favorable responses overall and High School 2 having the most favorable responses overall.

Table 5*Student Success Question Analysis*

		High School 1	High School 2	High School 3
Learning strategies	When you get stuck while learning something new, how likely are you to try a different strategy?	33%	50%	45%
	Before you start on a challenging project, how often do you think about the best way to approach the project?	46%	60%	50%
Growth mindset	How possible is it for you to change by putting forth a lot of effort?	61%	83%	63%
	How possible is it for you to change how likely you are to give up?	35%	67%	42%
	How possible is it for you to change your level of intelligence?	54%	64%	50%
Classroom effort	How much effort do you put forth in your classes?	63%	77%	67%
	How confident are you that you can learn all the material put forth in your classes?	44%	61%	50%
	If you fail to meet your goal, how likely are you to try again?	35%	62%	60%

From Table 5, the data were disaggregated to determine if there were trends from each of the feeder middle schools. The disaggregated data are found in Table 6. The table of the feeder middle schools was aggregated and shows both treatment and nontreatment data for only the questions that were reviewed.

Table 6*Disaggregated Panorama Student Success Questions Treatment/Nontreatment Schools*

		Treatment school (181)	Nontreatment school (556)
Learning strategies	When you get stuck while learning something new, how likely are you to try a different strategy?	48%	46%
	Before you start on a challenging project, how often do you think about the best way to approach the project?	56%	43%
Growth mindset	How possible is it for you to change by putting forth a lot of effort?	58%	62%
	How possible is it for you to change how likely you are to give up?	45%	56%
	How possible is it for you to change your level of intelligence?	64%	50%
Classroom effort	How much effort do you put forth in your classes?	63%	52%
	How confident are you that you can learn all the material put forth in your classes?	67%	61%
	If you fail to meet your goal, how likely are you to try again?	68%	54%

The data in Table 6 demonstrate that students from the treatment school favorably responded overall to all topics within exerting classroom effort and learning strategies but demonstrated mixed results when considering a growth mindset.

When deciding if a student's self-efficacy is a determinant of student achievement, we must consider how the student performed in their academic classes. I reviewed 1,742 high school student grades for the 2020-2021 school year. The academic achievement determinant was equivalent to what percentage of students performed at a level that was above failing (60 or above) in all of their classes for each 9-week grading period during the 2020-2021 school year. Table 7 analyzes the academic achievement as tabulated by what percentage of students have grades above an F all year long. The students are disaggregated in each high school accounted for in the treatment school percentage if they attended for at least 1 year.

Table 7*Academic Achievement: Percent of Students Performing at the Proficient Level*

Cohort year		Percent of students	
2021		Treatment school (15)	Nontreatment schools (430)
	High School 1 (22)	0%	40%
	High School 2 (66)	50%	67%
	High School 3 (342)	90%	46%
2022		Treatment school (36)	Nontreatment schools (303)
	High School 1 (22)	40%	33%
	High School 2 (54)	85%	38%
	High School 3 (263)	46%	60%
2023		Treatment school (66)	Nontreatment schools (358)
	High School 1 (27)	64%	69%
	High School 2 (41)	88%	78%
	High School 3 (356)	65%	54%
2024		Treatment school (64)	Nontreatment schools (366)
	High School 1 (22)	50%	40%
	High School 2 (66)	75%	85%
	High School 3 (342)	59%	59%

Interestingly, trends or patterns were not noticeable in the cohort breakdown of student academic achievement (Table 7). Neither the nontreatment nor treatment schools consistently performed at any level of predictability through the process; although when considering the number of students who have been part of the treatment school in

comparison to nontreatment schools and the number of students per cohort who are on the dropout list (Table 8), the treatment school has a much lower dropout rate than that of the nontreatment schools but a smaller number of the total student population.

Table 8

Cohort List of Dropouts

Cohort year		Number of student dropouts
2021	Treatment school (n. 15)	1
	Nontreatment schools (n. 430)	22
2022	Treatment school (n. 36)	0
	Nontreatment schools (n. 303)	21
2023	Treatment school (n. 66)	1
	Nontreatment schools (n. 358)	4
2024	Treatment school (n. 64)	0
	Nontreatment schools (n. 366)	0

As noted in Table 8, the number of students who attended the treatment school was far less than the number of students who attended a nontreatment school.

Quantitative Data–Parents

The New General Self-Efficacy Scale (Chen et al., 2001) was sent to parents through the high school via email, social media, and classroom management pages. The number of parent responses from April 15, 2021, when the survey period opened to the closure of the survey on June 8, 2021, was minimal, even after multiple recruitment efforts were levied by principals, counselors, and me. The number of parents who participated was 30; however, the number of valid participants was 15. Fifteen parent

participants refused to consent. There were five valid parent participants each from treatment School A (5), nontreatment School B (5), and nontreatment School C (5). All participants (100%) answered favorably to each of the questions as shown in Table 9.

Table 9

Parent Responses to the New General Self-Efficacy Scale (Chen et al., 2001), Percent of Favorable Responses

Parent responses	Treatment school	Nontreatment school
My student will be able to achieve most of the goals that they set for themselves.	100%	100%
When facing difficult tasks my student is certain that they will accomplish them.	100%	100%
In general, my student thinks that they can obtain outcomes that are important to them.	100%	100%
My student believes that they can succeed at most any endeavor to which they set their mind.	100%	100%
My student will be able to successfully overcome many challenges.	100%	100%
My student is confident that they can perform effectively on many different tasks	100%	100%
Compared to other people my student can do most tasks very well.	100%	100%
Even when things are tough, my student can perform quite well.	100%	100%

The trends in Table 9 identified within the responses gathered were that 100% of parents saw their students demonstrate a level of self-efficacy. The data indicate that

regardless of if students went to a treatment or nontreatment middle school, students were able to develop a level of self-efficacy as perceived and reported by their parents.

Quantitative Data–Teachers

Teachers were recruited through emails from counselors and principals. I had a total of 25 surveys that were completed. All responses were neutrally marked (3) on the Likert scale for the responses in regard to both the treatment and nontreatment schools. Table 10 illustrates that there no favorable responses, but none of the responses were negative. One hundred percent of all teacher responses were neutral within rankings on the Likert scale.

Table 10

Teacher Responses to the New General Self-Efficacy Scale (Chen et al., 2001), Percent of Favorable Responses

Teacher responses	Treatment school	Nontreatment school
My student will be able to achieve most of the goals that they set for themselves.	0%	0%
When facing difficult tasks my student is certain that they will accomplish them.	0%	0%
In general, my student thinks that they can obtain outcomes that are important to them.	0%	0%
My student believes that they can succeed at most any endeavor to which they set their mind.	0%	0%
My student will be able to successfully overcome many challenges.	0%	0%
My student is confident that they can perform effectively on many different tasks.	0%	0%
Compared to other people my student can do most tasks very well.	0%	0%
Even when things are tough, my student can perform quite well.	0%	0%

The teacher participant data in Table 10 illustrated that while teachers surveyed did not favorably respond, they did not negatively respond either. These data when compared with the parent survey data illustrate that a parental belief in their student's ability to succeed or overcome challenges ranks higher than the teacher's belief in a student's ability to succeed.

Quantitative Summary

The data gathered through the quantitative process supported the null hypothesis for each of the research questions.

1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?

H₀: The development of student voice through PBL will have no impact on the student perception of achievement as measured by self-efficacy.

The data collected showed that there was no noticeable difference in student achievement regardless of if the student went to a treatment middle school or nontreatment middle school. The null hypothesis stated the development of student voice through PBL will have no impact on the student perception of achievement as measured by self-efficacy which is proven through the comparison of self-efficacy survey data collected by the Panorama Student Success Survey and the lack of middle school correlation through the student achievement data. When considering the information received through quantitative analysis, student success varied and did not correlate to a specific middle school either in treatment or nontreatment instructional strategy exposure. Based on the data gathered for this research, students did not rank themselves higher in areas of self-efficacy or perform at either a higher or lower academic achievement level than that of their peers from nontreatment middle schools. This supported the null hypothesis that the development of student voice through PBL has no impact on student perception of achievement as measured by self-efficacy.

2. What is the impact of developing student voice through a PBL instructional model on parent perception of achievement?

H₀: The development of student voice through PBL will have no impact on the parent perception of achievement as measured by self-efficacy.

Data collected to support this research question showed that parent rankings were 100% favorable regardless of what middle school was attended. Parents firmly believed that their students displayed self-efficacy that led to achievement. Based on the quantitative descriptive analysis, this too proved the null hypothesis that the development of student voice through PBL will have no impact on the parent perception of achievement. Regardless of where a student went to middle school, 100% of the parents who participated in the survey believed their students had developed the skills that demonstrate self-efficacy that would lead to future success.

3. What is the impact of developing student voice through a PBL instructional model on teacher perception of achievement?

H₀: The development of student voice through PBL will have no impact on the teacher's perception of achievement as measured by self-efficacy.

The data collected during the quantitative data collection revealed the teachers who participated in the survey in regard to the self-efficacy skills demonstrated by students from either the treatment or nontreatment school were neutral as to whether or not students demonstrated the skills that indicate the presence of self-efficacy regardless of where the student went to middle school. The null hypothesis was once again supported; the development of student voice through PBL will have no impact on the teacher's perception of achievement as measured by self-efficacy.

Although the quantitative process of the explanatory sequential research model data was inconclusive, I began to consider the questions I would ask in the qualitative

interviews and what new information it would bring to my study. I had four students (one high school freshman, one high school sophomore, one high school junior, and one high school senior dropout) who were open to interviews. Two parents indicated they were open to interviews. All the students and parents interested in interviewing were former treatment school students or parents. No interest to participate was expressed by any nontreatment students or parents. No teachers indicated they would be interested in participating in the interviews. I wanted to learn more through conversation about the research questions I had and determined to move forward with the interviews.

Qualitative Interviews

In reviewing the research questions, I wanted to tie in the theoretical framework topics for each question. The core theoretical framework for this research includes student voice, adolescent development, self-efficacy, and the transformative theory through a PBL instructional method. The questions used for the student interviews and how they relate to Research Question 1 and the theoretical framework are seen in Table 11.

Table 11*Student Interview Questions and How They Align to Research Question 1*

Research question	Theoretical framework topics	Interview question
1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?	Student voice Engagement Adolescent development	Tell me about your experience at Treatment School A? When did you first remember having a voice in school (give teacher feedback, express interest in learning something and then did, make choices in what and how I learned)? Did your peers from other schools have a similar experience?
	Instructional practices- project based learning Engagement Transformative learning	What learning experiences in middle school were most meaningful to you? Why?
	Transformative learning Self-efficacy Student voice	Tell me about an experience that you can recall that you went into with one perspective (attitude, belief) but after the experience, had a different perspective (attitude, belief)?
	Adolescent development Instructional practices- project based learning	How did your middle school experience prepare you for high school? Do you think that your peers were prepared at the same level?
	Self-efficacy	If you encounter failure, what do you do?

Table 11 shows the alignment of Research Question 1 to the specific theoretical framework topic and how the interview questions align to the theoretical framework. The questions were structured to seem as though they were a natural part of a query in regard to their middle school and high school experience. When determining the alignment to the theoretical framework, key phrases were utilized for each question from supporting research. The adolescent development questions were tied to student experience and memories of middle school, while other questions were core to their academic development through the PBL model and how they have continued to use or develop their student voice.

The parents who were willing to participate in the interviews were asked similar questions which can be found in Table 12. Each question relates to Research Question 2 focusing on parent perception of the student development of voice and how that has impacted their achievement. We know from survey results that 100% of parents thought students had developed self-efficacy, no matter their treatment school. The questions asked with some follow-up can be found in Table 12.

Table 12*Parent Interview Questions and How They Align to Research Question 2*

Research question	Theoretical framework	Interview question
2. What is the impact of developing student voice through a PBL instructional model on parent perception of student achievement?	Student voice Engagement Adolescent development	When do you remember your student first having a voice in school (make choices in what and how they learned)?
	Instructional practices- project-based learning Engagement Transformative learning	What experiences in middle school were most meaningful to your student?
	Transformative learning Self-efficacy Student voice	Tell me about an experience in middle school that you can recall that your student changed perspectives or ideas based on an experience or lesson?
	Adolescent development Instructional practices- project-based learning	How do you think your students' middle school experience prepared them for high school?
	Self-efficacy	If your student encounters failure, what do they do?

I individually interviewed four student participants and two parent participants. Each participant's interview was transcribed using Transana, a software that assists in transcription and coding. Open coding was first completed to look for themes since each interview was on average less than 30 minutes. The thematic codes that emerged were relationships with staff or teachers, persistence and/or hardship, feedback, postsecondary

preparedness, and projects/clubs.

Participant 1 was a high school junior. The student had just finished their third year of high school at an early college model and would text me occasionally to share their successes in the social arena and academics. When Participant 1 was asked about the first opportunity to develop and use their voice in school, they were very excited to share how the experience in elementary school was vastly different from the experience they had at the treatment school:

I remember walking in on the first day and thinking, this is chaos! I had been homeschooled after some bad elementary experiences, so that was my first time back in public school. I remember the teachers smiling and walking with kids. I hated people, but people smiled at me and though I kind of stuck to myself, I remember being asked my thoughts and opinions. In fact, my teachers wouldn't let me just read my book and not talk to them. When I didn't want to read the book everyone else was reading, my teacher let me pick out my own book for independent study. It was a moment in which I felt that my opinion mattered, and I was heard.

Participant 1 detailed an example of how strong teacher-student relationships helped her to develop student voice. The relationship was demonstrated in the statement as Participant 1 described the teachers walking with kids and the allowance for an alternative pathway and assignment. Participant 1 also discussed some setbacks and hardships she faced and the feedback she received that has helped her to be successful and a top performer at the college level:

In seventh grade, I really wanted to take Math I. Everything has always come so

easy to me. I liked that I didn't have to complete every assignment if I could prove that I knew a standard. I struggled to prove that I knew my Math I standards, I would tell my teacher I knew how to do it, she would try to have me demonstrate, I would put it off, and I wouldn't ask for help. I failed Math I. I was embarrassed and mad at myself. Then the principal told me I had to retake it in 8th grade. I had to repeat a class. Unheard of. But I did. It was humbling and taught me how to fail and how to succeed. I know now some things take more work than others, I know how to advocate and ask questions, and it is why I think that I am successful in my college classes while my peers struggle.

Participant 1, after self-advocating to take Math I, faced a disorienting dilemma; she was not as prepared as she thought for the class which would require her to do additional work. Upon initial self-examination, the student determined she would be able to get by without requesting assistance since she had never needed to request assistance in the past. Participant 1 assessed her assumptions, she was embarrassed, she had failed, and she considered that maybe working/studying was a critical component to success. She worked to plan a course of action with her principal, and she then worked to acquire the skills. During class, she explored new roles by asking questions, by failing something, and then striving to succeed. She has now worked to incorporate those roles in new situations, building self-efficacy and being successful in high school. This example aligns with Mezirow's (1991) Transformative Learning Theory.

Participant 2 was a high school freshman this year who was able to work well independently to experience success during the COVID-19 shut down:

I think that the projects really helped me to understand how to prioritize to ensure

that I complete things. I saw my peers really struggle with that this year, we'd have assignments, they would get a deadline and the deadline would pass because of their lack of time management.

This example Participant 2 spoke of showcased his development of self-efficacy.

Parent 1 spoke of the development of self-efficacy being a hard lesson for Participant 2 to grasp but explained how the experience built pride and persistence. The experience Parent 1 outlined mirrors the Transformative Learning Theory process:

Participant 2 let down a lot of people in his early projects. He grew a lot before he left. At the end of his seventh-grade year, the teacher had students that had consistently performed well in groups interview the students remaining in class and offer them jobs on their team. No one offered Participant 2 a job, he was a horrible teammate. He cried in the car when I picked him up. We have all been there as adults, we didn't get chosen for a job, because there was someone better that had more skills or had proven themselves to the team. Participant 2 knew that in order to redeem himself and get a job next time, he had to prove himself to his peers. They completed the project alone and did an amazing job. The teacher was proud, I was proud, but the most important part was that he was proud of the work that he did. It was featured at a local museum.

Participant 2 had an initial assumption, "I don't have to do much and my peers will pick up the slack," that was challenged when he wasn't "hired" for a spot on the team. He had to self-assess his own assumptions. He made a plan and has been able to implement a plan based on the roles he tried during the COVID-19 shutdown.

Parent 2 for Participant 3 expanded on the theme of project/clubs, life skills, and

the impact it has made in high school:

Participant 3 came into sixth grade with a lack of confidence. So, when he encountered any type of setback it was a day-long ordeal in which he would be upset. By the time Participant 3 reached 8th grade he was better able to articulate himself when presenting even when questioned or hard feedback was given, if a setback is encountered now, he is more able to stay composed and work through it. The relationships that Participant 3 had with this teacher was one of the things I contributed to this. The teacher got away saying things, redirecting, and coaching them that his dad or I would not have been able to share without the same impact.

Parent 2 showcased his development of self-efficacy and student voice. As Participant 3 developed his voice, he was able to build the self-efficacy skills that were needed for success as Bandura's (1977) research outlined. Participant 3 stated, "I am ahead of my classmates in speaking out and presenting because we were given the opportunity at the treatment school to be seen and heard."

Both participants and parents in these interviews discussed the core concepts of the development of self-efficacy and how that has served them as they have continued their educational journey. In each of these situations, there is a relationship that has been developed between a student and teacher that provides feedback and holds the student accountable.

Qualitative Summary

Quantitative comparisons of student participants' favorable responses regarding self-efficacy, their academic achievement, and the parent and teacher surveys that were completed regarding student self-efficacy demonstrated there was no direct correlation to

the middle school a student attended and their level of self-efficacy. The quantitative data supported the null hypothesis. In the qualitative interviews, students attributed a middle school experience that enhanced or increased their level of self-efficacy to the opportunities they were afforded through relationships that were built with staff, persistence through hardship, and the skills they learned when engaging in clubs and/or projects. The qualitative results that were formed through interviews are not specific to the school they attended, but the conditions had to be present to develop them in a positive way. The qualitative data do speak to the success of the treatment school. I am glad I conducted the interviews to see that there is some evidence of a transformative learning experience. Although further research is needed, there is limited qualitative evidence that indicates adolescents are able to undergo a transformative learning experience when it comes to self-realization.

Chapter 5: Discussion

Discussion of Research Questions

This chapter includes a discussion of the research topics and the data collected through the study, a review of the major topics from the literature review, and how the theoretical framework and the study findings connect to each topic. The chapter concludes with a discussion of the limitations of the study, implications for practice, and areas for further research, and a brief conclusion.

The purpose of this study was to (a) relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy and (b) explore how the Transformative Learning Theory affects developing adolescents through the use of student voice in a PBL model. The study was guided by three research questions:

1. What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?
2. What is the impact of developing student voice through a PBL instructional model on parent perception of student achievement?
3. What is the impact of developing student voice through a PBL instructional model on teacher perception of student achievement?

Research Question 1 asked, “What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?” The null hypothesis stated, “The development of student voice through PBL will have no impact on the student perception of achievement as measured by self-efficacy.”

Davis (2018) noted that leaving academically struggling students to make choices about their learning may not be the best idea. Many students, Davis argued, will choose the option that is the most fun but that may not lead to the highest level of learning or academic achievement. Nichols (2013) asked if student achievement should solely be based on academic achievement or instead on the skills employers and citizens have said are most imperative to becoming a successful adult. These future-focused achievement skills require developing a voice so collaboration, critical thinking, problem-solving, and entrepreneurship are present and readily used in real-world situations. Based on the data gathered for this research, students from the treatment school did not rank themselves higher in areas of self-efficacy or perform at either a higher or lower academic achievement level than that of their peers from nontreatment middle schools; but in individual interviews, student participants showcased skills they learned from the treatment school that now helped them gain a feeling of success in high school.

Beaudoin (2005) explained that students must have the latitude to discover what their interests are and embrace their individual strengths with individualized educational experiences. To do this schools must elevate student voices so they have a sense of belonging that makes them feel safe and supported (Benner et al., 2019). Schools have to envision frameworks and cultures that allow students to harness their potential and pursue their interests. In all student participant interviews, projects and clubs were mentioned that allowed students to have individualized educational experiences that allowed them to explore the material on their own. Wagner and Compton (2012) argued that without these experiences to explore subjects and play with knowledge, students do not have intrinsic motivation to learn, and the potential of student voice dissipates.

The data collected supported the null hypothesis that the development of student voice through PBL will have no impact on student perception of achievement as measured by self-efficacy. As the researcher, I wonder if this is due to the methodology choice and the reliance on an already established district tool for surveying self-efficacy. The already established survey may not have had the same level of readability or overall intended outcomes of the research methodology.

Research Question 2 asked, “What is the impact of developing student voice through a PBL instructional model on parent perception of student achievement?” The null hypothesis stated, “The development of student voice through PBL will have no impact on the parent perception of achievement as measured by self-efficacy,” which was evident in the parent rankings that were 100% favorable that their student displayed self-efficacy leading to achievement regardless of which middle school they attended. Based on the quantitative descriptive analysis, this too was inconclusive. Regardless of where a student went to middle school, 100% of the parents who participated in the survey believed their students had developed the skills that demonstrate self-efficacy that would lead to future success. This could have been because parents believe strongly in their students’ abilities to be successful in any situation. Even in interviews, parents demonstrated that the students who had experienced setbacks also experienced success by learning from a situation.

Research Question 3 asked, “What is the impact of developing student voice through a PBL instructional model on teacher perception of student achievement?” The null hypothesis was once again supported: “The development of student voice through PBL will have no impact on the teacher's perception of achievement as measured by self-

efficacy.” The teachers who participated in the survey regarding the self-efficacy skills demonstrated by students from either the treatment or nontreatment school were neutral as to whether or not students demonstrated the skills that indicate the presence of self-efficacy regardless of where the student went to middle school. Teachers may not have chosen a side due to the lack of relationship built with their classroom of students to know which middle school they attended, due to long-standing pride in the community not wanting to choose a specific side either positively or negatively favoring a student’s development of self-efficacy.

Dizon-Ross (2019) believed that due to the lack of understanding parents have regarding their students’ abilities based on educational testing and data, there may be an explanation as to why there is a discrepancy between the parent’s strong belief in student self-efficacy while teachers have a lower belief in student self-efficacy. Teachers have more standardized indicators of the educational definition of achievement, which may inhibit student development of self-efficacy due to these beliefs. Since grades are the top indicator for parents to determine and judge student self-efficacy, they may have an inflated sense of a student’s ability to succeed, especially if the student has not had access to rigorous curriculum or to the strategies and skills needed to develop a high level of self-efficacy.

Student Voice Discussion

The concept of student voice is largely variable in practice and research, with a wide range of ways students can develop student voice. From class choices during registration, to having a role in how curriculum is developed or taught within a school, to the design of the classroom, students can engage in powerful learning opportunities to

develop student voice. One of the things I overlooked in reviewing the literature and thinking about student voice is the critical way relationships play a role in developing student voice. Fletcher (2015) stated that when students are engaged as partners, relationships are built and classroom teaching is more effective.

It is imperative for educators to know the benefits of having students engaged as partners in education and how empowering student voices will affect the context of learning and education (Fletcher, 2015). To grow a partnership, Saucedo (2016) stated the alignment of core values is the most important factor in any close relationship. The impact of relationships students made with their teachers was evident even in the few participant interviews. For example, Participant 4, a high school senior who dropped out, told me,

The relationships with the teachers and you [principal] I built were the most impactful, they are still impactful—you are the one that has been here to help me finish with my adult high school diploma or at least encourage me to get my GED.

Parent 2 noted that the relationships her child had with his teachers allowed him to be coached and to provide feedback a parent may not have been able to. Even in Parent 1's account of her child not being hired for a working team, it took a relationship with the teachers to trust the process of learning and allow student voice and self-efficacy to develop. Participant 1 was empowered and allowed to choose a personalized pathway for learning; that type of student voice stems from a trusting relationship. Mitra's (2003) research shows that teacher-student relationships are the first step to developing a strong student voice. Mitra noted that a teacher-student relationship comes from direct 1:1

interaction between the two, which leads to empowerment, intrinsic motivation, and a deeper sense of voice.

Self-Efficacy Discussion

Self-efficacy does not only develop through student voice. Self-efficacy begins at birth, but the level of self-efficacy that is developed at the middle school level can assist students in developing the cognitive abilities needed to support and persevere through difficult problem-solving tasks that are more similar to those encountered in adulthood. Bandura (1977) recognized the role relationships played in developing self-efficacy when two of the four factors were discussed: vicarious experiences, seeing others around us to whom we can relate succeeding or hearing their success stories; and having a role model, people we follow, admire, and want to replicate, which includes our emotional and physical experiences with these people. Margolis and McCabe (2006) made it clear in their research that students with strong senses of efficacy can be classified as highly committed, attribute failure to things within their control, will rebound from disappointments, and will fulfill self-determined goals and objectives. Although no indicator within the quantitative data would indicate the middle school or instructional strategy played a role within the development of self-efficacy, it was evident in student interviews that students did have experiences in school that led to changed behavior. This is demonstrated when student participants applied themselves to reach a level of success or rebounded from a failure. In Participant 2's example of time management, because of the skills he had acquired, he was able to integrate them into situations that allowed him to cope with the circumstances of the COVID-19 shutdown.

PBL and Transformative Theory Discussion

Transformative Learning Theory includes the principle of the Constructivist Theory that learning most productively occurs when students take an active role in the process of revelation (Piaget, 1926), and their instructional activities carry more weight when they revolve around social interactions (Vygotsky 1978, 1986). The perspectives of understanding the important aspects of self-efficacy and student development using the Social Cognitive Theory are also critical when examining the effect of transformative learning (Bandura, 1986, 1993, 1997).

The experiences the student participants shared in their interviews detail the importance of relationships that help to develop skill mastery. Students in middle school who are exposed to a performance goal are more likely to have anxiety and negative self-concept when facing challenging tasks (Anderman & Young, 1994). In Parent 3's interview where they noted the "lack of confidence" and at a later point in the conversation "the avoidance of difficult tasks because they did not want negative feedback," it was easier in past experiences to conceal the student's true understanding of the subject area. That is seen in Participant 1's interview in which she laid out avoidance behavior due to a lack of understanding. When students are only exposed to performance-based goals, the level of engagement includes self-selecting less difficult tasks (Burriss & Snead, 2017.). Through the PBL instructional strategy, students are constantly exposed to situations and feedback that challenge their understanding, leading to sustained interest and resilience through setbacks.

The Transformative Learning Theory framework Mezirow (1991) proposed had 10 key elements:

- (1) a disorienting dilemma;
- (2) self-reflection;
- (3) an assessment of assumptions;
- (4) comparing similar experiences of discontent;
- (5) exploring options and solutions;
- (6) building understanding;
- (7) action planning;
- (8) acquiring resources/knowledge to implement the plan;
- (9) try it, assess feedback; and
- (10) a new perspective integrated into society.

Students who engaged in transformative learning, either through a project experience (Participant 2) or as a result of developing their voice (Participant 1), clearly encountered each of these steps and learned more about themselves and the skills they possessed, building self-efficacy to know they can apply their new perspective regarding their ability to succeed in a new situation. This is evident in Participant 1's account of failing Math I in seventh grade. She, after self-advocating to take Math I, faced a disorienting dilemma; she was not as prepared as she thought for the class which would require her to do additional work. Upon initial self-examination, the student determined she would be able to get by without requesting assistance since she had never needed to request assistance in the past. Participant 1 assessed her assumptions, she was embarrassed, she had failed, and she considered that maybe working/studying was a critical component to success. She then worked to plan a course of action with her principal, and she then worked to acquire the skills. During class, she explored new roles

by asking questions, by failing something, and then striving to succeed. She has now worked to incorporate those roles in new situations, building self-efficacy and being successful in high school. Participant 2's experience was similar. He had an initial assumption, "I don't have to do much and my peers will pick up the slack," that was challenged when he was not "hired" for a spot on the team. The student had to self-assess his own assumptions. He then had to work to plan a course of action and work hard to acquire the skills needed for success. Once he accomplished success, he was able to apply those strategies in new situations (i.e., COVID-19 shutdown).

Adolescent Development Discussion

Originally, I thought transformative learning that occurred through the projects presented would be a more global perspective change on topics. In the last 5 years, students at the treatment school have explored everything from food insecurity, space travel, and product development to sustainability. The students who were surveyed and talked to have brought community awareness to a variety of topics. When considering adolescent development, adolescence is when students explore how they fit into society. Transformative learning that occurred and was discussed by participants revolved around how the skills they learned were able to serve the students better and allow them to adapt to further experiences instead of the actual content knowledge they were exposed to in the PBL experiences.

According to Erikson's (1959) Psychosocial Theory, identity development is divided into eight stages:

Stage 1: Trust vs. Mistrust

Stage 2: Autonomy vs. Shame and Doubt

Stage 3: Initiative vs. Guilt

Stage 4: Industry vs. Inferiority

Stage 5: Identity vs. Confusion

Stage 6: Intimacy vs. Isolation

Stage 7: Generativity vs. Stagnation

Stage 8: Integrity vs. Despair

During middle school, students begin transitioning from the industry and inferiority stage to the identity and role confusion stage. This means that the ego when entering middle school is focused on accomplishments and making comparisons between themselves and classmates to then working to gain a sense of identity by experimenting with different roles, beliefs, and ideas about themselves and the world around them. Participants 1 and 2 both described the transformative learning process as it relates to their personal development, not their ideas or perspectives on a specific topic.

Adolescence is the initial period when a person would be able to utilize parts of the brain needed for critical-thinking skills (Larson, 2017). The participants discussed in their interviews the critical thinking that resulted in changes for future student academic or life skill success. Mezirow (1991) shared that the ability to critically reflect and have rational discourse are the preconditions for transformative learning. Though no student participants discussed a change overall in perspectives of topics from projects, they did discuss the continued exposure to situations that allowed them to share their perspectives, which allowed them to be seen and heard, aligning with the ability to experiment with the different roles, beliefs, and ideas about themselves and the world around them, which is an integral part of the development of identity.

College and Career Readiness Discussion

The American Institutes for Research (2012) noted that high school graduation rates have increased but suggested that students are not ready for postsecondary education or training that is required to obtain a job with a living wage. Wen (2019) noted that a student's development of a high self-efficacy that can be applied beyond the world of academia to occupation self-efficacy leads to postsecondary success. A student's early experiences to developing success or failure lead to direct experience and are one of the most important factors in the formation of self-efficacy. Students who experience rigorous educational experiences early and learn methods or strategies for resilience will develop a positive and robust level of self-efficacy. This positive self-efficacy when applied to professional settings can promote individual occupational self-efficacy. Similarly, students who do not have direct experiences that lead to strategies for resilience may develop low levels of self-efficacy and therefore, when facing professional challenges at higher levels of education or in the workforce, they may shirk away from the challenges or more easily give up (Wen, 2019).

When referring to the qualitative data collected within the interviews, you can see that the students who described an experience that led to a change of behavior, initially demonstrated avoidance behaviors. Participant 1 avoided answering questions or demonstrating mastery by continuously putting off the teacher. Participant 2 thought others would just do the work for him. By supporting students through the failure they experienced in these moments, teachers were able to develop student self-efficacy by teaching new strategies for persevering behaviors that would lead to future success.

The levels of self-efficacy that were scored by students, teachers, and parents

varied wildly. Whereas teachers were neutral to a student's level of self-efficacy, parents felt that all their students demonstrated self-efficacy, and students self-selected on average within the mid-range of self-efficacy. If self-efficacy can be tied to student postsecondary success as proposed by Wen (2019), moving forward, schools should explicitly and purposefully consider actions and strategies to support student self-efficacy.

Limitations of the Study

The findings of this study must be seen in light of several limitations. The limitations of timing, lack of participation, and potential bias had the greatest impact on the quality of findings and the ability to answer my research questions. Some limitations were predicted, while others were not or were more severely limited.

The limitation of timing was perhaps the most restrictive in the successful implementation of the data collection. The initial plan to collect data was early in spring. Due to delays in the Institutional Review Board process, permission to collect data did not occur until mid-April and was initiated within the last month of the 2020-2021 school year. The last month of school, even in a normal year, is filled with end-of-grade activities such as graduation, award ceremonies, and other celebrations. The high school schedule due to COVID-19 procedures was modified; students were only in two classes for a 9-week period, and many students were off campus in a virtual environment, which led to a disjointed effort to recruit participants. After the data period closed, I only had two sign consent/assent forms to complete the student survey. Due to this, the initial student survey had to be modified due to the lack of signed consent/assent forms to a district utilized tool, the Panorama Student Success Survey, which had a higher number

of participants. This survey differed from the New General Self-Efficacy Scale (Chen et al., 2001) which was originally proposed as the research tool for students, parents, and teachers. This change in the student quantitative collection process was then shared and presented to the Institutional Review Board to ensure validity and safety for the study.

The lack of time to recruit participants for surveys and interviews led to a limited number of parent and teacher surveys as well as a bias within the interview recruitment. Only students and parents who had attended the treatment school participated in the interviews. The 3-month data collection period was originally seen as aggressive, but the month and a half time period severely limited the recruitment of willing participants. Once again, because focus groups for both parents and teachers were originally proposed, the Institutional Review Board was notified of the changes to interviews for students and parents. Since there was no interest from teachers in being interviewed or a part of a focus group, the qualitative collection was voided.

Another complaint that ended up being a limitation was the length of the student/family consent and assent paperwork. The participants interviewed all commented on this because they verbally consented but had to have the forms explained to them because of the level of technicality that was presented. Although the forms are written in plain language, the length was daunting to participants because most permission forms or consent forms used within the district are limited to a one-page length.

The lack of participants within the parent and teacher surveys led to a lack of diversity within responses, which may have led to some bias in participation as well as how the questions were answered. Though efforts have been taken throughout the community to describe the treatment school as another option and a different modality to

teach the same state standards as the nontreatment schools, the community is protective of established institutions. If the survey was interpreted as trying to elevate one choice over another instead of a method to learn how to serve students in the best way possible, the participation would also have been narrowed.

According to participants, another limitation was the time listed that was required to complete the survey or engage within the interview, which may have limited the recruitment of participants. The recommended time to take the survey from Chen et al. (2001) was 3 minutes, but it was recommended that the time be changed to 10 minutes on the participant information guidelines. The interviews lasted a maximum of 30 minutes, but most were between 15 and 20 minutes. During a busy time of the year, the time constraints of actually filling out the survey or participating in the interviews may have been a limiting factor.

Another limitation was the features of the New General Self-Efficacy Scale (Chen et al., 2001) survey itself. The survey was narrow, focusing on only student, parent, and teacher perceptions on the depth of self-efficacy but missed the opportunity to ask more about experiences students had or how students had been able to demonstrate their use of voice in school. Utilizing the Quaglia Institute for Student Aspirations (2013) survey may have provided a wider view of student voice and how it relates to their level of self-efficacy.

Bias was created unintentionally; the students and parents who consented to interviews were limited to only treatment school participants. These parents and students were willing to participate due to the relationships they built with me as their principal during their time at the treatment school. Though they were not concerned about any

related consequences, they had already established a clear relationship with me, not only as their principal but as an educator who continues to support and cheer them on as they further their educational goals. Though each of these participants is aware that my goal is only to improve the education of the students within our community, I am aware this may limit the feedback given.

The results of this study provided some interesting data but nonetheless must be interpreted with caution, and the number of limitations should be borne in mind as you consider these findings and implications for practice.

Recommendations for Further Research

The limitations affected the ability to answer the research questions; however, the data collected was informative and can be associated with the implications for future practice and/or additional research. Research Question 1 asked, "What is the impact of developing student voice through a PBL instructional model on student self-perception of achievement?" The quantitative data results were inconclusive in regard to whether the treatment or nontreatment middle school students attended was a factor. When I considered the aggregated data from each of the three high schools, there is a trend within the high schools students attended which seems correlated to student academic success and the level of self-efficacy the student displayed.

Referring to Tables 5 and 7, when examining Panorama Student Success Survey data and student academic performance, High School 2 outperforms the other two high schools overall in self-efficacy and student achievement. Learning more about why the phenomena was observed in the limited data and how expanding on these data could benefit both student academic success and self-efficacy at the high school level should be

further explored. This could also be used to determine what structures may be beneficial for middle school and adolescent development. Future research efforts in developing student voice should survey the types of instructional strategies used at each high school that could have led to overall higher levels of self-efficacy.

Research Questions 2 and 3 asked, What is the impact of developing student voice through a PBL instructional model on parent (2)/teacher (3) perception of student achievement? When considering the difference in parent and teacher perception of self-efficacy and student success, in which parent perception indicated 100% favorable that students demonstrated self-efficacy, while teachers were neutral to student-demonstrated self-efficacy, a few things should be noted. Although it is not surprising that parents ranked student self-efficacy higher, an indicator for school improvement and the multi-tiered system of support belief survey is that teachers believe their students can be academically successful by meeting proficiency in grade-level standards (NCDPI, 2019). This information directly relates not only to areas for school improvement but also the culture of the school. This same data set could be used to consider further research of parent understanding of student academic performance. Providing parents with a similar level of student performance understanding could ensure strong parent-student-teacher relationships and secure a more supportive and whole-child approach to learning.

Summary for Implications of Practice

The collected data implicated several different things that can support the practice and development of student voice. Within the interviews, relationships were key to developing student voice. These relationships included parent-student-teacher structures. The parents who were interviewed expressed trust in the teachers and supported teacher

feedback, which led to real-world experiences that allowed self-awareness or self-assessment for student development; and together, parents and teachers provided the support and guidance for a child to learn how to deal with whatever failure or risk they encountered. The implications for this in a school or district include the following:

- Professional development in PBL—this instructional strategy naturally allows for the simulated situations that lead to self-awareness and self-assessment.
- Professional development in student voice—building capacity in all staff on what student voice is and how to support the development of it, and why it matters is an important topic for discussion for school improvement.
- Family engagement and education—understanding the steps of adolescent development is key to supporting a whole-child approach to education.

Understanding that adolescence is the time and place in which students need to acquire the skills they will need to be successful. Engaging families will lead to open communication, trust, and a broader understanding of student skills for both teachers and parents.

- Develop strong relationships—relationships build into partnerships that can explore how to personalize learning for the student, ensuring growth and relevant feedback. Students who have strong relationships with their teachers will accept both positive and negative feedback for continued development.
- Develop teacher beliefs that all students can and will learn and that learning is a direct reflection of their teaching. Schmid (2018) found these beliefs directly correlated to higher levels of academic success. These beliefs were not indicated in teacher perception surveys within this study.

The biggest implication from this study is the importance of relationships in developing student voice. These relationships can lead to the exposure and support of transformative learning experiences in middle school for developing adolescents. Relationships was the most mentioned keyword in the qualitative data interviews with parents and students. Relationships with teachers, peers, and administration were discussed 50 times within the six administered interviews. Although more data are needed, further research through case studies would further develop how educators can implement meaningful and productive student voice integration with the curriculum.

PBL professional development for teachers within the district is important because not only does it promote lifelong learning, but it helps students take ownership of their learning. By properly ensuring that all teachers have high-quality professional development to facilitate and create the types of learning experiences that are needed to apply knowledge and showcase a wider range of skills, learning is enhanced for students. Although the quantitative research did not show a difference in the self-efficacy demonstrated, student and parent accounts noted that the instructional framework of Treatment School A ensured conditions were right to develop self-efficacy skills and change student beliefs due to the encounters, support, and feedback they received while engaging in the problem-solving process.

Another recommendation is that student voice professional development be offered. While choice and voice are often discussed, the level of partnership, activism, and leadership in learning is rarely a level on the spectrum of student voice that is achieved. Instead, educators consult or allow expression which tends to just allow student voices to be heard. By supporting staff in understanding student voice and supporting its

development, our self-efficacy rates could increase throughout the district. This is seen in the quantitative data of self-efficacy rates collected from students and teachers.

Many elementary schools support family engagement in the childhood development process. We tend to do a poor job at the middle school level of working to help parents understand the development of adolescents. By offering developmental support, the school can develop trusting relationships with the families for the benefit of student learning and familial relationships to promote strong school-home connections. This recommendation is taken from the quantitative data that all students demonstrate high self-efficacy within parent perspectives and interviews from the qualitative data collection that indicated there were already established relationships with the teacher and parent that allowed for feedback and constructive criticism with student learning and skill development in mind.

The partnership between school and home builds upon the final recommendation which is a key piece of the multi-tiered system of support and school improvement process, ensuring that all teachers believe children can and will learn. Ensuring this belief is a critical part of student success in any educational setting. This recommendation is made based on the neutrality of teacher answers in the quantitative data collection piece.

Conclusion

The first purpose of this study was to relate the impact of the development of student voice in middle school to the perception of achievement, measured by self-efficacy. The limited amount of data showed this was inconclusive. The student, parent, and teacher surveys had no correlating trend to how successful a student was in school. Quaglia and Corso (2014) stated, “when students believe their voices matter, they are

more likely to be invested and engage in their schools” (p. 2). Student voices are more than just the interactions of the day to day, and the countless surveys that are used to gather information for a wide variety of reasons are often “dismissed merely as student thoughts” (Quaglia & Corso, 2014, p. 3). Instead, similar to what was noted by all interview participants, meaningful and purposeful relationships between educators and students are where student voice takes off. All people have a desire to be heard or noticed, and when educators show that they consider student perspectives and offer partnership in finding solutions, meaningful work and personal growth can be accomplished. There is still much to be done in the field of developing student voice and understanding its impact. The qualitative research data collected did show that teacher-student relationships are more than just a transactional event; they are a sustained process to build trust and partnership.

The second purpose of this study was to explore how the Transformative Learning Theory affects developing adolescents through the use of student voice in a PBL model. It was suggested through the limited number of interviews conducted that there is evidence that implies the Transformative Learning Theory affects adolescent developmental learning, and the process is a factor in developing self-efficacy. The literature on adolescent development and the development of identity suggests that students in the middle school age range begin to experiment to gain ideas about themselves and the world around them (Erikson, 1959). The result of how Transformative Learning Theory can affect the behavior and development of self-efficacy in adolescents is based on limited data and should be considered for additional research.

The limitations of the study severely decreased the amount of participation, and

the delay in the Institutional Review Board process made an already aggressive 3-month data collection hindered and time constrained to a little more than 1 month. Other factors inhibited the recruitment of students, parents, and teachers than just the restrictive time period of a month, such as the timing within the school year as well as the COVID-19 protocols and school year modifications. Due to these limitations, the study was not as originally planned, instead using district-collected student data from the Panorama Student Success Survey questions and changing the parent focus groups to interviews only. The lack of willing teacher participants to be involved in a focus group during the last month of school ultimately left out the voice of high school teachers.

Overall, the quantitative data supported the null hypothesis that the development of student voice through PBL did not have an impact on student, parent, or teacher perceptions of self-efficacy. The qualitative data supported a deeper understanding of the role transformative learning plays in adolescent development, but the data did not have the depth or breadth to support or disprove the hypothesis, rendering the study inconclusive. The connections between student voice and self-efficacy should continue to be explored to ensure postsecondary student success.

References

- ACT. (2009). *The forgotten middle: Ensuring that all students are on target for college and career readiness before high school*.
<https://www.act.org/content/dam/act/unsecured/documents/ForgottenMiddle.pdf>
- ACT. (2016). *National curriculum survey 2016*.
<http://www.act.org/content/act/en/research/reports/act-publications/national-curriculum-survey-2016.html>
- Al-Balushi, S. M., & Al-Aamri, S. S. (2014). The effect of environmental science projects on students' environmental knowledge and science attitudes. *International Research in Geographical & Environmental Education*, 23, 213–227.
- American Institutes for Research. (2012). *College and career readiness*.
<https://www.air.org/topic/education/college-and-career-readiness>
- Anderman, E., & Young, A. (1994). Motivation and strategy use in science: Individual differences and classroom effects. *Journal of Research in Science Teaching*, 31(8), 811-831.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480.
- Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child and Adolescent Development*, 2003(100), 63–76.

- Badara, I. (2011). *Student-centered teaching in large introductory science courses*.
https://trace.tennessee.edu/cgi/viewcontent.cgi?article=2084&context=utk_graddi
 ss
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.
 Sanford University. *Psychological Review*, 84(52), 192-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*.
 Prentice-Hall.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning.
Educational Psychologist, 28(2), 117-148.
http://dx.doi.org/10.1207/s15326985ep2802_3
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W H Freeman/Times Books/
 Henry Holt & Co.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of
 Psychology*, 52(1), 1-26.
- Bandura, A. (2008). *An agentic perspective on positive psychology*.
<https://www.uky.edu/~eushe2/Bandura/Bandura2008PP.pdf>
- Beaudoin, N. (2005). *Elevating student voice: How to enhance participation, citizenship,
 and leadership*. Eye of Education.
- Benner, M., Brown, C., & Jeffery, A. (2019). *Elevating student voice in schools*. Center
 for American Progress. <https://www.americanprogress.org/issues/education-k-12/reports/2019/08/14/473197/elevating-student-voice-education/>

- Blakemore, S.-J. (2012). Development of the social brain in adolescence. *Journal of the Royal Society of Medicine*, 105(3), 111-116.
<https://doi.org/10.1258/jrsm.2011.110221>
- Boss, S. (2011, September 20). Project-based learning: A short history.
<https://www.edutopia.org/project-based-learning-history>
- Boss, S., & Larmer, J. (2018). *Project-based teaching: How to create rigorous & engaging learning experiences*. Buck Institute for Education & ASCD.
- Boyd, B. L. (2009). Using a case study to develop the transformational teaching theory. *Journal of Leadership Education*, 7(3), 50-59.
- Boyd, R. D. (1989). Facilitating personal transformation in small groups, Part I. *Small Group Behavior*, 20(4), 459-474.
- Boyd, R. D. (1991). *Personal transformation in small groups: A Jungian perspective*. Routledge.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
<https://doi.org/10.1191/1478088706qp063oa>
- Bridgeland, J. M., Diulio, J. J., Karen, B., & Morison. (2006). *The silent epidemic perspectives of high school dropouts: A report by civic enterprises in association with Peter D. Hart Research Associates for the Bill & Melinda Gates Foundation*.
<https://docs.gatesfoundation.org/documents/thesilentepidemic3-06final.pdf>
- Brock, S., & Abel, A. L. (2012). Creating a learning climate for the 21st century. *Transformative Dialogues: Teaching and Learning Journal*, 5(3), 1-16.

- Brookfield, S. (2006). *The skillful teacher: On trust, technique and responsiveness in the classroom* (2nd ed.): Jossey-Bass.
- Brookfield, S. (2013). *Powerful techniques for teaching adults: The essence of powerful teaching*. Jossey-Bass, a Wiley Imprint.
- Brown, D., & Knowles, T. (2007). *What every middle school teacher should know* (2nd ed.). Heinemann.
- Buck Institute for Education. (2018). *A framework for high quality project based learning*. <https://hqpbl.org/wp-content/uploads/2018/03/FrameworkforHQPBL.pdf>
- Burriss, K., & Snead, D. (2017). *Middle school students' perceptions regarding the motivation and effectiveness of homework*.
<https://files.eric.ed.gov/fulltext/EJ1165640.pdf>
- Busteed, B. (2019, March 29). Why aren't graduates ready for work? They're the least working generation in U.S. history. *Forbes*.
<https://www.forbes.com/sites/brandonbusteed/2019/03/29/why-arent-graduates-ready-for-work-theyre-the-least-working-generation-in-us-history/?sh=6174c2cd5e58>
- Calderon, V. J. (2017, June 15). *Gallup blog: Why schools should inspire students to do what they do best*. Gallup. <https://news.gallup.com/opinion/gallup/212132/why-schools-inspire-students-best.aspx>

- Camp, M. (2011). *The power of teacher-student relationships in student success* [Doctoral dissertation, University of Missouri-Kansas City. Kansas-City, Missouri].
<https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/11358/CampPowTeaStu.pdf?sequence=1>
- Chatlani, S. (2016). *A closer look at college and career readiness*. K-12 Dive.
<https://www.k12dive.com/news/a-closer-look-at-college-and-career-readiness/421069/#:~:text=The%20standards%20were%20developed%20in,succe ss%20in%20college%20and%20beyond>
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4(1), 62-83.
- Cheng, R. W., Lam, S., & Chan, C. (2008). When high achievers and low achievers work in the same group: The role of group heterogeneity and processes in project-based learning. *British Journal of Educational Psychology*, 78(1), 205–221.
- Chowdury, M. (2019, April 9). *4 Ways to improve and increase self-efficacy*. PositivePsychology.com. <https://positivepsychology.com/3-ways-build-self-efficacy/#references>
- Christie, M., Carey, M., Robertson, A., & Grainger, P. (2015). Putting transformative learning theory into practice. *Australian Journal of Adult Learning*, 55(1), 9-30.
- Cook-Sather, A. (2002). Authorizing students' perspectives: Toward trust, dialogue, and change in education. *Educational Researcher*, 31(4) 3-14.

- Council, J. (2018). *The effects of project-based learning and motivation on students with disabilities*. [Doctoral dissertation. Nova Southeastern University].
https://nsuworks.nova.edu/fse_etd/155
- Cranton, P. (2002, Spring). Teaching for transformation. In J. M. Ross-Gordon (Ed.), *New directions for adult and continuing education: No. 93. Contemporary viewpoints on teaching adults effectively* (pp. 63-71). Jossey-Bass.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Sage.
- Creswell, J. W. (2006). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.
- Creswell, J. W., & Plano, C. V. L. (2011). *Designing and conducting mixed methods research*. SAGE Publications.
- Croninger, R. G., & Lee, V. E. (2001). Social capital and dropping out of high school: Benefits to at-risk students of teachers' support and guidance. *Teachers College Record*, 103(4), 548–581. <https://doi.org/10.1111/0161-4681.00127>
- Crossouard, B. (2012). Absent presences: The recognition of social class and gender dimensions within peer assessment interactions. *British Educational Research Journal*, 38(1), 731–748.
- Curtis, D. (2002, September). *The power of projects: Educational leadership*. Ascd.org.
<http://www.ascd.org/publications/educational-leadership/sept02/vol60/num01/The-Power-of-Projects.aspx>

- Dahl, R. E. (2016). The developmental neuroscience of adolescence: Revisiting, refining, and extending seminal models. *Developmental Cognitive Neuroscience, 17*, 101–102.
- Davis, M. R. (2018, November 7). *Raising student “voice and choice” is the mantra. But is it a good idea?* Education Week. <https://www.edweek.org/technology/raising-student-voice-and-choice-is-the-mantra-but-is-it-a-good-idea/2018/11>
- De Angelis, R. (2020). Social, transformative and sustainable learning: A study of a Jamaican school and community. *Environmental Education Research, 26*(11), 1676-1677.
<https://www.tandfonline.com/doi/full/10.1080/13504622.2020.1789561>
- Dhanapati, S. (2016). Explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research, 4*(7), 570-577.
https://www.researchgate.net/publication/316546967_Explanatory_Sequential_Mixed_Method_Design_as_the_Third_Research_Community_of_Knowledge_Claim
- Dirkx, J. (1997). Nurturing soul in adult learning. *New Directions for Adult & Continuing Education, 1997*(74), 79-88.
- Dirkx, J. M. (1998). Transformative learning theory in the practice of adult education: An overview. *PAACE Journal of Lifelong Learning, 7*, 1-14.
- Dirkx, J. (2000). *Transformative learning and the journey of individuation* (ERIC Digest No. 223; ED 448305). ERIC Clearinghouse on Adult, Career, & Vocational Education.

- Dirkx, J. M., Mezirow, J., & Cranton, P. (2006). Musings and reflections on the meaning, context, and process of transformative learning: A dialogue between John Dirkx, M. and Jack Mezirow. *Journal of Transformative Education*, 4(2), 123-139. <https://doi.org/10.1177/1541344606287503>
- Dizon-Ross, R. (2019). Parents' beliefs about their children's academic ability: Implications for educational investments. *American Economic Review*, 109(8), 2728-2765. <https://doi.org/10.1257/aer.20171172>
- Dobson, D. (2008). *Transformative teaching: Promoting transformation through literature, the arts, and Jungian psychology*. Sense Publishers.
- Dunham, J. (2016, April 12). *The dissertation: Chapter breakdown*. Writer's Exchange. <https://wex.antioch.edu/2016/04/12/the-dissertation-chapter>
- Dweck, C. (2015, September 22). *Carol Dweck revisits the "growth mindset."* Education Week. <https://bit.ly/39uvxW7>
- Elias, M. J. (2010, November 1). School climate that promotes student voice. *Principal Leadership*, 11(1), 22-27. <https://eric.ed.gov/?id=EJ916284>
- Erikson, E. H. (1959). *Identity and the life cycle: Selected papers*. International Universities Press.
- Ewing Marion Kauffman Foundation. (2019). *Vision of the future*. Author. https://www.kauffman.org/wp-content/uploads/2019/09/Visions-of-the-Future_v3.pdf
- Fencl, H., & Scheel, K. (2005). Engaging students: an examination of the effects of teaching strategies on self-efficacy and course climate in a nonmajors physics course. *Journal of College Science Teaching*, 35(1), 20-24. <http://www.jstor.org/stable/42992548>

- Fielding, M. (2001). Students as radical agents of change. *Journal of Educational Change*, 2(2), 123-141. <https://doi.org/10.1023/A:1017949213447>
- Fletcher, A. (2015). *Why student voice? A research summary*. SoundOut Project. <https://soundout.org/why-student-voice-a-research-summary/>
- Furger, R. (2008, December 4). *How to end the dropout crisis: Ten strategies for student retention*. Edutopia; George Lucas Educational Foundation. <https://www.edutopia.org/student-dropout-retention-strategies>
- Garrison, C., & Ehringhaus, M. (2014). *Formative and summative assessments in the classroom*. Association for Middle Level Education. <https://www.amle.org/BrowsebyTopic/WhatsNew/WNDet/TabId/270/ArtMID/888/ArticleID/286/Formative-and-Summative-Assessments-in-the-Classroom.aspx>
- Giedd, J. N., Blumenthal, J., Jeffries, N. O., Castellanos, F. X., Liu, H., Zijdenbos, A., Paus, T., Evans, A. C., & Rapoport, J. L. (1999). Brain development during childhood and adolescence: A longitudinal MRI study. *Nature Neuroscience*, 2(10), 861–863. <https://doi.org/10.1038/13158>
- The Glossary of Education Reform. (2014). *Voice*. <https://www.edglossary.org/voice/>
- Habermas, J. (1984). *The theory of communicative action*. Beacon Press.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Helle, L., Tynjälä, P., & Olkinuora, E. (2006). Project-based learning in post-secondary education: Theory, practice, and rubber slingshots. *Higher Education*, 51, 287–314.

- Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist*, 42, 99–107.
- Hoggan, C., & Kloubert, T. (2020). Transformative learning in theory and practice. *Adult Education Quarterly*, 70(3). <https://doi.org/10.1177/0741713620918510>
- Homan, C. A. (2017). *Honduran cloud forests and coral reefs: exploring the process of transformative learning in adolescents* [Doctoral dissertation, Royal Roads University (Canada)]. ProQuest Dissertations Publishing.
- Hunt Institute. (2015). Report from the 2015 Holhouser’s legislative retreat. http://www.hunt-institute.org/wp-content/uploads/2015/04/Post-HLR2015_Publication_final_for_web.pdf
- Jerald, C. (2006). *School culture: “The hidden curriculum.”* The Center for Comprehensive School Reform and Improvement. <https://files.eric.ed.gov/fulltext/ED495013.pdf>
- Jinks, J., & Morgan, V. (1999). Children's perceived academic self-efficacy: An inventory scale. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 72(4), 224-230. <https://doi.org/10.1080/00098659909599398>
- Jung, C. G. (1921). *Psychological types. The collected works of C. G. Jung* (Vol. 6). Princeton University Press.
- Keating, D. P. (2004). Cognitive and brain development. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 45–84). John Wiley & Sons Inc.
- Kellough, R. D., & Kellough, N. G. (2008). *Teaching young adolescents: Methods and resources for middle grades teaching* (5th ed.). Pearson Merrill Prentice Hall.

- Kerr, S. (2014). *Personal shift: The potential for transformative learning in youth through international service education programs* [Master's thesis. Royal Roads University].
https://viurrspace.ca/bitstream/handle/10170/748/kerr_susan.pdf?isAllowed=y&sequence=
- Kingston, S. (2018). Project based learning & student achievement: What does the research tell us? *PBL Evidence Matters*, 1(1), 1–11.
<https://files.eric.ed.gov/fulltext/ED590832.pdf>
- Klein, A. (2019, September 25). *Teens feel ready for college, but not so much for work*. Education Week. <https://www.edweek.org/teaching-learning/teens-feel-ready-for-college-but-not-so-much-for-work/2019/09>
- Kokkos, A. (2007). Introduction. In J. Mezirow, and Associates. *Transformative learning* (pp. 43-71, A. Kokkos, Ed. - G. Koulaouzidis, Trans.). Metaxmio.
- Kovalyova, Y., Soboleva, A., Kerimkulov, A. (2016). *Project based learning in teaching communication skills in English as a foreign language to engineering students*. National Research Tomsk Polytechnic University. Tomsk Russia.
<http://dx.doi.org/10.3991/ijet.v11i04.5416>
- Landon, K. (2019). *Student perceptions of learning in the 21st century: An evaluation of the 4Cs* (Publication No. 13886484) [Doctoral dissertation, Notre Dame of Maryland University]. ProQuest Central; ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection.
<https://www.proquest.com/openview/01ce16d243a11cc70eae046186585af8/1.pdf?pq-origsite=gscholar&cbl=18750&diss=y>

- Larmer, J., Mergendoller, J., & Boss, S. (2015). *Setting the standard for project-based learning*. ASCD & BIE.
- Larson, K. T. (2017). *Adolescents' self-described transformations and their alignment with transformative learning theory* [Doctoral dissertation, University of North Texas]. ProQuest Central; ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection.
- Lattimer, H., & Riordan, R. (2011) Project-based learning engages students in meaningful work. *Middle School Journal*, 43(2), 18-23.
<https://doi.org/10.1080/00940771.2011.11461797>
- Li, J. (2012). *Cultural foundations of learning*. Cambridge University Press.
<https://doi.org/10.1017/CBO9781139028400>
- Lupoli, C. (2018). *Deepening student voice and empowerment*. ASCD. Teaching Resources. <https://inservice.ascd.org/deepening-student-voice-and-empowerment/>
- Manning, M. L. (2002). *Developmentally appropriate middle level schools* (2nd ed.). Association for Childhood Education International.
- Margolis, H., & McCabe, P. (2006). Improving self-efficacy and motivation: What to do, what to say. *Intervention in School and Clinic*, 41(4), 218-227.
- Mergendoller, J. (2016). *Research brief: What can we learn from John Hattie about project-based teaching? Part 1, 2, 3 & 4*. PBLWorks.
<https://www.pblworks.org/blog/research-brief-what-can-we-learn-john-hattie-about-project-based-teaching-part-1>
- Merriam, S. B. (2004). The role of cognitive development in Mezirow's transformational learning theory. *Adult Education Quarterly*, 55(1), 60–68.

- Mezirow, J. (1978). Perspective transformation. *Adult Education*, 28(1), 100–110.
- Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Education*, 32(1), 3–24. <https://doi.org/10.1177/074171368103200101>
- Mezirow, J. (1991). *Transformative dimensions of adult learning*. Jossey-Bass.
- Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly*, 46(3), 158–172.
- Mezirow, J. (2003). Transformative learning as discourse. Teachers College, Columbia University. *Journal of Transformative Education*, 1(1), 58–63.
<https://doi.org/10.1177/1541344603252172>
- Mezirow, J. (2007). Learning to think like an adult. Core principles of transformative learning theory. *Transformative Learning*, 1(1), 43–71.
- Mezirow, J. (2012). Learning to think like an adult: Core concepts of transformation theory. In E. Taylor, & P. Cranton (Eds), *The handbook of transformative learning: Theory, research and practice* (pp. 73-96). Jossey-Bass.
- Mezirow, J., & Associates. (Ed.). (2000). *Learning as transformation*. Jossey-Bass.
- Mezirow, J., & Taylor, E. W. (2009). *Transformative learning in practice: Insights from community, workplace, and higher education*. Jossey-Bass.
- Michelson, E. (1998). Remembering: The return of the body to experiential learning. *Studies in Continuing Education*, 20(2), 217-233.
- Michelson, E. (2018). The ethical knower: Rethinking our pedagogy in the age of Trump. *Adult Education Quarterly*, 69(2), 142–156.
<https://doi.org/10.1177/0741713619834626>

Mitra, D. (2003, January). *Student voice in school reform: Reframing student–teacher relationships*. ResearchGate.

https://www.researchgate.net/publication/267257271_Student_voice_in_school_reform_Reframing_student-teacher_relationships/stats

Moore, J. (2005). Is higher education ready for transformative learning? A question explored in the study of sustainability. *Journal of Transformative Education*, 3(1), 76-91. <https://doi.org/10.1177/1541344604270862>

National Academies of Science, Engineering, and Medicine. (2019). *The promise of adolescence: Realizing the opportunity for all youth*. The National Academies Press.

National Middle School Association. (2010). *This we believe: Keys to educating young adolescents*. Author.

National Research Council. (2000). *How people learn: Brain, mind, experience and school: Expanded edition*. The National Academies Press.

<https://doi.org/10.17226/9853>

The New Teacher Project. (2016). *Room to run*. Author. <https://tntp.org/room-to-run/>

Nichols, J. (2013, March 17). *7 Skills students will always need: Future-proofing school*.

TeachThought. <https://www.teachthought.com/the-future-of-learning/how-to-prepare-student-for-21st-century-survival/>

Nichols-Stock, B. (2016). *Secondary teachers and their quest to prepare college- and career-ready students through project-based learning in a small, rural high school district* (Order No. 10253741) [Doctoral dissertation, Drexel University]. ProQuest Central; ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection.

North Carolina Department of Public Instruction. (2018). *Dropout prevention and intervention*. <https://www.dpi.nc.gov/students-families/student-support/dropout-prevention-and-intervention>

North Carolina Department of Public Instruction. (2019). *NC MTSS implementation guide*. <https://www.livebinders.com/play/play?id=2052295>

North Carolina Department of Public Instruction. (2020). *K-12 standards, curriculum, and instruction*. <https://www.dpi.nc.gov/districts-schools/classroom-resources/k-12-standards-curriculum-and-instruction>

North Carolina Science, Mathematics, and Technology Education Center. (2013). *Strategies that engage minds empowering North Carolina's economic future 2013: NC STEM scorecard overview*. <http://ftpcontent5.worldnow.com/wncn/pdf/ncstem.pdf>

Nunan, D. (2001). *Second language teaching and learning*. House Teacher Development.

Panorama Education. (2021). *Panorama student survey*. Panorama Education. <https://go.panoramaed.com/thanks/download-student-survey?submissionGuid=2dc7a352-d8db-401c-b5a4-71778458a6ff>

Parks, S. D. (2011). *Big questions, worthy dreams: Mentoring emerging adults in their search for meaning, purpose, and faith*. Jossey-Bass.

- PBLWorks. (2021). *What is PBL?* <https://www.pblworks.org/what-is-pbl>
- Peters, M. (2015). Socrates and Confucius: The cultural foundations and ethics of learning. *Educational Philosophy and Theory*, 47(5), 423-427.
<https://doi.org/10.1080/00131857.2014.930232>
- Piaget, J. (1926). *The language and thought of the child*. Harcourt, Brace.
- Piaget, J. (1960). *The child's conception of the world*. Humanities Press.
- Piaget J. (1976). *Piaget and his school. Springer study edition*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-46323-5_2
- Plotkin, B. (2003). *Soulcraft: Crossing into the mysteries of nature and psyche*. New World Library.
- Pyle, E. K. (2017). *The effects of subject presentation types in problem based learning (PBL) problems on student motivation: A PBL implementation in speech-language pathology* (Order No. 10682684) [Doctoral dissertation, University of North Dakota]. ProQuest Central; ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection.
- Quaglia, R. J., & Corso, M. (2014). *Student voice: The instrument of change*. Corwin. A Sage Company.
- Quaglia Institute for School Voice and Aspirations. (2016). School voice report 2016.
https://quagliainstitute.org/dmsView/School_Voice_Report_2016
- Quaglia Institute for Student Aspirations. (2013). My voice national student report (Grades 6-12) 2013. Portland, ME.
https://quagliainstitute.org/dmsView/MyVoice_NatReport2013
- Rimm-Kaufman, S. & Jodl, J. (2020). Educating the whole learner. *ASCD*, 77(8), 28-34.

Robinson, K. (2010). Bring on the learning revolution! TED Talk [YouTube Video].

YouTube. https://www.youtube.com/watch?v=r9LeIXa3U_I

Saucedo, A. (2016). *The key for a successful relationship: Aligned values*. Medium.

<https://medium.com/@AxSaucedo/the-key-a-successful-relationship-aligned-values-1b826e4931b5>

Scales, P. C. (2010). Characteristics of young adolescents. In National Middle School Association, *This we believe: Keys to educating young adolescents* (pp. 63-62). National Middle School Association.

Schmid, R. (2018). Pockets of excellence: Teacher beliefs and behaviors that lead high student achievement at low achieving schools. *SAGE Open*, 8(3), 21-34.

<https://doi.org/10.1177/2158244018797238>

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25(1), 1-65.

Seibert, S., Kraimer, M., & Crant, M. (2006). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, 54(4), 845–874. <https://doi.org/10.1111/j.1744-6570.2001.tb00234.x>

Sikandar, A. (2015). John Dewey and his philosophy of education. *Journal of Education and Educational Development*, 2(2), 191–201.

https://www.researchgate.net/publication/314967156_John_Dewey_and_His_Philosophy_of_Education

Slavich, G. (2005). Transformational teaching. *E-xcellence in Teaching*, 5(1).

http://www.georgeslavich.com/Transformational_Teaching.html

- Smith, W., Butler-Kisber, L., LaRoque, L., Portelli, J., Shields, C., Sparkes, C., & Vibert, A. (2001). *Student engagement in learning and school life: National project report*. Ed-Lex, Faculty of Law, McGill University.
- Southern Regional Education Board. (2015). *North Carolina high school and postsecondary alignment*. Author. <https://www.sreb.org/north-carolina-readiness-policies>
- St. John, K. & Briel, L. (2017). *Student voice: A growing movement within education that benefits students and teachers*.
<https://centerontransition.org/publications/download.cfm?id=61>
- Strauss, V. (2013, February 15). *A 15-year-old student's ed reform plan: Self-directed learning*. The Washington Post. <https://www.washingtonpost.com/news/answer-sheet/wp/2013/02/13/a-15-year-old-students-ed-reform-plan-self-directed-learning/?arc404=true>
- Strauss, V. (2020, November 17). *Students to Biden: Include us in selecting DeVos's successor and in education policy*. The Washington Post.
<https://www.washingtonpost.com/education/2020/11/17/students-biden-include-us-selecting-devoss-successor-education-policy/>
- Tan, C. (2015). Beyond rote-memorisation: Confucius' concept of thinking. *Educational Philosophy and Theory*, 47(5), 428-439.
<https://doi.org/10.1080/00131857.2013.879693>
- Taylor, E. W. (1994). Intercultural competency: A transformative learning process. *Adult Education Quarterly*, 44(3), 154-174.

- Taylor, E. W. (1997). Building upon the theoretical debate: A critical review of the empirical studies of Mezirow's transformative learning theory. *Adult Education Quarterly*, 48(1), 34.
- Taylor, E. W. (2006). *Teaching for change: Fostering transformative learning in the classroom*. Jossey-Bass Inc Pub.
- Taylor, E. W. (2009). Fostering transformative learning. In J. Mezirow, & E. W. Taylor (Eds.), *Transformative learning in practice: Insights from community, workplace, and higher education* (pp. 3-17). Jossey-Bass.
- Teddlie, A., & Tashakkari, C. (2009). *Foundations of mixed methods research: Integrating qualitative and quantitative approaches in social and behavioral sciences*. Sage Publication.
- Tisdell, E. J. (2012). Themes and variations of transformational learning: Interdisciplinary perspectives on forms that transform. *The Handbook of Transformative Learning: Theory, Research, and Practice*, 21-36.
- Tomlinson, C. (2017). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). Association for Supervision and Curriculum Development.
- UNICEF. (2011). *The state of the world's children 2011: Adolescence an age of opportunity*. <https://data.unicef.org/resources/the-state-of-the-worlds-children-2011-adolescents-an-age-of-opportunity/>
- U.S. Department of Education. (2010). *Progress in our schools*. <https://www.ed.gov/k-12reforms>
- U.S. Department of Education. (2014). *Career and college readiness*. <https://www.ed.gov/career-college>

- U.S. Department of Education. (2017). *K-12 reforms*. <https://www.ed.gov/k-12reforms>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Vygotsky, L. S. (1986). *Thought and language*. MIT Press.
- Wagner, T., & Compton, R. A. (2012). *Creating innovators: The making of young people who will change the world*. Scribner.
- Weber, B. A. (2016). *The effectiveness of participation in a project-based learning project on at-risk student self-efficacy* (Order No. 10244182) [Doctoral dissertation, Portland State University]. ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection.
- Wen, L. (2019). Correlation between self-efficacy and college career planning. *Frontiers in Educational Research*, 2, 54-60. <https://doi.org/10.25236/FER.032008>
- Whitaker, S. C. (2019). *Middle school teachers' perceptions of project based learning as it impacts first year implementation* [Doctoral dissertation, University of South Carolina]. <https://scholarcommons.sc.edu/etd/5183>
- Whyte, D. (1994). *The heart aroused: Poetry and the preservation of the soul in corporate America*. Currency Doubleday.
- Wiggins, G. (2014). *The Point of school isn't to become good at school*. TeachThought. <https://www.teachthought.com/learning/transfer-is-the-point-of-education-2/>
- Williams, A. (2013). *Promoting transformative learning within adolescent students through the use of environment based education*. Queen's University. <https://qspace.library.queensu.ca/bitstream/handle/1974/8035/Andy%20Williams%20-%20MEd%20Project.pdf?sequence=1%26isAllowed=y>

- Wilson, D., & Conyers, M. (2020). *Developing growth mindsets. Principles and practices for maximizing students' potential*. ASCD.
- Wilson Jr., F. E. (2011). *A case study: The effects of stakeholder perceptions and perceived student self-efficacy on the transition from middle school to high school* [Doctoral dissertation, Gardner-Webb University]. Education Dissertations and Projects. https://digitalcommons.gardner-webb.edu/education_etd/88
- Wolf, G. (2007, November 13). *What is self-efficacy?* Quantified Self.
<https://quantifiedself.com/blog/what-is-selfefficacy/>
- Wurdinger, S. D., & Carlson, J. A. (2010). *Teaching for experiential learning: Five approaches that work*. Rowman & Littlefield.

Appendix A

New General Self-Efficacy Survey—Parents/Teachers

This survey accompanies a measure in the SPARQTools.org [Measuring Mobility toolkit](#), which provides practitioners curated instruments for assessing mobility from poverty and tools for selecting the most appropriate measures for their programs. To get a copy of this document in your preferred format, go to "File" and then "Download as" in the toolbar menu.

Age: Adult

Duration: < 3 minutes

Reading Level: 6th-8th grade

Number of items: 8

Answer Format: 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

Scoring:

To calculate the total score for each participant, take the average rating of the items by adding respondents' answers to each item and dividing this sum by the total number of items (8).

Instructions: Participants are told that (a) general self-efficacy relates to "one's estimate of one's overall ability to perform successfully in a wide variety of achievement situations, or to how confident one is that she or he can perform effectively across different tasks and situations," and (b) self-esteem relates to "the overall affective evaluation of one's own worth, value, or importance, or to how one feels about oneself as a person."

Questions:

1. My student will be able to achieve most of the goals that they set for myself.
2. When facing difficult tasks, my student is certain that they will accomplish them.
3. In general, my student thinks that they can obtain outcomes that are important to them.
4. My student believes they can succeed at most any endeavor to which they set their mind.
5. My student will be able to successfully overcome many challenges.
6. My student is confident that they can perform effectively on many different tasks.
7. Compared to other people, my student can do most tasks very well.
8. Even when things are tough, my student can perform quite well.

Appendix B

Panorama Student Success Survey

Classroom Rigorous Expectations

How much students feel that a specific teacher holds them to high expectations around effort, understanding, persistence, and performance in class.

Grades 6-12

Question	Response Options				
How often does this teacher make you explain your answers?	Almost never	Once in a while	Sometimes	Frequently	Almost always
When you feel like giving up on a difficult task, how likely is it that this teacher will make you keep trying?	Not at all likely	Slightly likely	Somewhat likely	Quite likely	Extremely likely
How much does this teacher encourage you to do your best?	Does not encourage me at all	Encourages me a little	Encourages me some	Encourages me quite a bit	Encourages me a tremendous amount
How often does this teacher take time to make sure you understand the material?	Almost never	Once in a while	Sometimes	Frequently	Almost always
Overall, how high are this teacher's expectations of you?	Not high at all	Slightly high	Somewhat high	Quite high	Extremely high

Classroom Learning Strategies

How well students deliberately use strategies to manage their own learning processes in class.

Grades 6-12

Question	Response Options				
When you get stuck while learning something new in this class, how likely are you to try a different strategy?	Not at all likely	Slightly likely	Somewhat likely	Quite likely	Extremely likely
How confident are you that you can choose an effective strategy to get your work for this class done well?	Not at all confident	Slightly confident	Somewhat confident	Quite confident	Extremely confident
Before you start on a challenging project in [SUBJECT] class, how often do you think about the best way to approach the project?	Almost never	Once in a while	Sometimes	Frequently	Almost always
Overall, how well do your learning strategies help you learn [SUBJECT] more effectively?	Not well at all	Slightly well	Somewhat well	Quite well	Extremely well
In [SUBJECT] class, how often do you use strategies to learn more effectively?	Almost never	Once in a while	Sometimes	Frequently	Almost always

Classroom Mindset

Perceptions of whether students have the potential to change those factors that are central to their performance in class.

Grades 6-12

Question	Response Options				
Whether a person does well or poorly in [SUBJECT] may depend on a lot of different things. You may feel that some of these things are easier for you to change than others. In [SUBJECT], how possible is it for you to change:					
Being talented	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change
Liking the subject	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change
Your level of intelligence	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change
Putting forth a lot of effort	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change
Behaving well in class	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change
How easily you give up	Not at all possible to change	A little possible to change	Somewhat possible to change	Quite possible to change	Completely possible to change

Appendix C

Interview Questions—Students

Research Question	Theoretical Framework Topics	Interview Question
RQ1: What is the impact of developing student voice through a project-based learning instructional model on student self-perception of achievement?	Student Voice	Tell me about your experience at Treatment School A?
	Engagement	When did you first remember having a voice in school (give teacher feedback, express interest in learning something and then did, make choices in what and how I learned)?
	Adolescent Development	Did your peers from other schools have a similar experience?
RQ1: What is the impact of developing student voice through a project-based learning instructional model on student self-perception of achievement?	Instructional Practices-Project based learning	What learning experiences in middle school were most meaningful to you? Why?
	Engagement	
	Transformative Learning	
RQ1: What is the impact of developing student voice through a project-based learning instructional model on student self-perception of achievement?	Transformative Learning	Tell me about an experience that you can recall that you went into with one perspective (attitude, belief) but after the experience, had a different perspective (attitude, belief)?
	Self-Efficacy	
	Student Voice	
RQ1: What is the impact of developing student voice through a project-based learning instructional model on student self-perception of achievement?	Adolescent Development	How did your middle school experience prepare you for high school?
	Instructional Practices-Project based learning	Do you think that your peers were prepared at the same level?
RQ1: What is the impact of developing student voice through a project-based learning instructional model on student self-perception of achievement?	Self-Efficacy	If you encounter failure, what do you do?

Appendix D

Interview Questions—Parents

Research Question	Theoretical Framework	Interview Question
RQ2: What is the impact of developing student voice through a project-based learning instructional model on parent perception of student achievement?	Student Voice	When do you remember your student first having a voice in school (make choices in what and how they learned)?
	Engagement	
	Adolescent Development	
RQ2: What is the impact of developing student voice through a project-based learning instructional model on parent perception of student achievement?	Instructional Practices- Project based learning	What experiences in middle school were most meaningful to your student?
	Engagement	
	Transformative Learning	
RQ2: What is the impact of developing student voice through a project-based learning instructional model on parent perception of student achievement?	Transformative Learning	Tell me about an experience in middle school that you can recall that your student changed perspectives or ideas based on an experience or lesson?
	Self-Efficacy	
	Student Voice	
RQ2: What is the impact of developing student voice through a project-based learning instructional model on parent perception of student achievement?	Adolescent Development	How do you think your students' middle school experience prepared them for high school?
	Instructional Practices- Project based learning	