

CHILDREN TEACHING ADULTS:  
A CASE OF MIDDLE SCHOOL MATH INTERVENTION STUDENTS OVERCOMING  
BARRIERS TO TEACH UNIVERSITY STUDENTS

by

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## DEDICATION

*This dissertation is dedicated to my wife, Lizeth, and children. Thank you for providing me with constant inspiration and supporting me on this journey. Thank you to my parents, brothers, and sister. From a family of seven living in a studio apartment in Santa Ana, to where we are now, I think it says a lot about us as a family.*

*I consider this dissertation to be a challenge to the status quo, almost like throwing pebbles at a giant living system. In this work, I intended to give children the ability to throw their own rocks. Adults can't and won't change this system on their own; children must be elevated to an equal partnership.*

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# **CHILDREN TEACHING ADULTS: MIDDLE SCHOOL STUDENTS TEACHING UNIVERSITY STUDENTS**

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This qualitative case-study examined a workshop where academically or socially struggling middle school math intervention students taught university students. The theoretical framework included critical pedagogy and the instructional core to explore how both the adults and the children benefited when children performed the role of instructional leaders. Data collection included focus groups with the middle school students and university students, interviews with middle school administrators, a researcher journal, field notes, and a video recording. A qualitative content analysis was conducted, with the results interpreted in a thematic analysis. The findings of this study indicate that, when middle school students led instruction for university students, both groups received a host of academic and social benefits; however, the children had significant barriers they needed to overcome in order to participate in the workshop. The study concludes with implications for theory, practice, and recommendations for future research.

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## CHAPTER ONE: INTRODUCTION

Learning can be measured by more than numbers and letters, and education consists of more than passing information from the teacher to a student. Dewey (1893) stated, “Cease conceiving of education as mere preparation for later life and make it the full meaning of the present life” (p. 660). This powerful belief in the capacity of the learner defined one of the most important eras in American education. John Dewey was a lead architect in the Progressive Education Movement. He suggested that “All education proceeds by the participation of the individual in the social consciousness of the race” (Dewey, 1887, p. 77). This era of reform triggered changes that continue in a variety of manifestations and practices, albeit in different forms, using the same language of the Progressive period (Elmore, 2004). The concept of student-centered education based on the social and academic needs of the child first emerged in the 19<sup>th</sup> Century (Dewey, 1897). Today most educational practices stubbornly mirror the top-down hierarchical customs that were endemic before the Progressive Education Movement (Elmore, 2004).

Reforms from the 1940s and into the 1980s primarily focused on the teacher, the academic content, and the institutions to serve the student. Consequently, changes in curriculum, the introduction of technical education programs, the addition of kindergarten, and social reform of segregationist policies are all modeled as societal reforms from the social upheaval that began in the 1950s (Elmore, 2004). The 1980s ushered in a new period of reform spurred by political language that evoked a sense of crisis with 1983’s *a Nation at Risk* (Thomas, 2011). For the first-time, performance-based measures began to be used as a form of accountability, and the word *accountability* became a staple in educational reform language (Elmore 2004). Performance-based accountability continued to dominate reform discourse through the legislation of the No

Child Left Behind Act (NCLB) in 2001. NCLB was renamed and reformed as Every Student Succeeds Act (ESSA) and achieved full implementation in 2017-2018, but the same driving force of accountability has continued (Rubin, 2017). The initial reform policies targeted inclusion and equality; modern policies target accountability and equality.

A common theme underlying post-Progressive policies and reform in education is that students are the subject of their education, rather than co-investigators in their education. Freire (1970) first recognized education as a democratic exercise and as an experience not between a teacher and a student but between two learners who operate within their society. Although Dewey (1887) extolled the virtues of education regarding social participation, Freire (1970) identified hierarchy as the obstacle to a democratic education by describing the Banking Model of Education which treats students as passive consumers of information. In support of Freire's theory, Cohen (1988) later reiterated this issue in stating that teachers considered knowledge to be the information they gave their students and the ability of their students to recall this information. Elmore (2004) came to similar conclusions when he found that education has remained largely unchanged with teachers as the gatekeepers of knowledge and learning. Beattie (2012) went further than other researchers and exclaimed "students tend to be passive recipients of their education, assuming few-decision making roles. Uniformity and obedience are highly prized by adults" (p. 158). Thus, a long chain of researchers and thinkers spanning the 19<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup> Century lament the passive role of children in education.

### **Statement of the Problem**

Systemic hierarchies in education continually place children at the bottom of all structures. These systemic hierarchies include the social sphere with teachers, staff, and administrators, whom all maintain a form of dominion over children. The hierarchy in academic

curriculum content places standards and initiatives developed by specialists above the needs and experiences of children. Education tends to see the child as deficient, and the teacher or the education system is meant to remedy this deficiency (Keefer, 2017; Ulluci & Howard, 2015). The child in almost all settings is the recipient of knowledge, and exam scores measure student learning success. Given these cultural norms, reforms focus on helping children retain knowledge and improve test scores.

Ulluci and Howard (2015) indicated that a passive consumption model of education was particularly concerning for low income and minority students and discovered that disenfranchised students are recipients of education consisting of low-level tasks. They noted that this is a troublesome development because higher-income students prepare for college with tasks requiring higher levels of thinking. Minority students occupy the lowest rungs of educational hierarchies, and according to research are excluded from social and academic activities at higher rates (Howard, Flenbaugh, & Terry, 2012). Access to leadership experiences for children at different levels of the educational hierarchy in academics and social spheres is especially pressing for minority students as they continue to rank at the bottom of academic and social indicators (Howard & Navarro, 2016; Delgado & Stefancic, 2012).

### **Context of this Study**

The context of this study is in the collaboration of a predominantly low-socioeconomic and mostly minority middle school and a public state university in California. The middle school is in a neighborhood with the highest incidence of crime while the university is near the more affluent neighborhoods of the community. As of the 2016-2017 school year, 93.7% of students were considered socioeconomically disadvantaged with 10% proficient in mathematics and 18% proficient in English Language Arts (School Accountability Report Card, 2017).



According to administrative leaders at the middle school, over the last two years, the middle school experienced a high teacher turnover rate with most new teachers either not being reselected for their teaching position or voluntarily seeking a position elsewhere. With real and perceived behavior issues at the middle school site, there is a constant struggle to retain guest substitute teachers daily due to academic and social perceptions about the school in the community. For the 2017-2018 school year, the district school board formally announced an effort to improve the school site and increased monetary and personnel resources available to the school. In October of 2017, a partnership began in which students from the middle school hosted a workshop for university students. 18 middle school children facilitated the one-hour workshop for 16 university students. In April of 2018, a separate group of children from the middle school hosted a workshop within a course at the public university. The entire workshop was facilitated by the children and included 21 middle school children teaching 26 university students over a one-hour period within regular course hours. Children from the school also hosted the same workshop at two professional teacher development conferences within the city and outside of the county. By the year's end, over 30 children had participated in events where they taught adults, and over 90 children participated in events where children engaged in cross-age peer tutoring. Before this study, none of the activities where the children taught have been formally evaluated or documented.

### **Purpose of the Study**

This qualitative single-case study researches the interactions and reactions from a workshop where academically and socially struggling middle school students taught university students to determine how the participants benefited in the learning environment. The middle school students came from a low performing and underserved middle school, and the university

students include preservice and first-year in-service teachers at a public state university. Research documents that children and adults benefit from peer teaching across age levels; however, there are significant gaps in the literature regarding children teaching adults (Won, Ramirez, & Cumming 2010; Shenderovich, Thurston, & Miller, 2005; and Hattie, 2009). Even less empirical evidence is available in studies where children from socioeconomically disadvantaged backgrounds and low academic proficiency teach adults in formal settings. One reason for the lack of research stems from the lack of available settings in which the conditions required for marginalized children from an underperforming school might learn how to teach university students; low performing schools have trouble educating children and are an unlikely source of instructional knowledge for a university course.

### **Research Questions**

There is thorough research on peer-teaching as a successful practice across many settings (Hattie, 2009). The research questions for this study were designed to understand the benefits of all the participants involved when children teach adults in a structured setting. The participants involved in this qualitative single-case study were children, university students, and administrators. The children were the sources of the knowledge, the university students were in the process of becoming teachers or first year teachers, and the administrators served to facilitate the learning experience documented in the study. These three distinct roles served to give the perspective from different vantage points in a unique child-led instructional experience where there has been little to no research (Pope, Beal, Long, & McCammon, 2011).

The research questions for this study were:

1. How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and by the children themselves?

2. How do low-socioeconomic students perceive the benefits of teaching adults?
3. How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?
4. How do school administrators perceive the benefits of middle school students teaching university students?

Questions 1, 2, and 3 allude to the low-socioeconomic status of the child participants because the middle school is in one of the most impoverished neighborhoods in their city. The middle school is also the lowest achieving middle school in the city, making the population from the school an unlikely source for instructional leadership. Thus, the first three questions explore the dynamics occurring in the unique learning space between the groups involved in the instructional task: the students and the university students. Question 4 elicits a response from the administrative leadership at the middle school site because the leadership understands the social and academic challenges the students face. The administration has also been fundamental in facilitating the program that created the workshop where children teach adults at the university.

These questions contribute to the general knowledge in the research gap because the questions take the first step in understanding the benefits of having children teach adults in a formal setting. Pope, Beal, Long, and McCammon (2011) concluded that “middle school students have typically been silent partners in teacher preparation; their voices have been underrepresented” (p. 345). Thus, these questions give a voice to underserved children and act as a guide to understand how future research and learning opportunities can target students in traditionally silent roles.

### **Theoretical Framework**

A theoretical framework serves to guide and shape research to provide “explicit ideas for determining the data to collect and the strategies for analyzing the data” (Yin, 2013, p. 87). The framework guides the details in all aspects of this study including the research questions, data collection, results, and conclusions (Saldana, 2015). For this study, the theoretical framework includes critical pedagogy and the instructional core because both address student and teacher relationships through instruction. The concept of critical pedagogy describes a top-down hierarchy between students and teachers as oppressive and contradictory to a mutually benefitting education (Freire, 1970). The instructional core delineates a non-hierarchical model for learning including the teacher, student, and instructional task (City, Elmore, Fiarman, & Teital, 2014). Critical pedagogy addresses the student and teacher relationship from a social perspective, while the instructional core addresses the student and teacher relationship from an instructional perspective. Together, critical pedagogy and the instructional core create a model to understand the relationship roles of students and teachers in a learning environment.

### **Critical Pedagogy**

Critical pedagogy is not neatly defined as a single concept or practice but instead embodies the need for radical changes that challenge the status quo in educational settings (Giroux, 2007). Systemic leadership, organization, academic curriculum, and instruction can all potentially change the status quo. Some of the typical components of critical pedagogy concepts include problem-posing dialogue, development of curriculum, democratic teaching, social and policy critiques, student-centered teaching, student-generated themes for discussions, and student empowerment (Shor, 1992). A conceptual understanding of critical pedagogy applies to the relationships between a teacher and students, the relationships between teachers and

administration, and the relationship between education researchers and participants in all learning and social environments.

The theoretical underpinnings of critical pedagogy begin with the concept of *conscientization* which describes a free-thinking student (Freire, 1970). Even well-intentioned educators use a pedagogy that “dehumanize(s)” if the pedagogy is not based on mutual trust, reciprocal partnership, and critical thinking (p. 48). Furthermore, Freire (1970) described dehumanizing pedagogy as the “banking concept” in education where the student receives “deposits” of knowledge from the teacher (p. 45). According to Freire, when a teacher and student act as mutual co-learners, reconciliation creates authentic and democratic learning.

As critical pedagogy developed in education, it became tied to different agendas, and different pedagogies emerged (Ford, 2014). Notable critical pedagogy practitioner Shor (1992) attempted to re-center the core of critical pedagogy by asking how a critical education can create the conditions for students prepared to live in a democratic society. He connected the original spirit of conscientization from Freire (1970) to a contemporary reality for modern students through a replicable style of problem-posing educational pedagogy. Whereas Freire (1970) critiqued the conditions of his time to promote critical thinking in education, Shore (2007) backward mapped his intentions by positing the type of student that would thrive in a critical thinking education and theorized as to which conditions can foster this type of student. One author (Freire) believes the conditions and relationships will mold the student, and the second author (Shore) began to apply the theory in a formal public education setting.

Fals Borda (1995) extended the reach of critical pedagogy from purely instructional matters into the academy by identifying the inherent vertical hierarchy in research. The researcher observes, designs, concludes, recommends and theorizes; the students are observed,

their environment designed, their actions are assessed, recommendations are made regarding their lives, and theories are created to explain their current conditions (Fals Borda, 1995).

Whereas Freire (1970) first identified the teacher-student relationship as a dehumanizing relationship, Fals Borda (1995) first identified the researcher-participant relationships as a dehumanizing relationship. This observation prompted him to state that “science should not be necessarily a mystery nor a monopoly of experts and intellectuals” (pp. 16).

Do not impose your own ponderous scientific style for communicating results, but diffuse...what you have learned together with the people, in a manner that is wholly understandable and even literary and pleasant, for science should not be necessarily a mystery nor a monopoly of experts and intellectuals (pp. 16).

This statement indicates that research can empower participants and not use participants as passive observers, just as education should not consist of only depositing information into students. For this study, critical pedagogy necessarily creates a framework that promotes the participants as active agents of change towards more socially equitable learning environments through their actions in the study and their opinions and reflections based on the study.

### **The Instructional Core**

For teaching to occur, City, Elmore, Fiarman, and Teital (2014) state there must be a teacher, a student, and academic content. This triad creates the instructional core, and at the center of this core lies the instructional task, the desired learning activity. This relationship between the student, teacher, and academic content is intimately tied to the success of a learning task and prompted Elmore (2008) to theorize that improving a learning task must address all

three areas. Failure to improve all three areas in unison may alter a single aspect of the learning environment but will ultimately have no change in student learning.

Hawkins (1976) first noted that academic content was essential to the relationship between a student and a teacher because only the academic content makes it possible for the relationship to “join in outward projection” to create a “possible stable bond of communication, of shared concern” (p.57-58). Connecting academic content, a teacher, and student in a single model, Cohen and Ball (1999) asserted the three were in a fluid relationship because the student alone brings competencies that are essential to the learning process. Furthermore, this triad relationship has the potential to build the capacity of the teacher, the student, and the content through familiarity. When combined, the familiarity of the teacher and student relationship provides a shared experience that creates a platform from which all instruction begins (Cohen & Ball). In practice, this research supports the cultivation of relationships because personal knowledge of a student’s background allows a teacher to be more supportive, and a student who feels welcome is more likely to thrive.

### **Significance of the Research**

Children have a rich history of not only leadership with adults but also being change agents in American education and the society at large (Castro, 2011; Stanley 2018). The current literature does not address cross-age peer teaching between academically-struggling, low-socioeconomic students from the K-12 system to the university level. There is research of children teaching teachers and current programs of student-led staff development, but the research literature does not address academically and socially struggling children teaching adults (Chapman, Cahill, & Holdsworth, 2009; Bennett, 2005). In this instance, peer teaching is not a simple reversal of roles where the children are the depositors of knowledge, but an opportunity to

gain untapped knowledge from an underserved community that does not have the opportunity to share in the traditional adult learning process.

### **Definition of Terms**

The terms *at-risk*, *case study*, *critical pedagogy*, *instructional core*, *low-socioeconomic*, and *peer teaching* are postulated by established research vocabulary. The term *cross-age peer teaching* is an operational term for this study.

#### **At-risk**

The term *at-risk* in education denotes a student that is at risk of failure either academically or socially such as dropping out of school or being excluded from general education programs (Carson Baggett, & Andrzejewski, 2017).

#### **Case Study**

According to Yin (2013), “the classic case study consists of an in-depth inquiry into a specific and complex phenomenon, set within its real-world context” (p. 321). The case in this research is the workshop where middle school students taught adults. The participants in this study will be the middle school students, middle school administrators, and university students.

#### **Critical Pedagogy**

The term *critical pedagogy* is not neatly defined as a practice, but is generally recognized as practices that empower students and reject the status quo either through curriculum changes, student role changes, and student representation, among other practices (Giroux, 2007; Thomas-Brunn, 2014).

#### **Cross-Age Peer Teaching**

Cross-age peer teaching in this study is any form of peer teaching where the participants are more than two years in age apart.



## **Instructional Core**

The Instructional Core is the intersection of the content, the student, and the teacher to perform an instructional task (City, Elmore, Fiarman, & Teital, 2014).

## **Low-Socioeconomic**

Students in this study are classified as low-socioeconomic if “they are eligible for free or reduced lunch...or came from families that receive public aid” (Bowman, Destin, Carswell, & Svoboda, 2017, p. 72).

## **Peer Teaching**

Peer teaching is two students of similar age working one-to-one in short-term or long-term relationships (Hattie, 2006). In this study, students are considered peers if they are the same age or within two years of the same age.

## **Limitations and Delimitations**

### **Limitations**

Marshall and Rossman (2014) state, “limitations derive from the conceptual framework and the study’s design...and how its results can and cannot contribute to understanding” (p. 85). The framework consisting of Critical Pedagogy and the Instructional Core, embedded within a case study design limits most data to a single, unique, experience.

1. This case study does not show whether the experience leads to improved academic or social performances by the children in a general classroom setting.
2. The focus group interviews for the adult participants do not demonstrate whether the experience of learning from underserved students changes the perspective or influences the practices of the new or future teachers.

3. This qualitative single-case study documents experiences in an independent event that does not address the academic content of the learning experience. The case study focuses on the academic instruction of the content and the experiences derived from academic instruction.
4. The same flexibility of the case study genre that allows for the study of unique areas of research is also a weakness. Stake (2018) confirms “the skills for doing good case study research are not formally defined,” and the ability of a researcher to conduct case study research does not have any set benchmarks or skill-set scope (p. 22).

### **Delimitations**

This study is delimited to the work of students from an extremely underperforming low-socioeconomic middle school with university students.

1. The researcher is embedded as an active participant observer. The middle school children and university adults are both students to the researcher. The researcher is a fulltime middle school intervention specialist and part-time university lecturer. DeWalt and DeWalt (1998) wrote that “the degree of participation, the membership role, and the amount of emotional involvement that ethnographers bring to the field will have an important impact on the kinds of data collected and the sort of analysis that is possible” (p. 29). To limit the threat of bias, this case study focuses on how the adult and child participants perceived their interactions with each other (independent of the researcher). Only the focus groups and interviews were analyzed in a content analysis. Researcher field notes and journal entries were only used for creating memos. These memos were then used to expand on the findings, kept separately, and labeled as such in the findings.

The study focus was on the interactions between the middle school student participant and the university student participant within the workshop.

2. The inclusion of only children from this specific low performing school make it difficult to generalize the findings to the rest of the population. However, given the lack of literature in children teaching adults, and more specifically academically-struggling children from underserved communities teaching adults, this thinness of scope is necessary to begin generating questions for further research into instructional leadership opportunities from marginalized communities (Maruyama & Carey, 2014).
3. As a qualitative single-case study, this research will not generate new theories but will generate the necessary inquiry into original areas of study of children as instructional leaders of adults. For this case to generate theory, further cases of varying methods must be conducted to create a concatenating chain of evidence (Stebbins, 2001, p. 249).

### **Summary**

Chapter 1 introduced the problem of children being passive consumers in their education rather than active producers. For most children, education is something that is done to them rather than with them. Although researchers, practitioners, and educators extol the virtues of student leadership in education, pedagogy in the classroom stubbornly remains a vertical hierarchy. This study uses a theoretical framework including the instructional core and critical pedagogy to address the role of children in their education. The instructional core posits that teachers, content, and students are all equally important in improving learning. This is a concern for current research and policies because reforms continually focus on the teachers and the academic content to improve student learning. Critical pedagogy espouses the virtue of challenging the status quo in education and guides the research in determining how instructional

leadership from children in a university course benefits the learning environment. The research questions are designed to capture the experiences of participants in the qualitative single-case study to illuminate a sparsely researched phenomenon of underserved children teaching at the university level.

Chapter 2 reviews the literature through the themes of (a) children learning to teach and lead; (b) children as teachers: teaching children, collaborating with adults and teaching adults; and (c) the theoretical frameworks of critical pedagogy and the instructional core. The themes are organized as such to support the need for having children teach and to support that children can teach and lead in governance, academic instructional leadership, and research. Theme (a), children learning to teach and lead, provides empirical evidence that children are born to teach, and that teaching is a capacity formed at a young age. Theme (b), the children as teachers, gives historical proof of the long-lasting impact children have made as leaders and gives empirical evidence that all children can teach successfully in academic settings. Theme (c) theoretical frameworks, grounds the research and the study of theoretical traditions promoting the teacher and student as equals in education.

Chapter 3 explains the methodology used in this study and provides the rationale for the data collection and analysis techniques. Chapter 4 presents the findings of the study through the analysis of data. Chapter 5 draws conclusions from the data to set the stage for future studies while discussing the limitations of the research.

## CHAPTER TWO: LITERATURE REVIEW

Chapter 2 presents an extensive review of the literature on children teaching. However, this study's focus is on academically or socially struggling children teaching adults, which is a much less studied phenomenon. Children teaching children or adults is not only an instructional pedagogy but also a social push towards empowering children against the educational status quo. The literature reviewed expands beyond the keywords of *peer tutoring* and *children teaching* to include the terms *children as leaders* and *student leadership*. The primary databases for this study include Academic Search Complete, Education Resources Information Center, Science Direct, and Education Research Complete, among others.

The purpose of this literature review is to explore the theory and practices behind peer teaching in the form of children teaching children and children teaching adults. Individual studies and meta-analyses have shown peer teaching is a viable pedagogy, and thus the existing gap in the literature is not in the academic results of peer teaching, but the different methodologies of peer teaching and their relation to systemic educational change that ensures equity for all learners (Bowman-Perrot, Burke, Zhang, & Zaini, 2015; Kalef & MacDonald, 2012). There is especially a dearth of research on the impact of children teaching teachers and university students. For this reason, the literature review expands beyond foundational studies on students teaching adults to include the capacity of children to teach and the scope of student leadership including child-led governance, child-led research, and child-led instruction. The following review of the literature is organized by the themes: (a) children learning to teach and lead; (b) children as teachers: teaching children, collaborating with adults, and teaching adults; and (c) theoretical frameworks: Critical Pedagogy Theory and the instructional core.

## **Children Learning to Teach and Lead**

Children have an innate capacity to teach, and this capacity begins to form as early as age three (Ziv, Solomon, & Frye, 2008). The formation of this teaching capacity is what researchers refer to as a *natural pedagogy*, which is molded by both experience and content of the learning (Calero, Zylberg, Ais, Semelman, & Sigman, 2014). At the earliest stage of development, the natural pedagogy is at its most basic form: a process similar to imitation where a student teaches by modeling. By age five a student can discern the difference between imitation and learning, as well as when teaching is thorough or lacking in instructions, a finding which led researchers to conclude that a young child can judge the quality of a teacher (Calero et al., 2014; Ziv et al., 2008). These apparent stages of development in how a child perceives teaching is also demonstrated in research where 3, 4, and 5-year-olds can all correctly assign teacher and student roles based on knowledge of a given setting (Ziv & Frye, 2004). This same research also illustrates that only the older children can correctly identify when the teacher was aware of the knowledge difference.

By the ages of six and seven, children begin to understand teaching as a process and can give concrete examples of teaching experiences (Sobel & Letourneau, 2016). This new stage of development occurs by the time children are already enrolled in public education and are exposed to diverse learning experiences. In a quantitative-experimental design, researchers interviewed two sets of children. One group included 30 children between four and five years old, and 31 were between the ages of five and seven. Audio transcriptions and recordings of the children found the older group of students described teaching through examples of the subjects they learned at school (i.e., history, science, and math) and characterized teaching as a procedural act. Learning through modeled procedures, or direct instruction has been the most

dominant form of teaching since the establishment of public education (Elmore, 1995). Direct instruction in the peer teaching context is not to be confused with direct instruction as a whole-class pedagogy. Teacher-led direct instruction is one adult teaching potentially over 20 students. Direct instruction among the two participants is a one-to-one experience. Furthermore, in a didactic relationship between two learners the teacher and the student adjust both the instruction and receptiveness of the learning, wherein large groups adjustments are not easily made (Elmore, 1995; Strauss, Ziv, Stein, 2002).

Fullan and Langworthy (2014) describe peer teaching as giving students the opportunity of learning how to learn, which in turn requires a host of competencies for the tutoring to be successful including mastery of the learning process over the content, the need to set goals, an ability to monitor learning, and review feedback, among many other benefits (p. 15). These findings demonstrate an evolution in the capacity to teach, from learning to imitate, to understanding knowledge gaps, and finally being a reflective practitioner of learning.

### **A Historical Analysis of Children as Teachers and Leaders**

There are multiple forms of peer teaching, including peer-to-peer teaching, cross-age peer teaching, and children teaching adults. The United States of America has a rich history of all three methods of peer-teaching. In the 1960s, the founding of the Juniper Gardens Children's Project in low-socioeconomic neighborhoods in Kansas created a long-term experience rich in research (Greenwood, 1991). The practice of peer teaching falls under the umbrella of student leadership; however, student leadership can be demonstrated in teaching instruction, school governance, or educational research. Peer teaching as pedagogy is a form of collaboration among children which is distinct because of the intentionality of teaching: to collaborate is to work together, to teach requires a student and a teacher (Ziv, Solomon, & Frye, 2008). Student-led

pedagogy has its roots in the constructivist work of John Dewey in the 1920s. Student leadership and co-governance did not appear in education until the student-led social movements of the 1960s. The distinction between the two types of student leadership is significant because student-led pedagogy and student-led governance do not unite until more recent efforts.

The social movements of the 1960s had their roots in the 1950s. Following the landmark *Brown vs. the Board of Education of Topeka, Kansas* case in 1954, the most influential case of student leadership was in 1957 when nine Black students in Little Rock, Arkansas were organized and enrolled into an all-white unsegregated high school (Stanley, 2018). By the next decade, waves of social and civil unrest triggered a new sense of organized militancy involving the youth. The decade of the 1960s included over 40,000 Chicano students walking out of high schools across East Los Angeles, California to march for equality, changes in policy, and representation in the academic curriculum offered in public education (Castro, 2011). Both the Arkansas and California student-led advocacies mirrored the work happening across college campuses in the United States.

Students leading in the classroom, leading adults, and even changing society are all hallmarks of the American student voice; however, these changes were primarily in the structures of the institution, governance, and academic curriculum; not the pedagogy of the institutions and the work happening in individual classrooms or closed systems (Castro, 2011; Stanley, 2018). Penetrating the structures of individual classrooms across systems in meaningful ways has proven to be among the most challenging issues facing educational leaders, researchers, and policymakers (Elmore, 2004).

Peer teaching has filled a void in educational opportunities for rural Mexican students through Comunidades de Aprendizaje or learning communities, based on a peer teaching model



funded through a national grant from the Mexican government. The Mexican version of peer teaching has attracted significant attention from U.S. researchers and is considered a model for opportunities of scale (Elmore, 2014). The peer teaching in Mexico is “counter-cultural” because it stands in stark contrast to the mainstream pedagogy of teacher direct-instruction and the grouping and tracking of children by age and level (Rincon-Gallardo & Elmore, 2014). In this model, students master a learning skill, and they are trained to teach the skill to other students, regardless of age. The skills become a repertoire of learning activities that allow children to be knowledge banks for further learning. Students also modify and adjust their pedagogy over time, creating highly personalized experiences that vary from student to student.

The Mexican peer teaching model is described as a social movement because it filled a gap in educational opportunities for children and evolved through grassroots efforts (Rincon-Gallardo & Elmore, 2014). Previously, children in these marginalized communities were far below the national norm, and there were no structured opportunities for formal education (Camera, 2006). As a social movement, this model created opportunities and evolved into an alternative model to traditional teacher-centered and top-down learning practices.

The most significant manifestation of pedagogical change with children teaching and collaborating with adults in the United States is the non-profit organization GenerationYes, which began with a U.S. Department of Education Technology Innovation Challenge Grant in 1996 and has reached over one million children over the last two decades (Bennett, 2005). In GenerationYes, children provide professional development and technology support for teachers. GenerationYes uses a well-developed and highly structured program to first train students for months before partnering the children with teachers in collaborative and reverse cross-age tutoring roles (Chuang & Thompson, 2006).

Australian public education has seen a fusion of student leadership in pedagogy and governance in unique and fruitful partnerships. In 2003, students in Victoria, Australia organized the Victorian Student Representative Council (VicSRC) to advocate for students in the region and in 2011 founded “Teach the Teacher” as a course where children trained to develop as school site leaders (Holdsworth, 2015). The entire process is student-led and includes students creating proposals for their school site, researching possible training topics, deliberating topics, organizing and conducting professional development for teachers, and documenting and reporting the experience back to the teaching staff. This fusion of pedagogy, curriculum, and governance is one of the most evolved instances of student leadership that unites instruction, governance, and research to promote changes in schooling.

Aside from the specific American, Australia, and Mexican examples of peer teaching, researchers evince positive academic gains of peer teaching across content areas; however, the gains can be mutually exclusive to the tutor and tutee (Elmore, 2014). In a meta-analysis of an initial 152 published studies, Won, Ramirez, and Cumming (2010) selected 12 studies meeting the inclusion criteria of Lipsey and Wilson (2001). Their research found literacy gains for longitudinal cross-age peer teaching were higher than for adult-based tutoring and computer-aided teaching programs, a rebuke to long-held teacher-led direct instruction practices which are the norm in today’s classrooms. Not all findings are as robust as those of Won et al., (2010) as Shenderovich, Thurston, & Miller (2015) showed only marginal benefits of cross-age peer teaching and found the benefits of programs increased with the structure of the programs. Nevertheless, these findings confirm, to varying degrees, the research of Hattie (2009), which found peer teaching as a viable strategy among many for improving learning outcomes.

The benefits of peer teaching extend beyond academics and into social benefits. Kalef and MacDonald (2012) began with 584 studies dating from 1960-2012 and focused on the use of teaching strategies based on medical concepts rather than traditional pedagogy. Their findings showed that strategies based on medical concepts benefited special education students in academics and life-skill transition programs. General education students also benefit in more than academics as Bowman-Perrot, Burke, Zhang, and Zaini (2015) concluded in a meta-analysis on single-case research. They found cross-age peer teaching improved social skills, social interactions, and engagement, thereby adding evidence to the body of literature that peer teaching benefits the student in social and emotional areas.

## **Children as Teachers**

### **Children Teaching Children**

**Same Age Peer Teaching.** *Traditional classroom instruction and interventions use teacher-modeled explicit-direct instruction, but same-age peer teaching as a mode of content delivery and intervention is a viable and potentially superior pedagogy in classrooms across K-12 levels (Van Keer & Vanderlinde, 2009; Won, Ramirez, & Cumming, 2010; Rob, 2014). Peer teaching has a positive effect on vocabulary acquisition (Rob, 2014). Students who collaborate in a peer teaching setting outperform students in a teacher-led direct instruction model. Research has proven that language acquisition is not a skill taught in isolation, but a collaborative relationship between learners and the learning environment (Rob, 2014).*

The cooperative nature of peer teaching can be measured by how the tutor and tutee interact in different stages of peer teaching. Long-term peer teaching benefits can be measured not only by the specific learning gains but also by cooperative learning relationships (Rob, 2014). By comparing learner interactions in peer teaching sessions at different intervals in a

longitudinal study, it is possible to see the evolution of the cooperative behaviors. Duran (2010) demonstrated that 80.1% of the interactions between the tutor and tutee were cooperative. These benefits of cooperative peer teaching are also present in the relationships of learners at different academic levels. Notably, Yawn (2012) found that students considered gifted and remedial learners both showed increases in participation and engagement through peer teaching. The researchers then concluded student success was based on the exposure to multiple pedagogies and learning styles while interacting with different peer teachers.

In a teacher-led direct instruction setting, students learn from the pedagogy of one lead learner; in a student-led peer teaching setting, students encounter a wide variety of teaching practices. Peer teaching is not about teaching specific content but creating relationships among the students that foster an environment conducive to learning (Duran, 2010). Verbal and physical gesture identifiers can measure the strength of the learning relationship, and the more familiar learners become with each other, the stronger the learning bond becomes (Rosemberg, Alam, & Stein, 2014).

Research also illustrates the benefits of peer-teaching through the personal and social changes present in students. Using multiplication fluency as a vehicle for measuring student reactions, Hawkins and Shobana (2009) demonstrated that 5th-grade students in peer teaching showed significant gains when compared to students not peer teaching. Thus, the social benefits of peer teaching extend beyond collaboration, and into self-improvement through positive reactions. The longer a low achieving student is in a peer teaching relationship, the more significant the increase in self-worth (Tsuei, 2012). The research thus begins to reveal the benefits of peer teaching along with a continuum of improvements for the learner, the immediate sphere of influence of the learner, and then the learner's academic abilities.

**Peer teaching in special education.** *The benefits of peer-teaching and collaborative relationships fostered between learners also apply to special education settings (Darrow, Novak & Swedberg, 2009; & Gillies, 2013). Students with autism in a peer teaching setting show significantly higher gains than other students who are not peer teaching. In the same way that social gains can be measured for students in general education, special education student gains can be measured by nonacademic indicators (Wael & Ihsani, 2015; Gillies, 2013; Bordoff, 2010; Kalef & MacDonald, 2012). Researchers have successfully used the Childhood Autism Ratings Scale (CARS) to measure skills such as keeping attention, visual communication, and listening (Wael & Ihsani, 2015). Peer teaching is also effective with transition age students (18-22 years) as Bordoff and Caren (2010) found that peer teaching increased their skills when compared to those demonstrated through a pretest. Furthermore, their research was able to measure the applicability of the learners' new communication skills by measuring interview readiness in an applied instructional setting. Thus, a new trend began to emerge, which is that students receive more feedback in a peer teaching setting than in a traditional classroom setting. The research of Wael et al., (2015) and Bordoff et al., (2010), was similar to Klavina (2008), and measured behaviors in a study of eight- and nine-year-old students with severe and multiple disabilities confirmed that in a peer teaching setting, students were receiving more instruction from their peer teacher than the adult teacher. Together, these studies form a basis for understanding the impact of feedback as a benefit of peer teaching. The studies break down feedback further into a time-based relationship and as a measure of quantity, demonstrating that both the immediacy of feedback and the impact of the feedback have a positive impact on learning retention.*

**Peer teaching as an intervention for at-risk children.** *Peer teaching fosters maturity in at-risk students through a process of learning rather than discipline (Darrow, Novak, &*

*Swedberg, 2009; Hott, Evemenova, & Brigham, 2014). For this review, at-risk students include students in both special education and many in general education because their antisocial behaviors put them at risk of failing in school.*

In a peer teaching study conducted between at-risk students and special education students, Darrow, Novak, and Swedberg (2009) found that students received positive benefits in academics and self-esteem. These benefits included an increase in positive feelings, higher self-esteem, and higher levels of comfort around students with disabilities. Within the literature surveyed, this is the first instance where students also began to report an interest in teaching as a profession. The opportunity to self-reflect on the social-emotional aspects of peer teaching can also be fostered with exercises in self-monitoring (Hott, Evemenova, & Brigham, 2014). This research demonstrates that self-monitoring as a reflective practice is a suitable tool for students with clinical and emotional disorders.

**Peer teaching in higher education.** The benefits of peer teaching extend from childhood and progress through adulthood as demonstrated by research in higher education (De Backer, Van Ker, & Valcke, 2014; Yang, 2010; & Velez, 2011). In a study with university students enrolled in an extension center, Velez (2010) found that peer teaching evoked more engagement from students when compared to traditional teacher-led instruction. Participants reported the peer-tutoring environment more enjoyable than a traditional environment, and individual tutors displayed more diverse pedagogy and teaching methods than the single course instructor. These findings confirm similar findings to Bordoff and Caren (2010), who found that feedback is a crucial aspect of peer teaching. Extending the findings of these previous researchers, Yang (2010) reasoned that feedback creates a need for students to self-reflect on a task in ways not common in teacher-led instruction. This reflection is based on the student assessing their skills

and methods in comparison to their peer teacher. Furthermore, the peer teaching experience provides metacognitive benefits for university students such as self-monitoring, evaluation, and orientation (DeBacker, Van Keer, & Valcke, 2014).

Peer teaching is not a solution to academic and social achievement, but a practice that facilitates multiple benefits for the learners involved. The research from the K-12 setting demonstrates that peer teaching promotes significant academic gains, fosters collaboration, exposes students to different pedagogies, and provides immediate feedback. The research on higher education adds that the reflective nature of peer teaching allows students to self-monitor learning through the teaching of their peers (DeBacker, Van Keer, & Valcke, 2014; Velez, 2010; & Yang, 2010). Peer teaching is then not a single act but a collection of experiences facilitated by academic learning, collaborative learning, and increased self-awareness.

**Cross-age peer teaching of younger children.** *Peer teaching involves students working within their age group. For this literature review, cross-age peer teaching is an operational term where participant ages span three or more years. The research on academic benefits is mixed; however, longitudinal studies with large sample sizes tend to show gains in both social and academic areas (Van Keer & Vanderlinde, 2010).*

In a longitudinal study spanning one year, Rosenberg, Alam, and Stein (2014) examined the effects of peer teaching on vocabulary acquisition through participant interactions. The study's participants included 12- and 13-year-old children teaching 4- and 5-year-old students (n)=100 over one year. Researchers found that over long periods the gestures increased and strengthened as the learning relationships grew. Through this quantitative analysis, the researchers measured both the verbal cues and physical gestures to explain how vocabulary concepts increased in frequency from the pre, mid, and posttest. Thus, the researchers concluded

that, through the peer-teaching process, vocabulary is not only a skill measured by acquired words but a didactic relationship between two learners.

Paquette (2008) found that fifth graders (n=50) and second graders (n=35) did not have statistically significant academic gains from cross-age peer teaching in writing over 15 sessions. However, participants did report positive experiences of the program and the subject area of writing and were willing to continue peer teaching. In contrast to Paquette, a study by Van Keer and Vanderlinde (2010) used a larger sample of cross-age teaching participants (n=762) and used standardized achievement assessments to measure reading strategy use and reading comprehension achievement. The research found significant gains for both the tutors and tutees, as well as improved use of reading strategies. These findings suggest that while peer tutoring evokes a sense of self-worth in students, longitudinal peer teaching strategies with explicit strategies taught to the tutors are more successful than shorter peer teaching experiences without explicit strategies taught. These same academic and personal benefits for cross-age peer teaching are found in special education, with the added benefit of improved self-worth and self-efficacy. Furthermore, students benefit more when peer teaching targets individual behavior goals (Gillies, 2013).

### **Children Collaborating with and Teaching Adults**

The United States has a rich history of children both collaborating with and teaching and leading in ways that created systemic changes to our educational system. From the integration of schools through 1950's Black American activism in the South to 1970s Chicano high school walkouts in California, children have led and collaborated with adults as equal partners in educational governance and activism (Castro & Ochoa, 2011; Stanley, 2018). Students as leaders in education as an instructional pedagogy has not made the same impression on the field of



education; however, there are significant gains in the research of collaboration between children and adults, and children-led instructional programs (Holdsworth, 2014). This theme will begin with student leadership and adult collaboration through governance, followed by student-led research, and then student-led instructional practices.

### **Student-led governance**

The most popular forms of student leadership and collaboration with adults in schools are through governance. Governance can include student councils, student advisory committees, classroom councils, and any organized body where student input is supposed to lead to a change in the output of actionable activities. In a meta-analysis of empirical studies, Mager and Nowak (2010) went beyond classifying the types of governance in researching the effects on a school site. In their qualitative content analysis, four categories emerged that showed effects on students, effects on teachers, social effects, and organizational effects. The results showed the largest impact of school governance is on students, with the caveat being that only the students who participate enjoy the benefits of student governance. The authors found this final finding as worrisome because it has the potential to create a culture where the students who most need increased participation (marginalized minorities and low achieving students) are the students who are the least likely to benefit from such student organizations.

The negative effects of student collaboration in governance lead to inequality and negative perceptions of the democratic process (Mager & Nowak, 2010; and Thornberg, 2009). The purpose of democratic governance in schools is to give students the opportunity to shape their learning experience; however, some governing procedures mask authoritarian teacher-led practices. In a study of second-grade democratic meetings, Thornberg (2009) investigated the structure of 20-30 minute “Plenary Meetings” among k-2nd-grade students in a Swedish primary

school to understand the structure of this model and find how children learn through a governing process. Using a mixed Grounded Theory approach with field notes, audio recordings, and ethnographic field observations, the researcher determined the predominant pattern of student and teacher interaction in the Plenary Meetings were Initiation-Response-Evaluation (IRE). This form of interaction is a speech pattern where the speaker in charge (teacher) controls the conversation by asking the questions, selecting who will answer the questions, and then evaluating the answers in an effort to manipulate the discourse. These results are troubling and show how well-intentioned teachers promoting practices to encourage democratic discourse can undermine their own purpose. Although the teachers did not consider their actions to be counter-democratic, the teachers reasoned that their response was caused by the children's inability to participate in a democratic meeting.

The lack of trust from teachers to students reemerges in the research of Carson Baggett, and Anrzejewski (2017) where high school participants shared that teachers do not take student opinions and actions seriously. This dismissive attitude is not limited to uneven power relationships between teachers and students. In a study on teacher and student research, Smith, Beck, Bernstein, and Dashguard (2014) found that teachers believed administrator actions disempower teachers and make them ineffective. Together, these studies show that unequal power relationships span all age-levels in an educational setting, and actors without power are aware of their weak position.

### **Student leadership in research**

The positive instances of student leadership and collaboration with adults in governance are characterized by transparency, structure, and action based on student input. An evolution from static government roles for students and teachers to proactive research roles in action

research has become the practice of Youth Participatory Action Research (Anyon, Kenady, Durbahn, & Jenson, 2018). In YPAR, students participate in collaborative leadership roles with teachers and administrators but are also instrumental in collecting the data that will be used for policy decisions in schools and organizations (Anyon et al., 2018).

Beattie (2012) researched the work of an initiative that gave students an active role in high school reform efforts and solicited feedback from all students; the feedback was then reviewed by teams of students and teachers to improve instructional outcomes in an action research process of YPAR. Input came from teacher and student surveys designed to learn how they felt about learning and instruction, with “the primary focus on the classroom experience, particularly for those students who are most disengaged” (p. 159). This focus on all students, mainly disengaged students, is the opposite of the practices studied by Mager and Nowak (2010) where only select students participated in governance and Thornberg (2009) where student feedback did not lead to action. The reason the cases researched by Mager and Nowak (2010) and Thornberg (2009) did not lead to direct changes based on student participation is because there were no cyclical feedback loops for improvement; students had a voice, but the voice generated no action. There was no action because there was no continued discourse or review of the process. However, in the case of Beattie (2012) the YPAR process generated student feedback, led to children and staff brainstorming meetings, led to direct changes of staff development, introduced one-on-one meetings between a student and teacher, and facilitated the opportunity for students to later see their input come to reality in classroom practices.

Anyon, Kenady, Durbahn, and Jenson (2018) found that students of color in an after-school YPAR course showed gains that empowered student voice and fostered a feeling of increased adult support when compared to students who did not take the course. The research

used an experimental design where the researchers compared pre and post participation data from the Survey of Academic and Youth Outcomes - Youth Version. This highly structured program formed through a partnership with Stanford University under the direction of a faculty member as the principal investigator, a doctoral student as the lead facilitator, and seven students from a master's program as facilitators. In contrast to Beattie (2012), where the research included cyclical loops of data and research with teachers and administrators, the program studied by Anyon et al., (2018) focused on community outreach projects that incorporated existing curriculum. Whereas Beattie (2012) focused on improving instruction within the school, Anyon et al., (2018) focused on neighborhood improvement through projects such as eco-mapping community resources, advocacy activities, a talk with the local police station, and the development of a community garden, among other projects (p. 14). Given the nature of these projects and the presentation of the authentic student-made artifacts, the feedback loops were not between the students and the school, but between the students and the community.

Increased student leadership and collaboration with adults also naturally leads to adverse effects, although these adverse effects are not proportional to the positive outcomes of shared student and adult governance (Mager & Nowak, 2010). A shortcoming of any form of governance, even in Youth Participatory Action Committees, is the lack of representation for diverse students. Attempts at recruiting students through rigorous protocols and teacher recommendations have a way of filtering out lower achieving students (Biddle & Mitra, 2015). In a review of studies on student participation in governance, Mager and Nowak (2010) reported that students become distrustful of policy when their influence is negligible. Adverse reactions and conflict are not necessarily negative if it leads to successful outcomes, as Beattie (2012) found that even in an empowered environment with successful results, students and teachers can

still have conflicts. Further studies into the conflicts between students and teachers must measure and distinguish the types of conflicts the groups had, the outcomes of these conflicts, and the effects on collaboration.

### **Student leadership in instruction**

The third possibility for student-leadership is instruction through students teaching adults. This form of student leadership is also the least popular in practice or research. There are documented program evaluations for large-scale programs of students teaching adults, books on children teaching adults, and teacher practitioner articles, but very little documentation in peer-reviewed journals of the direct results and workings of learning environments where children teach adults.

The largest organization in the United States that incorporates students teaching adults is GenYES. With robust external evaluations and detailed documentation, GenYES studies include evaluations by such entities such as the U.S. Department of Education Expert Panel on Educational Technology, a research team from Michigan State University, yearly evaluations from the Northwest Regional Education Laboratory (NWREL), and Wexford Inc (Education Northwest, 2010; United States Department of Education, 2017; and Bennett, 2005). These external evaluations are rich in data documenting the academic growth of students, qualitative growth indicators of self-efficacy, and improved student-teacher relations, and span over 10 years.

Bennett (2005) conducted a qualitative study on GenYES to determine the level of support from high school students, teachers, parents, and administrators. The research determined most stakeholders in the program support GenYES, but considerable challenges included scheduling conflicts with regular school operations. GenYES programs took place

during school and began offering afterschool instruction to accommodate students, but afterschool programming proved problematic because of school bussing schedules. Although GenYES programs were engaging for students, there still was a need for scaffolding the instruction of technology for students which required individual support and small-group instruction.

Education Northwest (2010) conducted a study with multiple sites incorporating GenYES across the United States. Data showed that out of 739 student responses, over 70% of students “agreed” or “strongly agreed” they would help future teachers use technology, and 80% would help other students (p. 28). Teachers also had positive experiences as almost 99% of 91 teachers surveyed reported that they ‘strongly agree’ or ‘agree’ that “GenYES is a good method for providing support and assistance to teachers as they integrate technology into their classes” (p. 33). This student-leadership model for integrating technology created a positive outlook for students and teachers alike, creating a strong case for using children as positive resources supports in instructional technology.

The U.S. Department of Education (2017) documented the fourth year of a GenYES rollout in a network of 20 Los Angeles middle and high schools. The data provides the most critical research about working with disenfranchised groups because of the 6,322 students who received GenYES services, 5,934 were considered “high needs” students (p. 8). High needs students were classified as students on free and reduced lunch, making the significance of this study important because it is providing much-needed data on the effects of a student-led pedagogy and instructional environment in a low-socioeconomic setting. There is no other data set documenting work with high needs students because unfortunately, many programs do not specifically target high-needs students with this type of intervention (Mager & Nowak, 2010).

Researchers reported overwhelmingly positive feedback from students who participated as student technology leaders. Among the findings were that 86% of students strongly agreed that their role facilitated an increase in school engagement and 96% responded that adults respected student roles (p. 36). These findings set a foundation for new areas of inquiry because previous research, particularly Carson Baggett and Anrzejewski (2017), who reported that students from high needs areas did not feel that their voice was being heard or respected in student-leadership initiatives.

Holdworth (2014) researched an Australian program where students lead teachers in academic content instruction. Teach the Teachers, founded by the Victorian Student Representative Council is a student-initiated program that gives students more input in schools. The program infuses the three different areas of student leadership; students perform action research to initiate Teach the Teacher, students seek to influence policies and practices at the school site, and students initiate and facilitate staff development sessions for teachers (Holdworth, 2017). Given that the Teach the Teacher program is relatively new, formative program evaluations need to be conducted as well as studies of the effect on students leading teachers on academics and social indicators.

### **Frameworks and Theoretical Constructs**

A review of the literature on student leadership and students as teachers evinces that there are three forms of student leadership: students as leaders in governance, students as leaders in research, and students as leaders in instruction (Castro, 2011). In all cases, a recurring issue is that student leadership exasperates inequality by creating a process that selects the most desirable students for leadership positions. Typically, the students that can benefit the most from student leadership are the students that are left out, and thus the educational system perpetuates an

endemic cycle that marginalizes large groups of students. It is these issues that buttress the conceptual framework for this study through critical pedagogy theory and the instructional core. Ensuring that students have the opportunity to lead is an equity-issue and allowing children to lead other students and teachers is a way to stop endemic cycles of marginalization.

### **Critical Pedagogy Theory**

Critical pedagogy is not a set theory, philosophy, or practice, but rather a stance against the status quo in all educational contexts. Notable critical pedagogy theorist, Giroux (2007) describes the idea as a necessary critique of knowledge and the social constructs that create a basis for knowledge. In practice, he describes the critical educator as one who takes a firm stand in educational issues and recognizes that existing conditions foster unequal outcomes for all students.

This literature review addresses the areas of research demonstrating the leadership roles or lack of leadership roles that children occupy in educational settings. Although there are numerous examples of children and students as change agents in education, children are continually left out of the decision-making practices in school governance, research, and especially instruction. Critical pedagogy theory in this study is thus a critique of traditional-hierarchical educational practices that enjoy a fixed position in modern institutions.

Critical pedagogy theory began with the seminal work of Paulo Freire in *Pedagogy of the Oppressed* (1970). The theory is based on the idea that a democratic education has the potential to change the social conditions of marginalized and disenfranchised groups. Freire (1970), described the Banking Model of Education when he wrote, “The teacher’s task is to organize a process which already occurs spontaneously, to ‘fill’ the students by making deposits of



information which he or she considers constituting true knowledge (p. 49).” To Freire, Banking Model creates a submissive and subservient role in education that mirrors social constructs:

Through dialogue...the teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teaches. They become jointly responsible for a process in which all grow. In this process arguments based on “authority” are no longer valid...Here, no one teaches another, nor is anyone self-taught. People teach each other, mediated by the world (p. 53).

This concept of dialogue breaks through the long-standing traditions of students as passive recipients of knowledge. In describing dialogue, Freire also introduces the idea that students are equal to teachers and must have equal access to not only learning but teaching. Freire argues that the knowledge which stems from the academic dialogue is a form of common property that advances society. In this way, the student and the teacher abandon their titles to become co-creators in knowledge shared with the broader community. However, educators are not as receptive to the idea of student leadership and are capable of subverting democratic classroom practice (Thornberg, 2009; Carson Baggett & Anrzejewski, 2017; and Mager & Nowak, 2010).

Critical pedagogy has limited itself to teachers creating multicultural safe spaces to promote inclusion (McLaren, Martin, Farahmandpur, & Aramillo, 2004). In order to change the status quo, critical pedagogy must go further than the classroom to make real societal changes. One of the issues is that there may be a distinction between the relationships in critical pedagogy between adults and children. Further research is needed to determine whether or not the relationship and roles of student and teacher must be addressed and broken down before students feel empowered to participate in the broader community critically.

A child/student cannot be expected to be subservient to a teacher or authority figure in the classroom but then naturally be critical of authority (public figures, policy, culture, etc.) in public spaces. Baggett and Andrzejewski (2017) found that students who took place in Youth Participatory Action Research presented their findings in an academic presentation but were unwilling to share outside the confines of their classroom. The researchers then acknowledged that they had not done enough for students to feel empowered about working critically in the community. To force children to engage the community when they are not ready would be the type of authoritarian practice critical pedagogy seeks to end. In contrast, the participants in Anyon, Kenady, Durbahn, and Jenson (2018) interacted meaningfully with their community through direct dialogue, presentations, and research. The participants in Anyon et al. were able to critically interact with the community because in their classroom the students were already creating an environment that promoted inquiry, leadership, and equality through research and collaboration. Thus, the actions in the classroom were a microcosm of the actions that were to take place in the community because the ability to think critically in society must be fostered in the classroom.

The methods of engaging in critical pedagogy in the classroom are diverse but must always be adaptable to the community generating the knowledge. Every protocol, document, and even the language used in the classroom can undermine democratic values and be an extension of the status quo. Seemingly innocuous practices such as generating a syllabus can promote traditional power imbalances between a teacher and student. As a college professor in a low-socioeconomic community, Shor (2009) observed that a syllabus is a unilateral contract with rules and expectations for successful completion of a course. In this manner the instructor is already in a position of power and exerting their authority of the course and student; a student

must be careful to act by predetermined protocols and defer to the instructor to achieve their objective of the desired grade. Through the creation and negotiation of a syllabus, both the student and teacher can enter into an agreement that is beneficial, democratic and gives a voice to both parties (Shor, 2009).

The documents and content used in a classroom can be used as instruments preserving a status quo hierarchy or can promote critical thinking towards democratic values. Students are not accustomed to questioning the authority of textbooks or online games used in education (Jenkins, 2007). Just as a syllabus can set the tone for authoritative relationships in a classroom. An educational resource perceived as authoritative can constrict dialogue. Students must participate in the act of curating resources that are to be used in the classroom and not accept content as infallible. Freire (1970) wrote, “Students, as they are increasingly posed with problems relating to themselves in the world and with the world, will feel increasingly challenged and obliged to respond to that challenge” (p. 54). For students to respond to a challenge, the teachers, administration, and society must be willing to accept student agency and voice.

The practical application of curating and critically examining relevant issues has been thoroughly applied and documented by the practitioner Shor. Working with remedial college students, Shor (2007) explains how low-income college students in an introductory composition and grammar course voted on the topics for the course, discussed and analyzed newspapers from different sides of the political spectrum, and used data from graphs to create their interpretations based on the content. Analysis of news sources included typography, the images used, the page layout, and the use of titles. Furthermore, the instructor did not lecture on the topics, consciously avoided inserting his own political beliefs, and facilitated the experience into meaningful work

for students. The result was a class where students were thinking critically, posing questions, and engaged in dialogue.

Dialogue through critical pedagogy gives students access to how information is interpreted and shared. Freire (1970) wrote, “If it is in speaking their word that people, by naming the world, transform it, dialogue imposes itself as the way by which they achieve significance as human beings” (p. 61). Even the structure of dialogue can be authoritarian. Authoritarian dialogue such as Initiation-Response-Evaluation (IRE) speech pattern can be used by a course instructor or leader to manipulate the discourse in a room even if the content of the conversation is about democratic collaboration (Thornberg, 2009; p. 927). Working through a critical pedagogy lens can shift the dialogue from being an instrument of authority to a tool for collaboration.

### **The Instructional Core**

The instructional core is the relationship between the student, the teacher, and the content; at the center of learning is the instructional task (City, Elmore, Fiarman, & Teital, 2009). The instructional core is based on the earlier work of David Hawkins and Walter Doyle (City et al., 2009). There are three ways to improve instruction, and according to City et al. (2009), only fundamental changes to the core can improve learning. Changes in the core include: (1) improving teacher content knowledge and pedagogy; (2) increase rigor in content; and (3) changing the role of students in instruction (p. 24).

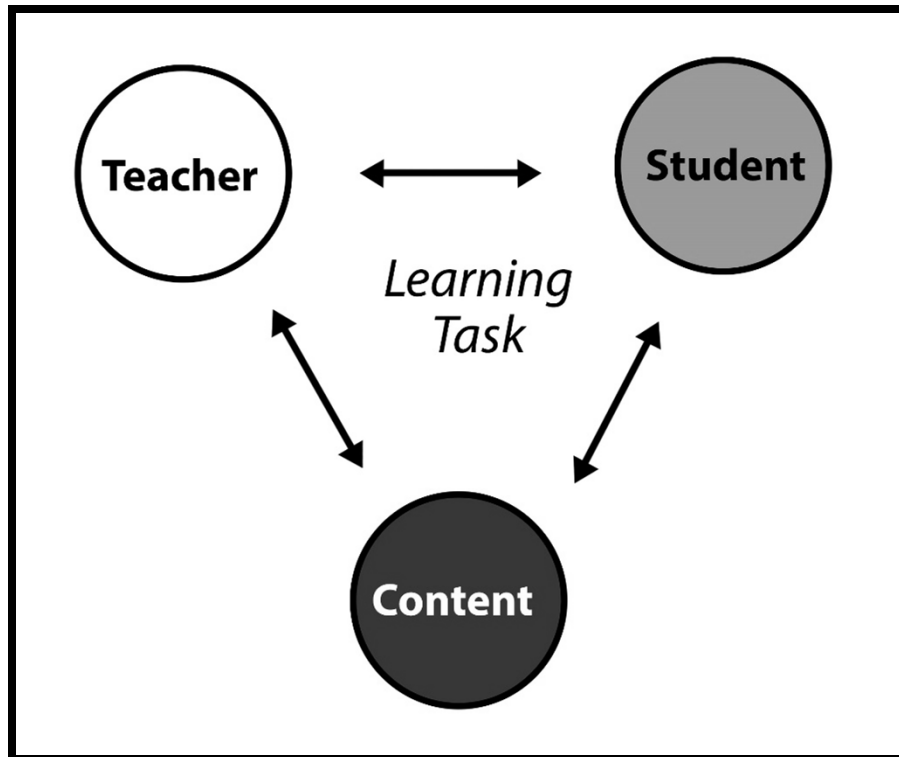


Figure 1. Teacher, content, and student in the instructional core.

Adapted from *Instructional rounds in education: A network approach to improving teaching and learning*, by City, E., Elmore, R., Fiarmen, S., & Teitel, L., 2009, Cambridge, MA: Harvard Education Press.

Figure 1 illustrates how the relationship between the teacher, the student, and the content are all equal in the pursuit of a learning task. These ideas can be traced back to Cohen and Ball (1999), who first theorized that the individual student, teacher, and subject matter influences the outcome of a learning task. The student and the teacher in this capacity are not just roles but individuals with experiences and abilities that greatly affect the outcome of any learning activity. Furthermore, Cohen and Ball argued that ability to improve and learn was not static, and as the competencies and skills of the teacher and student improved, so did the learning outcomes.

Education reform has focused heavily on improving teacher education and rigor and content development and the new Common Core Standards; however, changes to the roles of the student may place the student as a leader of other students, but the lack of research shows that students rarely lead teachers. The result of teacher and content centered changes may alter how students receive information or how students show mastery of information. If the content and

teacher are overemphasized in the instructional core, the result is not a free-flow of information among three equal spheres, but an inverted pyramid where teachers and content are the most important piece of an instructional task. These perceived changes to student roles in the instructional core are variations on how knowledge is deposited into a bank or the filling of a vessel (Freire, 1970).

One of the practical applications implemented to affect student-teacher collaboration is instructional rounds. The instructional rounds process is a push towards having teachers work in collectives; this concept comes from the practice of medical rounds (City, 2011). Existing research demonstrates a weak link between medical rounds and educational rounds, as well as inconclusive evidence for the improvement of student learning with more research needed (Oates, 2015). Here we begin to see the limitations of the interpretations of the instructional core concept. Although the concept may come from instructional rounds in the medical field, the parallels stop at the implementation because rounds in medical care address patients with health issues that must be attended. Students are not patients with deficits; they are learners at different levels; a practice that propagates deficit based thinking with the idea that learners are not whole or full of knowledge. This idea of learners lacking knowledge and the teacher (or a collective of teachers) being required to remedy the issue is an updated manifestation of the Banking Model described by Freire (1970).

In a critique of hierarchal leadership practices, City (2011) shared the thoughts of one administrator: “My teachers schooled me pretty quickly on this-you don’t learn anything by being observed, only by observing” (p. 37). In the instructional rounds process, a collective of teachers observed classrooms not to critique, but to begin assessing a problem of practice at the school site (City, Elmore, Fiarman, & Teitel, 2009). The practice is important for teachers to see

the variations of pedagogy and classroom management at their school site, but this process leaves out the children entirely when research demonstrates that students also learn from exposure to multiple pedagogies (Bordoff & Caren, 2010). In the medical field, Walton and Steinart (2010) found instructional rounds to be based on a hierarchical model where the senior physicians do the majority of talking and are the main source of knowledge; another iteration of the Banking Model described by Freire (p. 550). Furthermore, Elmore (2004), states, “[T]he teacher is the main source of information, defined as discrete facts, and this information is what qualifies as knowledge” making the use of only instructional rounds an exercise in which a collective of teachers are ‘the main source of information’... (and) what qualifies as knowledge” (p. 9).

### **Summary**

Chapter 2 reviews the literature on children as teachers and leaders. The themes in the literature review are (a) natural leaders: the innate capacity of children to teach; (b) children as teachers: teaching children, collaborating with adults, and teaching adults; and (c) the theoretical frameworks: critical pedagogy theory and the instructional core.

The theme of natural leaders sets the tone of the literature review by describing children as “natural pedagogues” (Calero, Zylber, Ais, Semelman, & Sigman, 2014). Thus, teaching is not an extension activity for children, but an innate human capacity with various stages of development (Ziv, Solomon, & Frye, 2008). The capacity to teach can be sharpened as a leadership skill, and there is a historical precedent for children to lead and create dynamic change. From the Little Rock Nine to the East Los Angeles high school walkouts, children have a demonstrated history as change agents (Castro, 2011; Stanley, 2018). There are current examples of child leadership through instruction in the United States, Mexico, and Australia. In

the United States, GenerationYes has reached over one million since 1996 and continues to provide support for using children as professional support for technology and staff development (Bennett, 2005). In Mexico, Comunidades de Aprendizaje has filled a void where the federal and local government were not able to provide adequate instruction for children with a peer tutoring program that has been described a social movement (Rincon-Gallardo & Elmore, 2014).

The theme of children as teachers provides empirical evidence of success for children peer teaching, cross-age peer teaching, and children leading and teaching adults. The research evinces that peer teaching is a valid and potentially superior pedagogy in all grade levels (Van Keer & Vanderslinder, 2009; Won, Ramirez, & Cumming, 2010; Rob, 2014). A key finding in the synthesis of the literature is that children learn more from peer tutoring from a host of benefits that emerge in a peer-teaching relationship including the strengthening of cooperative relationships, increased engagement, an increase in self-worth, responsive feedback, and increased opportunities for self-reflection (Bordoff & Caren, 2010; Duran, 2010; Tsuei, 2012; Yang, 2010; and Yawn, 2012).

Finally, the theoretical framework of critical pedagogy and the instructional core create the conditions for the literature and the study to emerge from the perspective of student leadership. Critical pedagogy lays a foundation for challenging the status quo, specifically in favor of children to lead in instructional settings (Giroux, 2004). The traditional hierarchy of education is entrenched at all levels and keeps the majority of children firmly in a marginalized position with no power. In his seminal work, Freire (1970) described the passive consumption of information as a pedagogy that mirrors social constructs: leaders (teachers) lead, and followers (students) follow. The instructional core describes the student as equal to the teacher and content,



yet the majority of changes made to the core are in response to teachers and content (City, Elmore, Fiarman, & Teital, 2009).

## CHAPTER 3: METHODOLOGY

This chapter will focus on the methodology of the study, including the research questions, research design, population, instrumentation, data collection, data analysis, limitations, and ethical considerations. The research context, purpose, and research questions require a case study to make a breakthrough in an area with little former research (Yin, 2018). This case study event is defined as a single occurrence in which middle school students teach adult-students at a university. The data collection provides multiple sources of data from the same qualitative single-case study event. The data analysis will be triangulated with data from the participants to generate an in-depth understanding of the participants in the qualitative single-case study.

### **Purpose of the Study**

This research is a qualitative single-case study designed to explore a unique learning environment where middle school students teach adult university students. The middle school participants are designated as low-socioeconomic students, and their school is the lowest achieving middle school in their city. These attributes make the middle school students an unlikely source of knowledge for students in a university course (Pope, Beal, Long, & McCammon, 2011). It is firmly established in research that peer teaching and cross-age peer teaching are effective teaching pedagogies; however, there are less empirical studies on academically or socially-struggling children from low-socioeconomic schools teaching adults in an instructional setting (Hattie, 2009).

### **Research Questions**

The pedagogy of peer-teaching and cross-age peer teaching is well documented in studies across cultures, meta-analysis and in qualitative and quantitative studies. The structure of the

research questions intends to capture experiential data from participants which operate in different capacities within the qualitative single case study. In this research, the roles of the teacher and the student are reversed, making the student the source of instructional knowledge.

The research questions are guided by the theoretical framework of the instructional core and critical pedagogy to understand better how participants benefit when children lead adults in an instructional setting. The instructional core places the student, the teacher, and the academic curriculum content as equals, yet reforms and policies overwhelming build the capacity of teachers and improve content. This study improves the student first, and the teachers and academic content second. Critical pedagogy is a challenge to the status quo in all instructional settings. Thus, this study challenges the assumption that academically and socially struggling students from a low-income and low achieving school are not capable of leadership roles over adults. Combined, the instructional core and critical pedagogy support the research questions to determine how participant groups benefit in the event.

5. How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves?
6. How do low-socioeconomic students perceive the benefits of teaching adults?
7. How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?
8. How do school administrators perceive the benefits of middle school students teaching university students?

### **Research Methodology**

A case study is appropriate for this study because it addresses exploratory research questions, does not require control of behavioral events, and focuses on contemporary events in a

given setting (Yin, 2018). The study is qualitative because it is exploring the impact on teachers and students through experiential data (Stake, 2010). This case study, although exploratory, is an “empirical study” designed to understand how low-socioeconomic middle school students and adult university students benefit when children lead instruction into new areas of learning (Yin, 2018, p. 15).

The rigor of the case study methodology and the ability of researchers to develop and carry out the appropriate case study methods have been called into question by researchers (Yin, 2018). Among the many misconceptions of case study research, Flyvber (2006) lists the five most critical as:

1. A tendency to value theoretical knowledge over practical knowledge.
2. The inability of researchers to generalize conclusions from a single case study.
3. Researchers reserving the case study method to exploratory stages of concatenated research.
4. The influence and partiality of the researcher on findings.
5. The inability of researchers to develop theory from a case study.

Case study research is not seen as robust as other methods because the term *case study* is also used to describe other practices (not formal research) in various working environments (Yin, 2018). These perceived limitations of a case study as a research method can be overcome “by highlighting...methodic procedures” and being “transparent and explicit about limiting or eliminating any biases” (Yin, 2018, p. 54). A graphic plan can model transparency, such as Stake’s (2010) Boxes-and-Circle plan (figure 2) for organizing case study research.

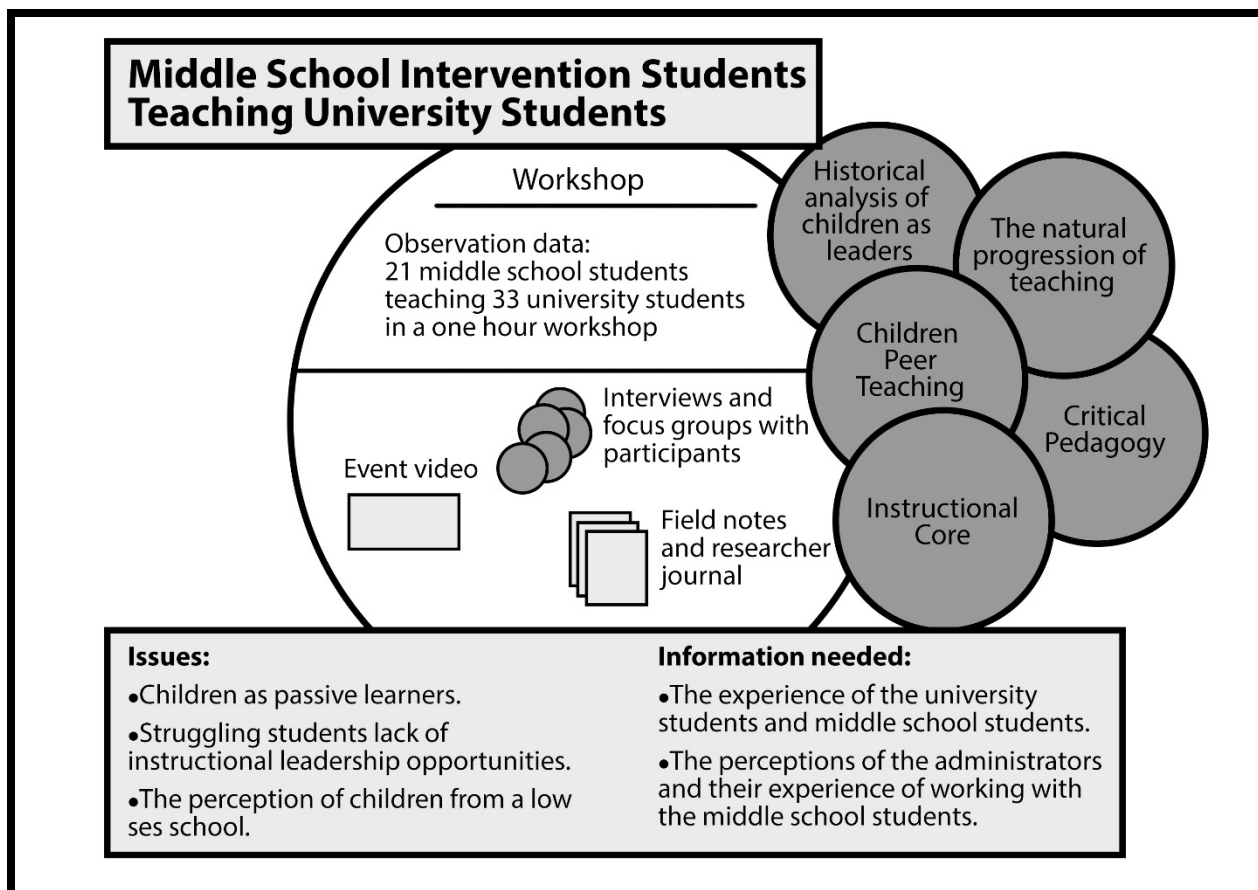


Figure 2. A box and circle organizer for case study research.

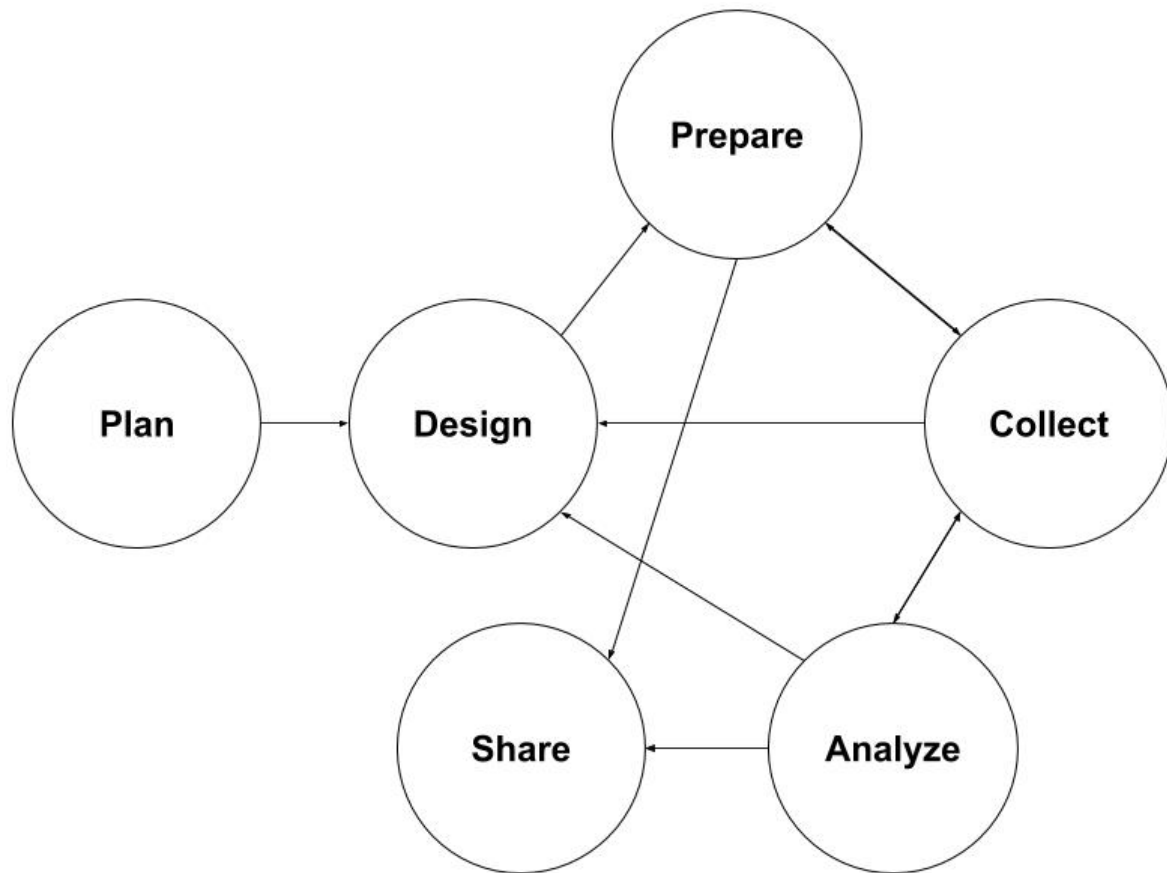
The components in Figure 2 include the observed phenomena, data collection, issues, the information needed, and relevant research. The figure also illustrates how case study research is (a) comprised of multiple skills sets such as rigorous research design, data collection, and a robust synthesis of prior research, (b) methodically organized to answer the research questions, and (c) transparent and explicit in collecting evidence from multiple sources to triangulate data for a scientific analysis.

### Research Design

The research study is a qualitative single-case study including focus group interviews, single participant interviews, field notes, and video of the workshop. The single-case study methodology allows for flexibility to incorporate diverse perspectives as well as allow for

rigorous documentation of a unique case through both the context and the case (Marshall & Rossman, 2016; Yin, 2017). The learning experience in this case study does not have extensive research or history in practice, raising the possibility of valuable insights based on the experience of participants in real-life events (Marshall & Rossman, 2016). Single-case study research can be “revelatory,” as Yin (2017) argues this genre allows a researcher “to observe and analyze a phenomenon previously inaccessible to social inquiry” (p. 113). In this case, the opportunity to observe academically and socially struggling children from low-socioeconomic and low-performing school teaching adult university students content in which the university students were not proficient create the conditions for the research to have access to a previously undocumented case. The dearth in research in this area stems from the fact that educators and policymakers do not view children as a source of knowledge. Furthermore, this lack of capacity building in children means that teacher education programs inadvertently teach university students that children are passive consumers in the classroom, not active producers that are equal to adults (Pope, Beal, Long, & McCammon, (2011).

The research process in this qualitative single-case study follows Yin’s (2017) linear but iterative process which allows for cyclical loops of feedback as illustrated below by (figure 2). As demonstrated in the figure, the initial plan leads to a design process that remains fluid as the researcher continually modifies and adjusts the components involving preparation, data collections, and analysis.



*Figure 3. Case study research: A linear but iterative process.*

Adapted from *Case Study Research and Applications: Design and Methods 6<sup>th</sup> edition*. Yin, K. (2017). Thousand Oaks, California: SAGE Publications Ltd.

Yin's plan establishes a need for constant reflection and refinement based on the specific needs of the study. The research design requires flexibility on the part of the researcher as the study proceeds from preparation, to data collection, data analysis, and sharing of the findings. The research is taking place in a struggling low-socioeconomic school with children who are struggling academically and socially. In the preliminary stages of the research, there have been multiple instances of children who were potentially going to be involved in the study that were expelled from the district or removed from the school for behavior/social issues. There are also protentional student-participants whose family relocated, so the child moved schools. Given the unique setting and circumstances of participants in the study, flexibility in the research process was fundamental. This flexibility includes designing a learning task that is rigorous but

appropriate for the children and adults; collecting data in a way that respects child-participants and families; analyzing the data without bias while honoring the work of the child-participants.

### **Participant Research**

This case study presents a unique scenario where the researcher is a teacher to both the university students and the middle school students. DeWalt and DeWalt (1998) state that a participant observer creates a “methodical and personal tension” (p. 28). This tension is particularly pronounced in this case study because the researcher-as-participant is intentionally triggering reactivity. The researcher is deliberately integrating participants from two distinct communities into one environment although this event was already taken place before this study. The middle school student participants are from the lowest performing middle school in the city, located in a low-socioeconomic neighborhood. The university is in one of the more affluent areas of the community and is the only state university within 90 miles. The workshop in this case study has been an ongoing educational event with multiple previous instances, but this specific workshop is the first to be formally studied. The design of the study has the potential to threaten the credibility of the research; therefore, Yin (2018) suggests the trade-offs between the challenges and opportunities in the research must be addressed. The following section will address these specific challenges.

**Challenges.** A clear challenge in the study is the bias of the researcher towards the research and the participants. The issues within the challenge are listed as follows:

- The middle school and university students both have the researcher as an instructor/teacher; this creates a tension of bias because the researcher evaluates both participant groups in a formal capacity.



- The administrative participants oversee the researcher and middle school students; this creates a tension of bias because the administrators formally evaluate the researcher.
- The researcher, as a participant observer, is so embedded into the case study that Yin (2018) writes “(the researcher) may not have sufficient time to take notes or to raise questions about events from different perspectives as a good observer might” (p. 246).

The researcher addresses these issues by designing the study around the experiences of the participants in the workshop, without eliciting experiences about the researcher or activities within the workshop. The research questions and methodology are designed to triangulate the data from middle school students, university students, and administrators into finding the benefits for the children and university students. The perception that previous events were positive is based on feedback from middle school students, university students, parents, administrators, and teachers who expressed a desire for more similar events. This study attempts to find out how and why it is beneficial for underserved children to teach adults; this study does not attempt to evaluate the event, the instruction, or contributions of the researcher.

**Opportunities.** It is the positionality of the researcher that makes this study possible. Most of the opportunities are based on the access that is granted to the researcher, access that would not have been granted by participants in this specific community if the researcher was not embedded in the environment. Specific opportunities are listed as follows:

- The middle school has an unfavorable view in the local community as demonstrated by comments made by university students, local educators, and the shortage of teachers applying to the school. The school started the school year

with four unfilled positions. The lack of a formal relationship with the university created the opportunity to begin a collaboration between the middle school and university. As an instructor at both the university and middle school, this became an opportunity for the researcher.

- The children participating in the workshop have a history of academic struggles, social struggles, or both. The unique position of the researcher as an intervention specialist gives access to the children who are struggling the most at the school. Some of the children have poor relationships with their general education teachers, and this limits the number of opportunities to participate in formal events like the workshop. The California Department of Education identified the school for improvement after being designated as one of the lowest achieving middle schools. The researcher thus had access to working with children who are struggling at one of the lowest performing schools in the area.
- The researcher had already built relationships with the students and staff. The school had already participated in previous iterations of the workshop. Even in the absence of the study, the students would have participated in the workshop at the university. This study allowed the students to be heard through proper research channels and to share how the act of teaching adults benefits the children directly. The study fills a gap in research by documenting how academically and socially struggling low SES children benefit from teaching adults.

Embedded researchers are individuals with “explicit research roles,” and McGinity and Salokangas (2014) state that these roles are “legitimated by staff status” that also “grants greater access” to the researcher (p. 27). Similarly, Hong and Duff (2002) note that the observer-

participant roles create stronger relationships that allow for richer data, with a “wider scope of observation” (p. 190). It is these benefits of access that make the research necessary to break ground in a new area of research.

### **Population and Participants**

The learning environment in this case study included a total population of 33 university students, 22 middle school students, the researcher, and an additional seven adults including instructional aides, teachers, and parents who also attended the event to show support to the children. The participants involved in this qualitative single-case study includes middle school students (n=6), university students (n=6), and administrators (n=3).

### **University Student Participants**

The in-service and pre-service teachers participating in the study attend a state university in California serving over 10,000 students as of 2018. The university is considered a Hispanic serving institution with 58% of students identifying as Hispanic or Latino and 61% identifying as female (CSUB Facts & Figures). University participants are enrolled in an educational technology course which focuses on serving grade levels k-12. This course is an introductory course that teaches educational technology instructional strategies, tools, trends, and issues. The course meets the technology standards for the Preliminary Multiple Subject Teaching Credential and Preliminary Single Subject Teaching Credential. University students participating in the study have either experience substitute teaching or are currently in a full-time teaching position. Participants were required to attend the workshop of the case-study event and attend the class the week before to receive the appropriate documentation for participation in the study.

### **Middle School Student Participants**

The children who participated in the study attended a middle school in a low-socioeconomic neighborhood that serviced 825 students in the 2018-2019 school year. The predominant school demographics consisted of 21% Black or African American students, 66% Hispanic or Latino, and 9% White. Over 94% of students are considered socioeconomically disadvantaged. In the school year of 2017-2018, English language arts proficiency was 21% for all students, and math proficiency was at 11% as measured by the Smarter Balanced Assessment Consortium (School Accountability Report Card, 2017-2018).

The middle school participants were chosen because they were either struggling academically, socially, or both. Students were identified as struggling academically because they were enrolled in a math intervention program whose selection criteria required children to be underperforming in their general education math class. Many of these students were performing at least two grade levels behind in academic proficiency. Students were identified as struggling socially if they showed a pattern of behavior that qualified them for behavior intervention at the school site.

### **Administrative Participants**

Middle school site administrators were selected based on their unique perspectives of the middle school student participants. The middle school site has the distinct circumstance of having 22 (out of 38) new teachers that are considered new to the profession. Thirteen of the new teachers are yet to begin a credentialing program, but all are required to enroll in a program before the end of the school year. The position of the administrators gives them insight into the challenges that new teachers face when teaching at a struggling low-socioeconomic school and the challenges the child participants face attending the school.

### **Case Study Workshop**

**Setting.** *The workshop for the case study was approximately one hour long, and it was held within the regular hours of the university course. The course met every Thursday night from 5:30 pm to 8:00 pm in a computer lab on the university campus. There were 33 university students enrolled in the course, and all students were expected to attend the workshop. The university students were not required to prepare for the workshop, and the study participants were only required to attend class on the previous week to receive information about the study and its parameters.*

All the children were required to have signed parent permission slips to attend the event, and middle school student participants in the study were cleared for inclusion in the study following the IRB protocol. There were approximately 22 middle school students who attended the event as part of their math intervention program.

**Lesson the Children Taught Adults.** The lesson the children taught was part of a unit of lessons they completed in their math intervention program. A key area of need identified by math teachers at the middle school site was an in-depth understanding of ratios and proportional relationships. For the first two months of their intervention program, the children learned how to create ratio patterns with hands-on manipulatives, to create a ratio table, to create a graph based on a specific table, to solve basic ratio word problems, to solve advanced ratio word problems, and to use a tape diagram in order to solve complex ratio problems. As a capstone project, the children then learned how to create digital 3D models of ratios and publish them into virtual reality. The summative assessment was for the children to teach the lesson to other children or adults.

The students prepared for the workshop by teaching children at their school site, facilitating a professional development session for teachers at a local technology conference, and

facilitating a professional development session for teachers at their school site. The title for the session was A Project-Based Math Task Infused with Technology. In each session, the children taught the activity at a ratio of one middle school student to 1 or 3 adults. By the time the children participated in the case study workshop, they had taught variations of the content to at least five other learners.

The number of adults or students a child taught in the case study workshop was based on the comfort level of the child. The children were placed in groups where there was an informal designated student leader. Some of the children had trouble working with or near other children, and the arrangement in the class is typically based on which children feel comfortable working near other specific children on any given day.

The case study lesson was arranged as a series of four challenges that took place over 60 minutes. Each challenge increased in complexity and difficulty. Challenge 1 consisted of creating a unique pattern, table, and graph; Challenge 2 was solving a basic ratio word problem with patterns; Challenge 3 was solving a complex word problem with patterns and a tape diagram, and Challenge 4 was creating a 3D digital ratio pattern and publishing the model into virtual reality. The workshop began with an introduction to the work and the students. In the workshop, there were two breaks during which both children and adults were invited to share any successes they had in the learning environment and to share complements they had for any individuals.

## Challenge 1: Create a ratio pattern, table, and graph.

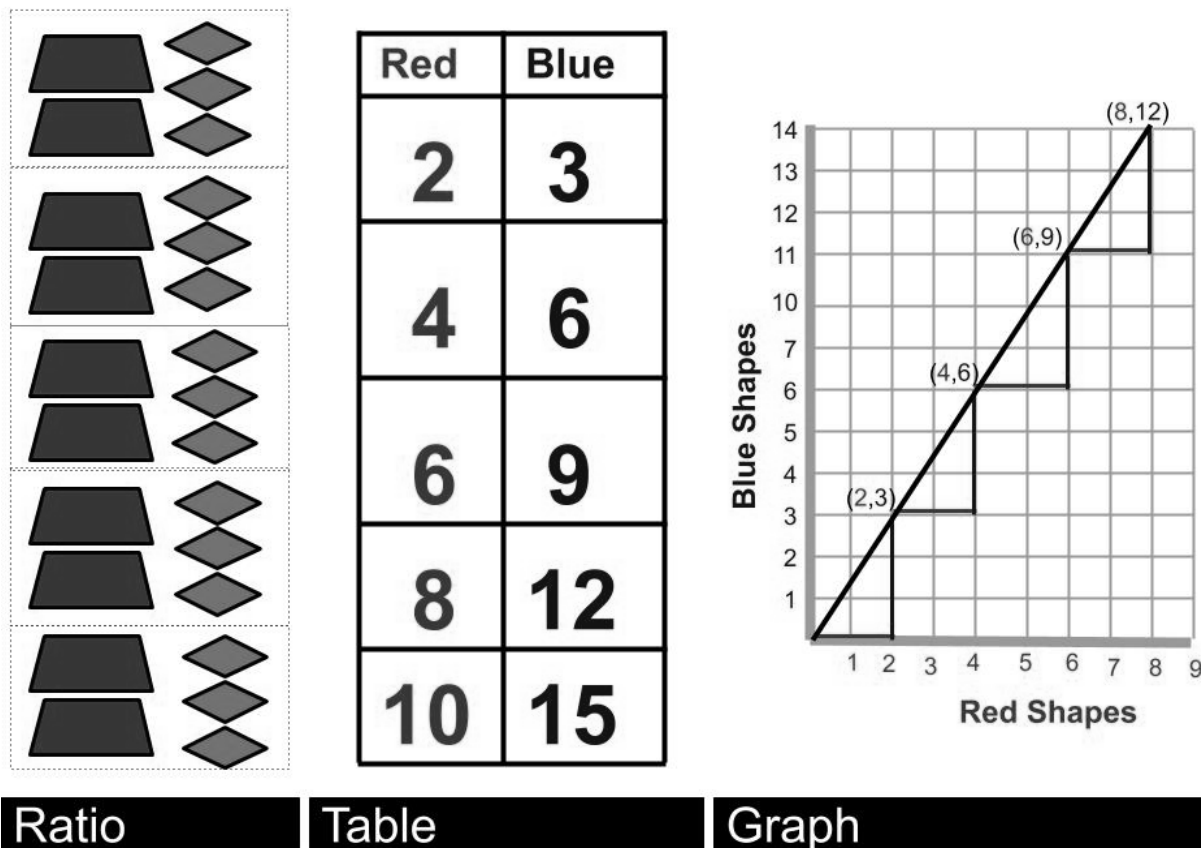


Figure 4. Challenge 1

Challenge 1 is based on 6<sup>th</sup> grade Common Core math standard 6.RP Ratios and Proportional Relationships: *Understand ratio concepts and use ratio reasoning to solve problems.* Specifically, this task focuses on substandard 1: *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities;* and substandard 3a. *Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.* As demonstrated in Figure 4, this challenge shows how a proportional relationship can be expressed in patterns, a table, and a graph. The children taught the adults how

to create their unique patterns, tables, and graphs. Each corresponding relationship in the challenge was color-coded to show how the different methods were related.

Challenge 2 and 3, as demonstrated by Figures 5 and 6, are based on 6<sup>th</sup> grade Common Core math standard 6.RP Ratios and Proportional Relationships: *Understand ratio concepts and use ratio reasoning to solve problems*. These tasks focus on substandard 3: *Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about equivalent ratios, tape diagrams, double number line diagrams, or equations*. In these challenges, the children first solved a simple question using manipulatives, tables, and graphs. The adults then solved a similar problem as the students assessed the understanding of the adults.

**Challenge 2: Solve the ratio word problem.**

There is a ratio of 2 red shapes to every 3 blue shapes. If there are 15 blue shapes, how many red shapes are there?

*Can you solve it with shapes? With a table?  
With a graph? Any other way?*

Figure 5. Challenge 2: solving ratio word problems.



### Challenge 3: Solve with a tape diagram.

There is a ratio of 2 red shapes to every 3 blue shapes. If there are 30 shapes in all, how many shapes of each color are there?

Answer

$$30/5 = 6$$

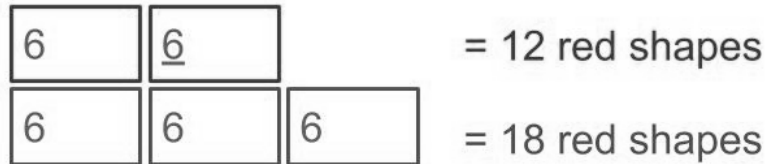


Figure 6. Challenge 3: solving word problems with a tape diagram.

In Challenge 2, the children demonstrate how the word problem can be solved using any of the methods in Challenge 1. The children also begin to share any shortcuts they have discovered. In Challenge 3, children show how the problem can be solved using the previous methods but demonstrate that the tape diagram is a much quicker method for solving ratios with larger number sets. Again, the children first solved an example problem, and then the adult solved a different problem independently.

### Challenge 4: Create a ratio pattern in 3D, publish to Virtual Reality, and share on a phone.

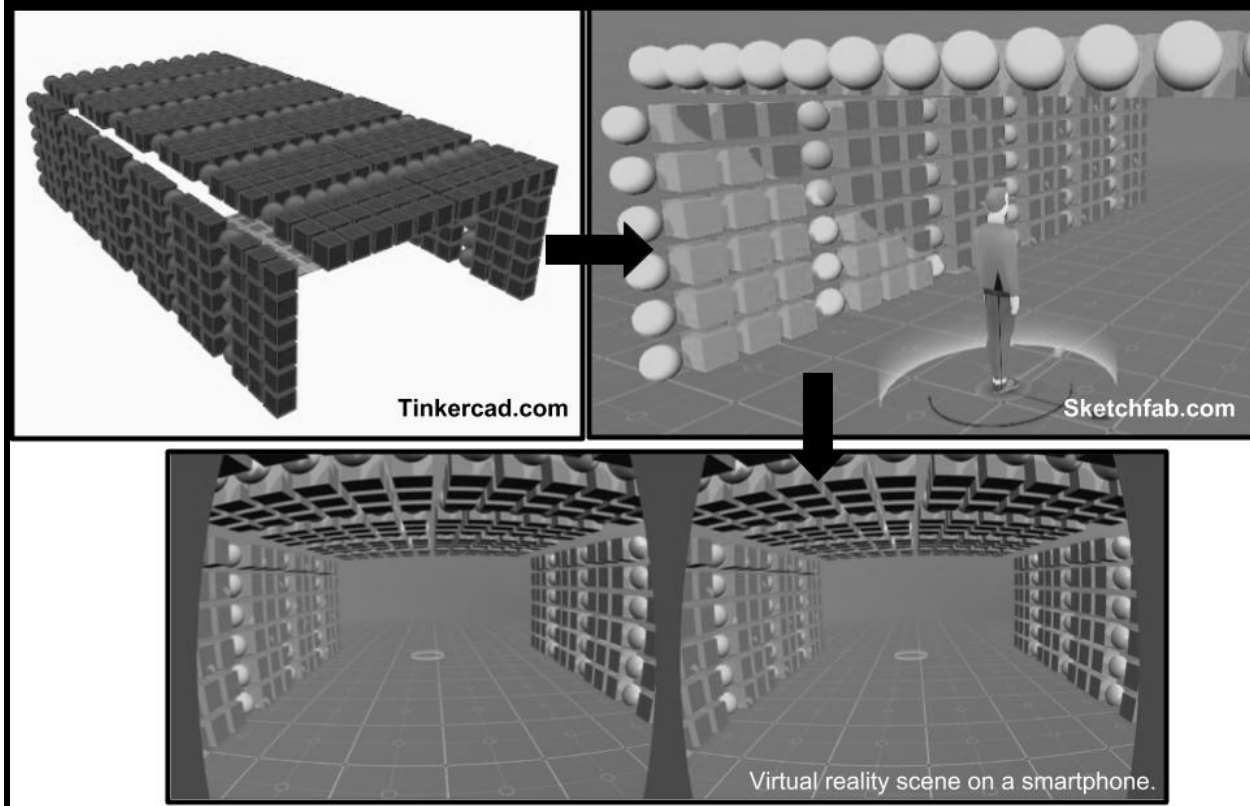


Figure 7. Challenge 4: creating a model for future word problems.

Challenge 4 is a capstone project where the children publish a virtual reality scene to the website Sketchfab.com. The children guide the adults through the process of creating a ratio model in virtual reality. This model will then be an instructional tool for teaching another learner. The key questions the students ask are “what is the ratio in the virtual reality scene?” and “Can you find the ratio with a shortcut?” This scene is then viewable from any late model smartphone. The technology to publish virtual reality through Sketchfab.com has been available since 2016, but the software is rarely used in k-12 settings. The ability to publish a virtual reality experience is novel for adults and allows the child to teach a completely new topic.

When the children and adults complete this workshop, they have participated in a lesson that delivers the content verbally, visually, kinesthetically, and in virtual reality. The participants

have worked independently and collaboratively with the end goal being that the new learner goes on to teach another learner how to complete the lesson.

## **Instruments**

This study used focus groups, interviews, field notes, a research journal, and a video recording as data points within the case study workshop. The focus groups and interviews with participants utilize purposeful sampling to generate data from students who are struggling academically or socially. Purposive sampling for the university students ensured that the participants have experience in the field of education to understand how learning in the student-led workshop impacts the children. For the administrators, purposive sampling required the administrators to have worked first-hand with the students in an academic and/or social capacity on the school site. According to Maruyama and Carey (2014), by directly including the targeted population in the research, homogenous purposive sampling will ensure that the unique perspective of this group will strengthen the data set by triangulating the unique perspectives. These perspectives include those of the middle school students, the middle school administrators, and the university students.

As an instrument, purposive sampling counterbalances the threat of bias in the research by ensuring the voice of low-socioeconomic and academically and/or socially struggling students is included in the study; however, this counterbalance also limits the generalization of the study to any larger population other than students from low-socioeconomic backgrounds as stated by Yin (2017).

**Focus Groups.** There was a focus group of six middle school students and a separate focus group of six university students. Institutional Review Board (IRB) clearance for all participants was submitted and obtained before commencing the study.

The focus group interviews helped provide insight into the learning environment by determining “how” and “why” children and adults benefit from the learning environment. Inclusion of focus group questions that elicit a “how” and “why” creates a necessary base for understanding unique phenomena (Yin, 2017, p. 223). Each focus group is semi-structured with questions aligned to the research questions.

**Interviews.** Face-to-face semi-structured interviews with administrators from the school site will provide data from a managerial perspective. The administrators at the middle school were instrumental in the creation of the peer-teaching program, and without their administrative consent and guidance, the children would not have had the opportunity to teach the university students. The administrators have also followed the progress of the children in the program from the inception of the activities, providing a perspective that not only informs the case study but the history leading up to the case study. Furthermore, some of the key actors in the middle school participant group have a history of behavior issues leading to disciplinary action from the school’s main office. In this capacity, the administrators know the students just as well as the students’ general education teachers do.

**Field Notes and Journal.** Data was also collected in field notes from the case study event. During the case study event, the researcher observed and directly participated in the event. In a constructivist tradition, this form of positionality can be a strength. Stake (1995, 2005) states that an embedded researcher provides a unique view and promotes a different level of understanding. Furthermore, this constructivist approach is grounded in the idea that “the value- and bias-laden nature of the work is acknowledged and embraced “(Boblin, Ireland, Kirkpatrick, & Robertson, 2013, p. 3). Similarly, Marshall and Rossman (2016) state that, through field notes from this embedded position, the researcher with unique positionality can create new points of

entry for further data collection. For this study, the field notes also include the private journal of the researcher as a separate point of data to document the positionality of the researcher and give insight into how ideas changed or remained steady throughout the research process (Stake, 2010).

The private journal includes multiple entries throughout the research process to compile thoughts and reflections. A journal may lead to larger narrative themes once the journal is viewed as a collection (Yin, 2017). The researcher will include his perspective and insight into the research, but to preserve objectivity, the specific researcher perspectives and insights from the journal will not be included in the content analysis of the case study learning environment. Only field notes and journal entries that illuminate certain aspects of the workshop will be shared in memos to add context to specific data points.

### **Data Collection**

The case study took place at the university to ensure a large turnout of university students in the case study event. Regarding previous events at the middle school, university students have shared that traveling away from the university campus is an inconvenience, and some have voiced concerns about safety in the neighborhood of the middle school. For the children, having a workshop at the middle school had been a success, but the children enjoyed visiting the university because of the uniqueness of the event and the prestige of teaching and leading at a university. The administrators from the middle school also shared that they believe it is important to expose the children to higher education opportunities, and these types of visits are important in familiarizing children with later opportunities in life. Thus, the preferred location for all parties involved was at the university.

To preserve a familiar setting for all participants involved, each focus group and interview took place at the main site of each participant because a natural setting facilitates a more comfortable environment (Wallen & Fraenkel, 2001). The focus group for university student participants took place in their regular course meeting room at the university. The focus group for the middle school student participants and the administrator participants took place at the middle school.

All focus groups and interviews were recorded with an iPhone 8 Plus using the application Voice Memos. An iPhone 8 Plus also video recorded the case study event using the application Camera with the video function. The participants were aware of the placement of the camera, and the recording device was easily visible on a tripod.

### **University Student Focus Group**

The focus group with the university participants was open-ended and began with ground rules. The university participants came from similar career trajectories, which, unfortunately, created a potential for biasing dynamics. Group conversations have the potential to be dominated by a subset group, and Maruyama and Carey (2014) state this excludes the opinion of some participants. To avoid a biasing dynamic, ground rules for speaking and sharing were vital for all participants to feel welcome and safe. All the participants were invited to share, but none were required to speak at any given time. The questions proceeded from broad questions about the activity to more narrow questions to gain insight into the case. Structuring the focus group with funnel questions, from broad to narrow inquiries, allows for a deeper insight into experiences (Wallen & Fraenkel, 2001). The focus group concluded with an activity where each participant was asked about their experience during the interview itself and the most important

issue or topic raised in the interview. The focus group lasted approximately 45 minutes and took place at the university immediately following the activity.

### **Middle School Focus Group**

The focus group questions included experience/behavior questions, opinion/values questions, and feelings questions in a natural setting that was largely unstructured and fluid, allowing for participants to be conversational. The role of the child participants is unique, and thus the focus group tailored to their special circumstance. These students are key actors, and Stake (2010) describes such children as special for having unique experiences that give a deeper understanding of their circumstances. Ensuring that the middle school students were comfortable was fundamental for collecting data. Wallen and Fraenkel (2001) claim that it is only in a natural setting that the qualities that make a participant special can be uncovered.

The focus group with the middle school participants was selected with purposive sampling. The middle school students included key actors as participants to better understand the underlying dynamics of the case experience. The key actors were middle school participants who not only participated in the case study workshop but were recruited because they were struggling either academically or socially. These participants were students who required a strong relationship to be built before they accepted a role in the case study workshop and were involved in ongoing activities leading up to the workshop months in advance. Key actors have the potential to give more in-depth insight than the average participant and are essential for providing a unique experience; however, their trust must be gained in advance (Wallen & Fraenkel, 2001). It is also the unique experience of the key actors in this study (low-socioeconomic students struggling socially or academically) that provides crucial insight into the opportunities of leadership for all students. The university students were not key actors and thus

served as a counterbalance of the “reflexive influence” of the key actors in the middle school group (Yin, 2017). The focus group for children took place on the day following the case study event and lasted approximately 45 minutes.

### **Administrator Interviews**

The focus group with the administrators was semi-structured, and the questions were only meant to guide the process. Each administrator was interviewed independently because each has a wealth of experience from a different perspective. One administrator works with the children through social services, one administrator works with the children through academic programs, and the other administrator learned alongside the children as they prepared for the workshop and volunteered within many of their experiences. The questions were meant to understand what benefits the administrators perceive the child and adult participants received in the learning environment. The key actors in the study have struggled academically, socially, or both, and the administrators have worked with the middle school participants through many of these struggles. Given this unique perspective, the administrator participants have a better understanding of the effect of this learning environment on both the middle school participants and the university student participants (as new or future teachers).

### **Field Notes**

The field notes included the hours leading up to the workshop. This data point detailed the researcher’s perspective and observations on the events of the case study. The field notes were open-ended without a predetermined checklist to discover “recurring patterns of behaviors, interactions, and relationships” (Marshall & Rossman, 2016; p. 3561)., The perspective of the embedded researcher as a native to the study, provided a unique data point for understanding the mechanics of the event.



## **Video Recording**

The video recording allowed the researcher to view the workshop holistically as a unit. This data point allowed the researcher to capture nuances and instances that were not captured in the live field notes (Marshall & Rossman, 2016). The video was recorded using the Camera application on an iPhone 8 Plus with the tripod visible to all participants. All participants were informed in the consent form that there would be a video recording, and participants were reminded of the recording and were aware of the camera position when the event begins.

## **Data Analysis**

The units of analysis in this case study were the middle school participant focus group, the university participant focus group, the administrator interviews, field notes, and a video recording. There was a total of (n) =15 participants in this single-case study. The participants included middle school students (n) =6, university students (n) =6, and middle school administrators (n) =3. The theoretical framework includes critical pedagogy and the instructional core to understand better how children and adults benefit when the traditional hierarchy of teacher to student is reversed, and the children teach adults. There is currently a gap in the research on low-socioeconomic students who are struggling academically or socially teaching adults within a formal capacity.

## **Focus Group and Interview Data**

The data was reduced from its digital audio form to a text document using the online software transcription program of Rev.com. The text was then reviewed meticulously by the researcher to ensure fidelity between the transcription and the audio recording. The data was then uploaded to the software *NVivo 12* and manually coded by creating nodes for codes, categories, and themes.

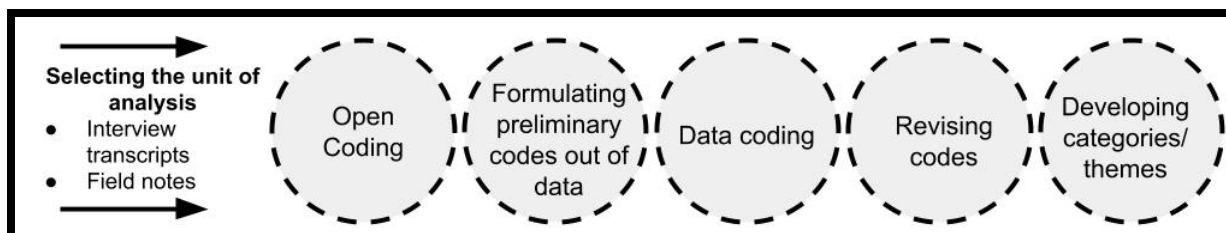


Figure 8 Procedure used in an inductive approach to qualitative content analysis.

Adapted from *Reducing confusion about Grounded Theory and Qualitative Content Analysis: similarities and differences*. Young Cho, J., Hee Lee, E. (2014). *The Qualitative Report*.

The study used a coding method shown in Figure 8 and described by Blair (2015) as proceeding from codes to subcategories, to categories, and then themes. The first cycle of coding was open coding to best capture the ideas of the participants as they were expressed through language. This process of open coding allows for emerging keywords to develop into subcategories (Blair, 2015). The second cycle of coding used focused coding to further develop subcategories into categories. In contrast to the line-by-line open coding of the first cycle, focused coding begins to synthesize the codes and categories into themes during multiple cycles. Figure 8 demonstrates how the content analysis proceeded from open coding to formulating preliminary codes, revised coding, and finally developed categories and themes.

### Field Notes and Video Recording

The field notes and video data were analyzed with analytic memos to supplement the audio data from the focus groups and interviews. The researcher focused on instances mentioned in the focus groups and interviews to understand the audio data by analyzing the visual data. Analytic memos on a video, rather than coding, can help a researcher fill in the gaps of actions and nuances that take place outside of their immediate field of view (Saldana, 2016). According to Penn-Edward (2012), video recording conducted by the researcher can lead to impartiality and objectivity by what the researcher chooses to film and how. The video recording device was placed on a stand to record as much of the room as possible and to prevent impartiality and objectivity while filming.

## **Storing the data**

Data was handled to prioritize the confidentiality and privacy of all participants. From the point of data collection, only the researcher and committee chair had access to the data. Consent from all individuals involved was required before participation in the case study event. Student video and photo release permissions were collected for all students as part of the school policy, and a form was uploaded to CAYUSE. As such, the data was not handled longer than necessary, was kept secure, and was processed as stated in the IRB. Participant responses were coded by an identification number and not listed by name. The participant names did not appear in any reports. The final written report contained only summary data.

Data was securely stored in a locked cabinet in a private room and in a password-protected computer available only to the student-researcher and committee chair. The computer was secured with a paid anti-virus software which includes a firewall, real-time scanning, and updated information on hacking threats. The data was not handled longer than necessary, was kept secure, and was only processed as stated in the IRB. Participant responses were coded by an identification number and not listed by name.

## **Limitations and Delimitations**

There are limitations to the qualitative content analysis depicted in Figure 8, the primary issue being that this process stops at developing categories and themes without extending into theory-making based on the evidence generated by the study. Furthermore, Young, Cho, and Hee Lee (2014) state that this process of categorizing and synthesizing does not lead to a stronger analysis of the relationships between codes, categories, and themes. As an exploratory study, this research methodology design creates a base for understanding the benefits of struggling children teaching adults, but future studies that generate theory would require a different design.

## **Limitations**

The conceptual framework for this study includes the instructional core and critical pedagogy. The framework limitations are as follows:

1. By design, this study does not measure the academic output of the participants or longitudinal perspectives from the participants. It is outside the scope of the research whether or not there is a long-term impact on the participants.
2. The case study focus is on perceived outcomes of middle school students and university students within a single learning event.
3. The research does not include input from important stakeholders in the education of the children. These stakeholders include parents and teachers.

## **Delimitations**

1. The study is delimited to a single-case study involving middle school students and university students.
2. The children are from the lowest performing middle school in their city, and a subset of the children was selected for having a history of documented behavior and academic issues.
3. These delimitations cause the study to serve as a unique experience in an under-researched environment, rather than an event that can be generalized to larger populations. Although this delimitation is not conducive to building theory, the case study event with underserved children as leaders creates the necessary conditions for further research into children as teachers and leaders of adults.

## **Ethical Considerations**

The study participants include children who are classified as a vulnerable population according to the California State University, Bakersfield Institutional Review Board. The children are also from one of the lowest performing schools in their city in neighborhoods with the highest concentration of crime. Traditionally, the voices of marginalized low-socioeconomic are absent in the policy-making decisions at their school and in the community in general (Shaffritz, Otts, & Jang, 2005; Freire, 1970). In this study, the children will have the opportunity to have their voices heard regarding experiences in the collaboration between the university and their school, as well as demonstrate to the new and future teachers the strengths and abilities that children from all communities regardless of socioeconomics have to offer. The children in this study will benefit considerably because student voice through focus groups and participation in research is empowering and gratifying for participants (Maruyama & Carey, 2014).

### **Summary**

Chapter 3 described the methodology of the research, including the purpose, research questions, research design. The research design included an overview of the selected methodology, a qualitative single-case study. The case study design was selected because its flexibility as a research genre allowed for an exploratory study into a contemporary phenomenon with little supporting research. This section also included the population and participants, instrumentation, data collection methods, data analysis. The data collection consists of a focus group of university students, a focus group of middle school students, interviews from administrators from the middle school, researcher field notes, and video documentation of the case study event. The study limitations and ethical considerations in Chapter 3 address the issue of conducting appropriate case study research, the generalizability of the case study, and the

benefits the participants will receive as part of the study. Chapter 4 will focus on the results and the outcomes of the case study.

## CHAPTER 4: DATA ANALYSIS AND RESULTS

The purpose of this qualitative, single-case study was to understand how academically and socially struggling low-socioeconomic middle school students, and university students benefit in a learning environment where the children teach the adults. This research addressed the gap in which low-socioeconomic students teach university students in a formal setting. When adults collaborate as partners with children in university-based field experiences, they create relationships that improve the learning of both university and middle school students (Pope, Beal, Long, & McCammon, 2011). This study intended to provide a research base for more opportunities where academically and socially struggling children from low-socioeconomic communities can be instructional leaders in higher education and with adults.

The single-case study event took place in December of 2018 at a state university in California. The event lasted approximately one hour and fifteen minutes and included 32 university students learning from 22 middle school students in a math and technology project-based lesson. The researcher selected participants using purposeful sampling. The university students participated in a focus group immediately following the event, the middle school students participated in a focus group at their school the following week, and the administrators were interviewed individually within a week of the event. Additional data points include a video recording of the event, a researcher journal, and field notes from the event.

The research questions for this study were as follows:

- RQ1. How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves?
- RQ2. How do low-socioeconomic students perceive the benefits of teaching adults?

RQ3. How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?

RQ4. How do school administrators perceive the benefits of middle school students teaching university students?

This chapter includes a description of the participants, data collection, and data analysis. The data collected includes quotes from the participants, a video of the workshop, and notes from the researcher. The data is described in a thematic analysis and review of the research questions, followed by a summary of the chapter.

### **Descriptive Data**

Participants in this study included middle school students (n=6), university students (n=6), and administrators from the middle school (n=3). The inclusion of these participants documents the experience of the children who were teaching, the university students who were learning, and the administrators who followed the journey of the children as they trained to teach, and then finally participated in the workshop. Triangulation of the data strengthens the validity of the data by including the three distinct groups of participants, video of the event, and researcher field notes.

The university's Institutional Review Board and the central office of the school district for the middle school participants and administrators approved the study. The researcher selected middle school participants from a pool of children who participated in a middle school math intervention program. Middle school children in this program participated in sessions where they learned how to teach younger children a series of math and technology lessons as part of their academic intervention program. This same series of lessons was condensed into a one hour workshop that the children delivered to university student participants in the case study event.



Most of the children in this program were identified as academically or socially struggling in their general education math course by achievement test scores or by teacher recommendation. The researcher included middle school administrators in the research because the administrators had a unique understanding of the challenges the children faced in preparing for the learning environment of the case study event. The researcher selected university students who participated in the workshop that were enrolled in an educational technology course for preservice and in-service teachers at the university and had either full-time teaching or substitute teaching experience.

Table 1 shows the demographic information for all participants in the research. The academic level of the university student is essential for this study because not every student in the course was at the graduate level or intended to enter the teaching profession. The course meets technology standards for the Preliminary Multiple Subject Teaching Credential and Preliminary Single Subject Teaching Credential, but for this study, participants needed to be pursuing a credential. It was also important for the participants to have at least experience substitute teaching so that they would have a frame of reference as to the typical classroom environment. The designation of the preservice or in-service teacher is vital because this determines whether the university student is already teaching under a full-time contract.

Table 1

*Demographic Information for University Student Participants*

| Study Identifier     | Academic Level | Gender | Substitute Experience | Preservice or In-service Teacher |
|----------------------|----------------|--------|-----------------------|----------------------------------|
| University Student 1 | Post Graduate  | M      | Yes                   | Preservice                       |
| University Student 2 | Post Graduate  | F      | Yes                   | Preservice                       |
| University Student 3 | Post Graduate  | F      | Yes                   | Preservice                       |
| University Student 4 | Post Graduate  | F      | Yes                   | Preservice                       |
| University Student 5 | Post Graduate  | F      | Yes                   | In-service                       |
| University Student 6 | Post Graduate  | F      | Yes                   | Preservice                       |

The demographic information of the middle school students includes their grade, gender, and ethnicity. The grade is important because it shows that the children were between the ages of 12-13, with most of the students ready to transition to high school. The ethnicity of the students is important because the students who are reported as struggling most at the middle school level, according to standardized testing data, are African American students.

Table 2

*Demographic Information for Middle School Student Participants*

| Study Identifier        | Grade | Gender | Ethnicity        |
|-------------------------|-------|--------|------------------|
| Middle School Student 1 | 8     | M      | Hispanic/Latino  |
| Middle School Student 2 | 8     | F      | African American |
| Middle School Student 3 | 8     | M      | African American |
| Middle School Student 4 | 8     | F      | African American |
| Middle School Student 5 | 8     | M      | Hispanic/Latino  |
| Middle School Student 6 | 7     | M      | African American |

The demographic information for the administrators includes their gender and ethnicity. Additional traits were deemed superfluous to the study because the administrative experience of the participant was not in question for the study. The only information needed from the administrative participants was their experiences working with the middle school student participants.

Table 3

*Demographic Information for Middle School Administrators*

| <b>Study Identifier</b> | <b>Gender</b> | <b>Ethnicity</b> |
|-------------------------|---------------|------------------|
| Administrator 1         | Male          | Hispanic/Latino  |
| Administrator 2         | Female        | African American |
| Administrator 3         | Female        | Hispanic/Latino  |

**University Participant Focus Group Process**

The focus group for the university students began immediately after the case study learning event, in the same room the course is held. The rest of the university students were dismissed early so that the focus group would happen during regularly scheduled class hours.

Students not participating in the interview exited within approximately 10 minutes, and the researcher reviewed the focus group protocol and consent forms with the university students. Before formally asking the questions, the researcher presented the participants with the questions to familiarize them with the study and then modeled how to pass the recording device to ensure voice clarity in the recording. The recording device was an iPhone 8 Plus. The interview lasted 56 minutes and finished within the allotted regular course hours.

The interviewer used a semi-structured protocol that was approved by the Institutional Review Board (IRB). The recording device circulated within the group after each question, and each participant had the opportunity to answer or decline. Participants were not limited to following a specific order, and as new thoughts and comments arose, participants were free to answer and comment.

**Middle School Participant Focus Group Process**

The focus group with middle school students was initially scheduled to take place the morning after the event, on a Friday. Two of the students were absent for three consecutive days;

on the third day, four of the participants met in one group, and then the two missing participants met separately on the fifth day. The first meeting of four students lasted 24 minutes, and the second meeting of two students lasted 25 minutes. In each meeting, the researcher informed the participants that participation was voluntary, and participants were not required to respond to any specific questions. The researcher also informed the participants they could stop at any moment with or without any explanation.

### **Administrator Interview Process**

The researcher interviewed administrators on three separate occasions to get an in-depth analysis of the middle school participants and their path to the learning environment. All three administrators worked at the middle school under different administrative capacities.

The administrators were interviewed in their respective offices at the middle school site. Before the interview, each participant was informed of their right to the voluntary questions and reminded that participation could cease at any moment. The interview with Administrator 1 lasted 31 minutes. The interview with Administrator 2 lasted 14 minutes, and the interview with Administrator 3 lasted 17 minutes.

### **Data Analysis Procedures**

Data from the focus groups and interviews were transcribed immediately after each session using Rev Transcription at Rev.com. The researcher stored data according to the procedures listed in the IRB protocol, which included: storage on a secured computer with updated security, data encryption, and the use of non-identifying labels for participants. The following section details the analysis of the data.

### **Analysis of Data**

The middle school student focus group, the university student focus group, and the administrator interviews were recorded and then transcribed using an online transcription service. The researcher field notes and workshop video memos were typed and uploaded to a computer. The researcher coded the transcribed documents in qualitative data analysis. Document coding involved reading textual events and assigning codes to the segment of data to better understand the underlying meaning of each document (Blair, 2015). This analysis went through multiple cycles to create codes, categories, sub-categories, and themes.

Before initiating the coding, the researcher read the documents thoroughly and listened to the audio of the recorded interviews independently. Then the researcher read the documents and audio recordings simultaneously to ensure the transcribed data was accurate.

The qualitative coding analysis was conducted manually and then organized using the software NVivo 12. For this process, the documents were uploaded to the software NVivo 12. The researcher stored each source of data in a separate folder labeled by the participants' role in the research. The first coding cycle used the open coding method to create initial codes. This process required the researcher to highlight the textual evidence and then turn it into individual nodes.

The second cycle of coding used the focused coding method to begin identifying emerging themes (Saldana, 2015). This cycle involved finding common ideas in the first cycle of codes. The researcher manually organized the categories and subcategories using the visual nodes hierarchy function. This feature allowed the researcher to group the emerging themes visibly. Figure 9 shows how codes were grouped into subcategories and categories. The color coding process then helped facilitate analysis for the emergence of different themes.

The researcher created memos based on the field notes and video recording to find visual representations of specific instances mentioned by participants. The researcher then aligned the memos to corresponding codes, triangulating the visual data with the child's perspective, and the university student perspective. This process created certain data points that are rich in detail because it included the researcher field notes, the video, and the participant perspective.

| Generational Differences |                       |                    |              |                               |               |                            |               |
|--------------------------|-----------------------|--------------------|--------------|-------------------------------|---------------|----------------------------|---------------|
| Challenges with Change   |                       |                    |              | Natural Changes               |               | Positive Change            |               |
| we're never under...     | teenage...            | more we ...        | isolated ... | things that...                | they change   | the way...                 | she will ...  |
| we disconnect so ...     |                       |                    |              |                               |               |                            |               |
| the expectation is...    | adults don't u...     | I don't blame t... |              | music cha...                  | every gene... | man and...                 | So it'll b... |
|                          |                       |                    |              |                               |               |                            |               |
| Pedagogy Change          |                       |                    |              | because they change           |               | I didn't appreciate th...  |               |
| they want to te...       | making those co...    | disser...          | I've s...    | Society changes over time ... |               |                            |               |
| so we stay up-to...      | hopefully realize ... |                    |              | Fear of Change                |               | people are afraid of ch... |               |
|                          |                       |                    |              | people tend to go to wh...    |               |                            |               |

Figure 9. Codes, sub-categories, and categories manually coded in NVivo12.

The categories were reviewed in a thematic analysis across research questions to find common themes for all the participant groups. Each research group corroborated specific research questions to triangulate the data and determine how low-socioeconomic students and university students are benefiting in a child-led instructional environment. Table 4 shows how specific focus group and interview questions were aligned to research questions.

Table 4

*Question Matrix*

| Research Questions                                                                                                                            | Focus Group and Interview Questions                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| RQ1. How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves? | Middle School Participant Focus Group questions 1, 2, 3, 4, 5, 6<br>University Participant Focus Group questions 1, 2, 3, 4, 5, 6 |
| RQ2. How do low-socioeconomic students perceive the benefits of teaching adults?                                                              | Middle School Participant Focus Group questions 1, 2, 3, 4, 5, 6                                                                  |
| RQ3. How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?                      | University Participant Focus Group questions 1, 2, 3, 4, 5, 6                                                                     |
| RQ4. How do school administrators perceive the benefits of student instructional leadership?                                                  | Administrator Interview Questions 1, 2, 3, 4                                                                                      |

**Field Notes and Video Recording**

The field notes collected during the workshop focused on the actions and reactions of all participants in the workshop. The researcher was with the middle school student participants for two hours before the workshop. During this time, the middle school students socialized with each other and ate a meal.

Approximately thirty minutes before the students boarded the bus to the university, the students practiced their lessons and made final preparations. The students also sat in a large circle for 10 minutes, where unofficial student leaders shared their experiences in previous workshops and gave tips on how to perform. The mood was overall very positive, but two students were continually acting out disrespectfully, not following directions, and using profanity. The researcher spoke with the students individually on three separate occasions leading up to the workshop, but their behavior did not cease. One of the students had missed a previous workshop because he said that he was nervous and did not think he would do well

teaching the adults. The researcher spoke with the student on multiple occasions during the previous days and reassured the student that he would do well. His friends also reassured him that he would do well and that they would support him.

The bus ride to the university was uneventful, except for the incidents of the two students (described earlier) who continued to act out and use profanity. According to observations recorded in the researcher journal, this type of behavior is typical of the students in their general education classes, but in the intervention class, they generally behaved very well and refrained from using profanity. The researcher had to ask one of the students to move seats and sit next to the researcher on the bus. After the student moved seats, the researcher coached the child on ways to relax. Together they spoke about breathing techniques that the student had learned during basketball practice, such as breathing in through the nose and out through the mouth. The student calmed his nerves, but as soon as the bus arrived at the university, the student began to act out again by becoming very loud and using profanity. Some of the adults who chaperoned the trip became concerned with the student's behavior. One chaperone, a teacher, pulled the student aside and spoke to him in a very positive manner about expectations and how to relax.

Upon exiting the bus, the students gathered in a large group and listened to instructions from the researcher. The students then proceeded to walk to the assigned class in the building for the Department of Teacher Education. The group entered the class about ten minutes early, and there were ten university students present. At this time, the chaperoning adults, university students, and children informally met and spoke with each other in small groups. There were 28 university students present when the class session began at 5:30 pm. Five university students arrived late. Within 5 minutes of the official class starting time, there was a total of 8 guest



chaperones including teachers, administrators, instructional assistants, a parent from the middle school, 33 university students, and 22 middle school students.

The first ten minutes of the workshop included a formal introduction of the children and the chaperones attending the workshop. Chaperones from the school shared inspirational words about the students. The children were assigned university students to work with at a ratio of 1:1 and 2:1. This ratio was determined by how the student felt at the moment. Each student was asked whether they wanted to teach one or two adults. The researcher then went over the learning objectives and goals for the evening before releasing the responsibility to the students.

As soon as the children took over the lesson, University Student 2 described the mood as follows:

So they really took it upon themselves to be the teacher. You could tell that they really adopted what they've seen you, or any of the other teachers do. You could tell that they tried to bring that and they tried to get that persona because I can tell that's probably not how a typical middle schooler acts. When they walked in, you know they were kind of in their groups looking around, but when it came for them to be in the spotlight, you could see the big shift in the way they acted. I think it's really important for them to kind of have this opportunity because it shows them that they can be in a leadership role.

The adult chaperones were walking around and observing the children. The parent in attendance took videos and pictures of their student. The students mentioned that the computers they were using had different software than the laptops they used at school, but they managed to work around the technical issues such as how files were stored on a desktop as compared to a Chromebook laptop.

The student who had discipline problems on the bus smiled at the researcher 15 minutes into the workshop. The student then came over and gave the researcher a high five and a hug. The student said, “yeah, I got it. I got it.” The student looked happy and appeared to be comfortable in the activity. The other student who was also acting-out, was engaged in the activity and connected to the university students.

The workshop had two breaks, where participants were asked to share something positive in the learning environment. The positive comments shared by participants during the break were spontaneous, and adult and child-students volunteered by raising their hand.

Table 5

*Comments Shared During Positive Feedback Breaks*

| Participant          | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University Student   | I felt (she) did a great job. I’m a 7 <sup>th</sup> -grade math teacher; she’s in 7 <sup>th</sup> grade. I never understood a tape diagram until right now.”                                                                                                                                                                                                                                                                                                                                                                                                                            |
| University Student 6 | She corrected me on the first step because instead of starting at zero, I started at 1. This gave me a wrong answer, and she (Middle School Student 1) helped me correct that.                                                                                                                                                                                                                                                                                                                                                                                                          |
| University Student 5 | I teach first grade, so it makes a lot of the sense the way she (Middle School Student 4) began just by using the colors. I’m pretty much used to just doing the math in my head, but I understand now. I’m going to back tomorrow and apologizing to my kids because I’ve been teaching them wrong and now, I understand why they are so frustrated all the time. But it really helps me to get a little more creative and understand why they (students) don’t understand. I really need to put it in their perspective of how they need to learn, as opposed to how I like to learn. |

## Results

The researcher collected the data from separate semi-structured focus groups with university students and middle school students, administrator interviews, field notes, and video of the case study workshop. The researcher used random four-digit numeric patterns to label

participants in the transcribed focus group documents to protect participant confidentiality. Middle school participants in the research are identified as Middle School Student 1, Middle School Student 2, etc. Similarly, university students are identified as University Student 1, University Student 2, etc. Middle School Administrators are identified as Administrator 1, Administrator 2, and Administrator 3. None of the identifying labels were assigned in any order and are not traceable to participant identities.

### **Research Question 1**

How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves? This research question draws from the university student focus group (n=6) and the middle school student focus group (n=6). Both participants groups view the experience as positive, as demonstrated by the participant responses and the primary themes generated of benefits of the learning environment and empowering children. The theme of generational differences also emerged but generated far fewer codes than the first two themes.

Table 6

*Themes, Categories, Codes for Research Question 1*

| Themes                               | Categories                                                                                                                                                                                                                                                                                    | Codes |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Benefits of the Learning Environment | <ul style="list-style-type: none"> <li>● Adult Learning</li> <li>● Advocating for Experience</li> <li>● Children Benefiting</li> <li>● Children Reflecting</li> <li>● Children Adapting</li> <li>● Positive Experience</li> <li>● Empathy for Child Experience</li> </ul>                     | 183   |
| Empowering Children                  | <ul style="list-style-type: none"> <li>● Improving Self-Efficacy</li> <li>● Child Striving for Excellence</li> <li>● Children Suggesting</li> <li>● Children Helping</li> <li>● Empowering</li> <li>● Overcoming Obstacles in the Learning Environment</li> <li>● Affecting Others</li> </ul> | 94    |
| Generational Differences             | <ul style="list-style-type: none"> <li>● Changing Methods</li> <li>● Changing Experiences</li> </ul>                                                                                                                                                                                          | 15    |

**RQ1 Theme 1. Benefits of the learning environment.** According to data gathered during the focus group with university students and the separate focus group with middle school students, the benefits of student leadership in the learning environment range from the categories of adult learning to children benefitting. This finding shows that the adults and children participating in the workshop believe the benefits to the child include both social and academic benefits. The benefits to the adults include academic learning and the ability to reflect from the perspective of the child.

The category of children benefitting included 34 instances where participants mentioned how the workshop benefited the children. University Student 3 worked with Middle School

Student 6, and both described how the learning environment and preparing the student to lead the lesson improved the academic knowledge of the student. The University Student 3 also expressed the importance of having a student that is struggling academically or socially take part in this type of experience:

I think that it's most important to teach those kids because we have these kids that already get A's and they already know, their papers are telling them 'you got this, you're smart.' You're building that confidence. When you hand somebody an F paper it kind of hurts. They feel it, yes, it hurts. So, I feel like bringing them here and showing them, giving them confidence that their papers and their test scores don't give them. And I feel like, we have to build those students up, for them to feel like, 'okay, maybe I am somebody. My papers are not telling me that I'm somebody but if I can come in here and teach an adult or something' even if it's just one night that one year. Giving them that confidence.

Middle School Student 6 worked with University Student 3 and shared that preparing for the leadership role also exposed him to new learning experiences and a new environment where he felt successful. This change in how the student was able to participate and feel successful is similar to what McClain and Cobb (2015) call different social and mathematical norms. Whereas the student did not feel successful in his general education classroom, Middle School Student 6 stated how much he enjoyed the math intervention environment and his role as an academic leader:

Like my math class is way different. I feel like nobody do they work. We get along like this, it's like a fun way of doing math. I was good at math, but like before we started teaching adults, I didn't know how to do any of that. All of that.

Table 7

*Comments on Benefits from the Learning Environment*

| Participant          | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University Student 1 | Yes, yes, I think we should definitely have more interactions like this. As future teachers, having the younger student coming in to teach us is something that definitely should happen. I think we should spend more time with kids and being able to ask questions of them. Again, we are going to have to stand in a class...and all these books that we read and content we are being taught is coming from people who all they do is study and do research and this and that. They kind of just sit off and observe, they put these kids into general categories. We kind of need to get in front of these kids in a non-teaching environment and just talk to them and get to know them, ask them questions. What do they expect of us? |
| University Student 2 | So, it was kind of cool for them to actually see and it was a product they got to create, and they got to really work with and kind of show and choose how it ended up, it wasn't a math book telling them. So, I think it is really cool for them to kind of play around and play with it, kind of feel it. I think when it's hands-on like that you get to see yourself grow.                                                                                                                                                                                                                                                                                                                                                                |
| University Student 5 | It was very good for her (Middle School Student 4) to be exposed to what our environment is, where we can feel safe and we know that you come to school where we all have our own goals. I feel like she really, really enjoyed that, so I feel like it's very good for us to expose them to the real world.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| University Student 6 | So, I asked "what's your incentive, what reward did he give you to come?" She (Middle School Student 2) was like "nothing, we don't get graded for it, we just chose to be here" and I was like "good for you, this is a great experience and thank you." She had a big smile on her face.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| University Student 6 | I believe teachers new and old should go through these experiences where they get taught by kids because kids learn things differently and when we find a way to know what their strengths are, we can develop more on it.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**RQ1 Theme 2. Empowering Children.** The six primary categories that emerged in this theme were child striving for excellence, children suggesting, children helping, empowering, overcoming obstacles in the learning environment, and affecting others.

Both the university student participants and middle school student participants perceived the event to be empowering for children. The participants gave examples that were immediate and long-term in their effect on students. University Student 3 describes how the event gives the student an immediate sense of gratification while also believing that the learning will have a long-term impact on the child.

I'm just going to go back to the empowerment and the confidence. And now building on what I was saying just a second ago about the skill sets, you know being in this environment and learning, they're getting empowered. In the end, they are seeing that they have the ability. They may not be at the proficiency that they need to be, but as we were saying earlier, they know something, and they can share that information that they have. And hopefully, from there, that'll give them the confidence that they need to say 'yes, I can do this, and I can take it to the next level.' But bringing them on to a university campus to teach adults that are going to be teachers takes that to the next step because it shows them 'yeah, you know, I do belong here.'

Table 8

*Comments on Empowering Children*

| Participant             | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University Student 2    | It shows them that this is college, and this is for everyone. They shouldn't sell themselves short and say like "my parents didn't go to college my, brother didn't go to college, this person didn't go to college, my role model didn't go to college. So why should I be able to go to college?" I think them having this experience really shows that they can do this and that there are a lot of different paths that they can take. |
| University Student 3    | I think the most important part is that every day we learn something from these kids, and we don't outwardly say "oh I learned that from you today." So, I feel like, in situations like this, where they are teaching us, we are creating a balance, and they know that we learn from you just as much as you learn from us.                                                                                                              |
| Middle School Student 3 | One thing that I liked is how I got to teach them and like they couldn't interrupt me. They had to wait to let me get through, let me finish. I like how after I got done, they asked me how did I do that or "how do you do that? Why did you do that?" They asked simple questions.                                                                                                                                                      |
| Middle School Student 6 | I feel like I was the boss.                                                                                                                                                                                                                                                                                                                                                                                                                |

**RQ1 Video memo.** During the brief time before the session started, most of the participants interacted only briefly for introductions. Most of the adults interacted with other adults, and most of the children were preparing for the session by getting materials ready (markers, digital presentations, graphs, and manipulatives). Within the first ten minutes, there were six middle school students in the field of view getting, materials ready for themselves and their partners in the workshop. Three of the middle school students were assertive in introducing themselves while the majority waited for the workshop to begin.



Middle School Student 5 seemed uncomfortable during the ten minutes before the workshop began. He spent the entire time on his phone or looking around and fidgeting. There was only a brief instance of fewer than 30 seconds where the middle school and university student spoke with each other.

The dynamics of their relationship changed significantly once the learning task began. Middle School Student 5 immediately began guiding the university student through the lesson. Middle School Student 5 followed his training by first modeling the problem and then allowing the university student to solve a similar problem independently. Middle School Student 5 had no problem reaching across the desk to reach for materials or model a method. In their first five minutes, it was evident that Middle School Student 5 was missing a material he required for the lesson because he looked around to find something, doesn't see it, and comments. This issue did not stop Middle School Student 5 as he then proceeded to improvise in the lesson and continued unabated.

The university student also appeared to have grown in comfort and was also reaching across the table for manipulatives and entering the child's personal space. The collaboration between the child and adult appeared to be very natural and not forced. The postures and gestures of every child in the field of view demonstrated that the learning environment empowered the student by giving them full control of the pace and content of the lesson. Each child was watching over their adult partners, while the adults were focused specifically on the task.

## **Research Question 2**

How do low-socioeconomic students perceive the benefits of teaching adults? The researcher used this question to understand how the children themselves perceived the benefits of

teaching adults. The primary theme is empowering children with the subcategories of child reflecting, empowerment, and overcoming obstacles in the environment.

Table 9

*Themes, Categories, and Codes for Empowering Children*

| Themes                                           | Categories                                                                                                                                                                                                                                               | Codes |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Child Reflecting                                 | <ul style="list-style-type: none"> <li>● Reflecting on Systemic Struggles</li> <li>● Reflecting on Learning Environment</li> <li>● Perceptions of Adult Learning</li> </ul>                                                                              | 72    |
| Empowerment                                      | <ul style="list-style-type: none"> <li>● Positive Effects on Other Students</li> <li>● Child to Child Resourcefulness</li> <li>● Child Suggestions for Learning Environment</li> <li>● Striving for Excellence</li> <li>● Child Self-Efficacy</li> </ul> | 40    |
| Overcoming Obstacles in the Learning Environment | <ul style="list-style-type: none"> <li>● Child Struggling in Learning</li> <li>● Adult Struggling in Learning</li> </ul>                                                                                                                                 | 19    |

**RQ2 Theme 1. Child reflecting.** An unexpected finding that did not emerge in the literature review was that the leadership role would cause the child to reflect from the perspective of the adult. The middle school students in the study all struggled either academically or socially in their classes. The success of their leadership role in the learning environment provided a stark contrast to some of their experiences in their general education classes. Some students such, as Middle School Student 2 reflected on their behavior and how they could make self-improvements in their general education class participation. Middle School Student 2 stated “and also, like how I was low-key getting frustrated. Now I see how teachers feel when we are acting up, be asking all these questions.” Similarly, Middle School Student 3 reflected that they also understood how student behaviors can directly affect the classroom environment.

It can help us out in our classes because now we know that when we're getting taught not to be off task and not to be asking too many questions cuz we feel how they felt when we ask too many questions, cuz they're asking a lot of questions yesterday.

Middle School Student 5 went further and determined that the learning experience could be used to help them navigate future relationships with teachers, "It kind of shows how the teacher-student relationship works so we can try to reverse that and put it in use in our other classes." This reflective stance on individual student behavior was not elicited by the researcher in any of the questions or prompts and emerged naturally in the focus group.

**RQ2 Theme 3. Overcoming obstacles in the learning environment.** In this theme, there is a delineation from struggling to empowerment. The obstacles in the environment led to an outcome that empowered the child. Middle School Student 2 shared:

I mean it wasn't really a challenge, I low-key forgot the challenge too. I just couldn't remember how to do the shapes and then I remembered to teach them the shapes in a different way. It took me like two minutes. I just paused so it was low-key catching up, so it gave me a legitimate reason to come up with a solution.

This statement acknowledges that the challenge was not detrimental to the learning environment and the participant needed to come up with a solution. The term "low-key" means that the student 'discreetly' forgot how to solve the problem and then 'discreetly' came up with a new method to solve the problem while teaching.

Middle School Student 4 continually struggled in the initial stages of the lesson, but their partner University Student 5 acknowledged that they also struggled because they did not consider themselves to be strong in math.

It felt so weird because like I was kinda scared because it was all girls so I was like ‘oh snaps, what if I don’t do it right?’ So I kinda did mess up. I got angry and frustrated but at the same time they were messing up too. They said it was ok, that it was just math, and to breath in and breathe out and then we got done.

This quote illustrates how both the middle school and university participant engaged in a productive struggle and then felt empowered after overcoming early obstacles. The productive struggle here is that both the child and the adult participant had to work through the mathematics to find the appropriate answer for the specific challenge.

Although there was an initial struggle, both participants succeeded in completing the task, and the words of praise from the university participant made a visible impact on the moods and demeanor of the child, and the other participants in the learning environment. Table 8 displays more select quotes on child and adult obstacles in the learning environment.

Table 10.

*Comments on Overcoming Obstacles in the Learning*

| Participant             | Comments                                                                                                                                                                                                                                                                                                              |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Middle School Student 1 | I felt nervous through the whole thing because, like, it should be the other way around. But I got used to it towards the end. It was really easy for me to explain it to them, they didn't know it, so it was easy for me to explain.                                                                                |
| Middle School Student 3 | They kept messing up on the patterns and I was teaching one person faster than the other. You know one is going a little slower and not getting it, so it's hard to keep switching off and on. So, I just put my paper in the middle and showed them both.                                                            |
| Middle school Student 5 | The most challenging part was when I forgot how to do the tape diagram. I was like "wait, do I multiply and then subtract?"                                                                                                                                                                                           |
| Middle School Student 6 | They didn't know the tape diagram. I asked them to read it. She almost messed up, she knows it a little and I'm like "you know this." When you teach, I know, you are supposed to go quickly but sometimes it takes a little bit slower because you might have to go at it again just to make sure they can teach it. |

### Research Question 3

How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students? The codes, categories, and themes for this question come solely from the university student focus group. As an exploratory study, this question is essential first to determine how university students are benefiting, if they are benefiting from the learning experience at all.

Table 11.

*Codes, Categories, and Themes to Research Question 2*

| Themes                                 | Categories                                                                                                              | Codes |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------|
| Benefits from the Learning Environment | <ul style="list-style-type: none"> <li>• Child Benefits</li> <li>• Adult Learning</li> </ul>                            | 52    |
| Empowering Children                    | <ul style="list-style-type: none"> <li>• Equal Relationship</li> <li>• Empowerment</li> </ul>                           | 29    |
| Empathy for Child Experience           | <ul style="list-style-type: none"> <li>• Reflecting from the student perspective</li> <li>• Relating to Self</li> </ul> | 27    |

**RQ3 Theme 1. Benefits from the learning environment.** This theme includes 52 instances where adults mentioned benefits of the learning environment. The theme was made up of the categories child benefits with 34 mentions and adult learning with 28 mentions. Although the codes for child benefits pertain to the child participants, these are benefits the adults perceive the child received by participating in the workshop.

All six adult university participants reported learning new academic content and pedagogy methods from child participants. University Student 3 made the connection that the benefits to the students, also translate to benefits for the teacher.

Testing and things like that, it doesn't always go how you plan it to go. You can have all the knowledge in your head and when it's time for the test, you come out failing. But you know this (the content), so I feel like in situations like this you're able to show what you know. It's not about what's on the paper, that A, that B, that D, that F. It's not about that. I feel like those kids are the most important so that you can show them, and show yourself as a teacher, 'you got this', it's possible and your test score aren't everything.

The math portion of the lesson included tables, graphs, ratios, word problems, and tape diagrams. University Student 1 describes how the experience of learning from the child

introduced them to a new mathematical method. Participants then stated that they planned to use some of the methods introduced in the lesson when they teach the same concept to children.

And I know for our student, in particular, he showed us a shortcut in how to figure out ratios. I had never seen that shortcut and I told him 'I have taught ratios multiple times and I know how to do it confidently, but I never knew that shortcut. You just taught me something new today.' And he just lit up. I never knew how to do that, but now I'm going to teach my kids how to do that.

The children taught the same concept using graphs, tables, word problems, and diagrams. The delivery of the lesson through this pedagogy helped the university students understand that children learn in different ways. University Student 2 expressed that viewing the content in different forms better helped them understand how the same information presented in a variety of methods can enhance the learning of a student.

So, I think about what we were doing; we used blocks and pictures, so a visual. We used the actual charts and then we used graphs. And we incorporated a lot of different ways that can hit everybody. So, you can look at it from different ways, but it's just kind of which way hits the most. If you teach a kid that way, he obviously remembers all of them, but obviously there is going to be one way that clicks with somebody else better than it did for another person.

As a current teacher, University Participant 5 stated a desire that teachers at her school site experience the same type of learning event, with the belief that it would make a positive change and benefit her colleagues.

I mean, it was very eye-opening because I was like 'wow'. So, it's really amazing to see how, what they (students) can do. I think we can benefit, us (teachers) that we meet every

Wednesday to talk about what they (students) can do. It would be really cool to be like ‘this is what they can do, so how do we build from what they already know and then help them achieve whatever it is they need to do.’ It was really cool to experience that.

**RQ3 Video memo.** The seating in the room wasn’t prearranged to allow for flexible seating arrangements for the middle school students. University Student 1 and University Student 2 worked with Middle School Student 1. This triad of participants was only 4 feet away from the camera allowing for a closer analysis of their interactions.

There was a noticeable shift in the body language of all the students before the workshop officially started. Upon entering the class, the children did speak with adults, but the exchanges were very brief. The middle school students in the video were generally in small groups. Middle School Student 1 and Middle School Student 6 were standing and speaking to another middle school student.

There are no instances on camera of Middle School Student 1 interacting with the university students before the children began teaching the adults. Middle School Student 1 admitted how he felt initially, compared to how he progressed in the workshop.

I felt nervous through the whole thing because, like, it should be the other way around.

But I got used to it towards the end. It was really easy for me to explain it to them, they didn’t know it, so it was easy for me to explain.

The video recording shows that within 8 minutes of leading the lesson, Middle School Student 1 was very comfortable teaching the lesson and his posturing and gestures showed that he had a command of his setting. The postures and gestures include the child directing the adults, standing in close proximity, and leaning in to better help. The delivery of the lesson impressed University Student 1.



I wonder sometimes if the kids realize, you know it not only takes the knowledge of how to do what they're teaching us whether it is math or whatever but the actual skill set that it takes to be able to communicate what it is you're learning. Because you may know, you may be a math genius, but if you can't explain it or teach it to someone else, then it really doesn't matter so I think understanding whatever subject it is they're teaching in this case math, but being able to have that skill set to be able to communicate effectively so that we understand what it is they're saying. I wonder if they even realize it, cuz it was an aha moment for me, like 'do you realize how cool you're being right now, how smooth your doing.' It was kind of an aha moment for me.

The middle school students were trained to teach the lesson by modeling a problem, then allowed the learner to try a problem. Given the shortage of materials, Middle School Student 1 improvised and guided the lesson in a way that the learners collaborated on a single problem rather than separately. In this way, each participant oversaw alternating steps within the problem. University Student 1 described the moment and strategy as follows:

We had a young man (Middle School Student 1) who is teaching both of us and I like the fact that he was he was putting us together. So in other words when we were doing ratios he had me do blue and then she did the red. So he's like 'okay you lay out three and then you lay out five.' So we were doing it together versus doing it separately and I thought it was pretty easy because we were still learning and we're understanding what was going on and what our part was in the whole thing. But I never thought about that, you know, when we're working with groups. I know I've always tried to do each and every single step individually. I actually like that. I'm actually going to glean that and do that in the future when I'm teaching.

In the focus group, the researcher asked Middle School Student 1 why he began to deliver the lesson using a new strategy and he responded: “Like this easier when you worked with people together. When they work together, it is a lot easier to work with two people.” The researcher video clearly showed how the student worked with the adults.

In the video, one can see that Middle School Student 1 was comfortable delivering the lesson to both the adults. His physical proximity was very close to the adults. Both adults were sitting in a chair at a table with a desktop computer in front of them. Middle School Student 1 was standing in between them. He was alternating between leaning over and squatting so that he could be eye-level with the university students. The child firmly took command of the learning situation and guided the participants along the lesson and the adults were receptive to the learning. During the first break, when participants had the opportunity to share something, they liked in the learning environment, one of the chaperones stated, “I noticed that a lot of the adults here are very open-minded as far as having the students teach them. They don’t interrupt the student and the let them explain what the process is and they are very cooperative.”

**RQ3 Theme 2. Empowering children.** The university student participants all said that the learning experience empowered the children and they all expressed that this ‘empowerment’ was a desirable trait for their students or future students to have. University Student 6 expressed this need for empowerment that can potentially lead to co-ownership of learning between the teacher and students. This participant also emphasized this is necessary for academically and socially struggling children.

One of the things I’ve learned is kids love to help. Not just the ‘good’ ones but the kids that lack academically. They all want to help and when you give them confidence and you allow them to teach not just a student but tell them “hey, I learned something from

you” it empowers them. Their confidence level goes up, if you introduce them to that safe environment in the classroom where you are not just doing that traditional teaching of ‘here, open the book, this what we are going to do’ but making it safe to where ‘what do you think we are learning in class? How can we change it?’ Giving them that power to be open and discuss it is really good for them.

University Student 3 stated that the learning environment has the potential to create a more equitable learning environment where students and teachers share power.

So, I feel like, in situations like this, where they are teaching us, we are creating a balance and they know that we learn from you just as much as you learn from us. Although we don’t outwardly say that every day, and I was just saying I have never been taught by a student.

Table 12.

*Select comments on the theme of empowerment.*

| Participant          | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University Student 1 | I think you hit on the word when you said ‘powerful’. It is definitely empowering for the students to teach adults. Just the way we feel when we are subbing or teaching in any form, we feel empowered and proud of the fact we are teaching these kids and they are learning something new and going forward with that knowledge.                                                                                                                                                                                                                                                                                                                                                           |
| University Student 2 | When I try and explain something, I explain it from the way I understand it but sometimes it doesn’t click with me, that sometimes other students don’t understand it the way I understand it. And it’s really difficult for me to actually see it that way.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| University Student 3 | If you can teach an adult, then you can teach your peers, you can teach your mom, you know...building that confidence that they have and it creates that balance in the classroom at the same time like, I don’t ever want kids to feel like ‘I am over you’. Yeah, I give you your assignments, but I want them to feel like you can still have a say. If I’m doing something wrong I want you to be able to tell me. When you create that balance, that way, with them teaching you, they will have the confidence to say ‘no, you’re wrong.’ Whereas sometimes you don’t get that if you are kind of a dictator in the classroom.                                                          |
| University Student 5 | For me, it was eye-opening because I’m teaching first grade and I’m not familiar with a lot of the things that the district gives us. So when we do have a meeting they give us numbers and say ‘our kids are not here yet...they’re not meeting this, they don’t know how to this, they don’t know how to do that’. But when do we actually think about what they CAN do, what they are capable of? It’s kind of eye-opening because I’m in the middle of this. I’m seeing what my student can do. I’m seeing they (middle school students) came in and showed us what they can do and they are capable of things if we change our perspective and think ‘how can they deliver this lesson?’ |
| University Student 6 | To have that growth mindset, you could see it in the student’s face that was teaching us when I would be like ‘wow, you’re doing a great job. I didn’t see that we could do it that way because I’ve always done it this way’ and she had a big smile on her face, she was so proud of herself. And not just that, telling her “I’m proud of you because I’m glad you are able to teach me.”                                                                                                                                                                                                                                                                                                  |

**RQ3 Theme 3. Empathy for the child experience.** Three of the university participants shared an instance where they viewed the situation from the vantage point of the child. No question prompted this reflective stance, and these responses from the vantage point of the

student emerged naturally in the interview process. According to Kagan (1992), only by working with students that preservice teachers can gain the required experiential knowledge to become a teacher. Pope, Beal, Long, and McCammon (2011) write that learning experiences where preservice teachers authentically collaborate with middle school children create spaces where both groups work as equals, leading a to novel experience.

I guess to piggyback on what you were saying about having somebody on your back to check to see what you learned. I didn't think about that. About how much pressure it was to show him that I learned from him. At a certain time, he would tell me a step and then I'd do it and most of the steps I got pretty easily but for some of them, I was like wait a minute. And then to not offend him and then still show him respect when I didn't understand something, and I need him to show me again. And I had to find out a way to articulate what it was that I wasn't understanding and how differently he needed to explain it to me. (*University Student 4*)

While University Student 4 was concerned with the social-emotional aspect of working with a child and empathized the need to respect the child's feelings, University Student 2 reflected from the academic perspective of the student. This reflection led to the realization that students learn differently, and these differences can affect how the students learn. University Student 2 stated:

I think it's also cool, because kind of how I said with that, I haven't done these in such a long time, and I know it sounds wrong because math is so permanent, it's just that it's changing. I feel like there is different ways that we have learned all the time. Again, we might have been taught one way and that's the way that we've always known how to do it, but once we incorporate, see like "oh, maybe that's how the student learns. This is how

the students see it." So, it's kind of like, ok, this is the student's perspective. This is maybe how they want to be taught and this is maybe the best way to reach other students.

University Student 5 went further and stated that this experience had a strong enough impact to where they will now go and share some of the learning from the event to influence other educators. As related to this theme, the change in her perspective can be attributed to her reflecting from the perspective of the student.

I agree I think that we should especially, I mean as a new teacher I go back, and I work with older teachers and they're very set on the mentality where we have to do this, this, this and this. 'Oh, and my students can't do this, my students don't know how to do this.' And I'm just like 'you know what? I'm going to try this.' And I mean they enjoy it and they love it and I mean these are the experiences where I'm going to go back to my class tomorrow and the older teachers are going to tell me 'let's do this' and I'm like 'you know what I'm going to do something different.' Because I know and because I feel that that's the right thing to do. So, it feels really good when I show them and let them know like 'hey I did these videos with my students' cuz they don't believe this, that these kids can do them and I'm like it just took, you know me to give them the extra little push. So, I feel like it would be a great experience for anybody to I mean put yourself in another person's perspective about how you should really be getting to these kids.

#### **Research Question 4**

How do school administrators perceive the benefits of student instructional leadership of adults? This question is essential to understanding the significance of the impact of the learning environment on the middle school student participants. The participants were either struggling academically or socially, and the administrators had first-hand knowledge of these struggles.

Also, school administrators know the struggles that new teachers face, particularly at a low achieving school. This research question also provides insight into how administrators believe new teachers would benefit from this type of learning environment and experience. Three main themes emerged from this research question including benefits from the learning environment, barriers children face, and generational differences.

Table 13

*Themes, Categories, Codes for Research Question 4*

| Themes                                 | Categories                                                                                                                                                                                                                                                                                            | Codes |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Benefits from the Learning Environment | <ul style="list-style-type: none"> <li>• Solutions to Class Problems</li> <li>• Social Benefits</li> <li>• Academic Benefits</li> <li>• Adults Reflecting</li> <li>• Children Reflecting</li> <li>• Unique Positive Experiences</li> <li>• Growing Leaders</li> <li>• Raising Expectations</li> </ul> | 137   |
| Barriers Children Face                 | <ul style="list-style-type: none"> <li>• Academic and System Challenges</li> <li>• Discipline Issues in Class</li> <li>• Negative Perceptions</li> <li>• Instructional Challenges</li> <li>• Resistance to Change</li> <li>• Social Challenges</li> </ul>                                             | 42    |
| Generational Differences               | <ul style="list-style-type: none"> <li>• Challenges with Change</li> <li>• Fear of Change</li> <li>• Natural Changes</li> <li>• Pedagogy Change</li> <li>• Positive Change</li> </ul>                                                                                                                 | 28    |

**RQ4 Theme 1. Benefits from the learning environment.** This theme generated the most categories with the benefits ranging from social benefits to academic benefits. The unique view of the administrators provided a longitudinal understanding of the benefits of the learning environment before and after the case study event.

The category of solutions to classroom problems generated the most codes and broke down into the sub-categories of best practices with at-risk students and empowerment. As administrators, this perspective gives a holistic view of problems generally faced by new and veteran teachers in a low-achieving and low-socioeconomic school.

In subcategory 1 best practices with at-risk students, Administrator 1 identified a key benefit from the learning environment in that it helped students reflect on their behavior to correct the behavior. The learning environment also allowed the adults to reflect on student behaviors and how teachers respond to them. In this specific example, Administrator 1 addressed a point leading up to the learning environment in the case study where a student was continually acting out and misbehaving by using profanity and not following directions. The student admitted that he was acting out because he was nervous, and then went on to perform very well in the learning environment at the university.

You're not going to say I'm tired, I'm not going to waste my time because that's what they've been hearing over and over again...it goes to the support...where they're stuck talking to (a behavior support specialist) maybe one time, maybe two times, but I bet you, if in the beginning of the year it might have been 10 times and then we reduce it down to just two times. So okay 'so I can self-correct and get back to what I'm supposed to be doing.' But it goes back to providing the support. Providing a culture of tolerance and then, how can we talk to kids so that we don't put them down or belittle them, or scream at them, that's only going to increase the bad behavior. (Administrator 1)

Administrator 3 shared how the opportunities such as the workshop transferred to other students who were also considered at-risk but did not participate in the learning environment.



This participant also made the distinction between how the university participants (outsiders) viewed the middle school participants, compared to the reality the children faced daily.

And they (university students) only see good kids who are out there teaching, but they don't see some of the challenges that some of these kids have on the inside when we're here at school. But they (kids) also need to understand that transfer of this leadership role that they're taking on is also influencing them in the classroom, them on the playground, which is also then bleeding out to influencing some of their close friends because they are pulling their friends in to keep them out of trouble, to keep themselves out of trouble, to keep having the opportunities they are getting. (Administrator 3)

Administrator 2 described the benefits as an experience that must be shared first-hand to fully understand how the children are benefitting.

A new teacher being able to come in and see a kid from the neighborhood, from the hood, you know I think it will open their eyes cuz I think when we come into teaching sometimes, we just want to, we just want to teach those kids that are at a certain level. Because it'll be easier for us to teach those kids who are on grade level and above. So as a substitute teacher, or a person new to the profession, to come in and see 'no these are not the top students, some of these kids are on an IEP and some are not on grade level but then they come into this setting and they are able to be successful.' But then able to see it, that's the only way right now you can get the buy-in. We can tell them (teachers) but until they see it, I don't think people will believe it because he (a student) is not on grade level, he's testing poorly, he's ditching class, he's fighting kids, but then you tell me he can do all these things. You are going to have to prove that, so showing them that they can do it, is the best way.

The subcategory of empowerment generated 18 mentions, but every mention came from Administrator 3. These codes emphasized the social and emotional impact of the learning event and the build-up to the case study event. According to the field notes, this was the administrator who most commonly worked with the children regarding social services and discipline. This longitudinal view from the administrator demonstrates the full effects of such a learning environment, both before and after the specific case study event.

In the following code, Administrator 3 mentioned that the learning environment created a situation where the student was equal to the teacher while demonstrating that a struggling student could be successful.

But when they're in there teaching and they can show you physically show you and teach you what they know, it gives them also more self-esteem and proves they too can learn and that they too can teach and it kind of also humbles the teachers on the aspect of these kids are teaching the teacher something that they probably didn't know either so it kind of levels the playing field for both the kids and the teacher; to have them show what they learned, and then teach it to someone. So, it's just, it's empowering. It's empowered each one of those kids to go in and do these professional developments for adults and I think that's, that's a big aspect of who they are, and I even see self-esteem boosters in some of them.

Table 14

*Select Comment on the Category of Empowerment*

| Participant     | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Administrator 3 | I think that some of it is because he is also building these relationships with some of the teachers when he came in and did the professional development. You saw a whole different side of that kid where he had to be the one in control and he had to be the one that was keeping the teacher on track. So, I think he has a little bit more working knowledge of what teachers have to do. So, it's given them a broad range of skills as well as self-esteem and even humbling moments for the teachers. |

**RQ4 Theme 2. Children facing barriers.** This theme emerged as administrators described the challenges that low-socioeconomic and academically struggling students faced before even taking part in the case study learning environment.

Under the category of social challenges, administrators concluded that some of the children participating in the case study were facing barriers to participating in similar learning environments. The administrators share that these struggling students were in fact leaders, but not leaders in a positive academic sense. Participant Administrator 1 reflected on his experiences and described growing up in the inner city and how children adapt to their environment using their natural skill sets.

I always think that a lot of the quote 'bad kids' or the kids that misbehave most, most of them have leadership qualities. That's why they're able to run the street and be very independent, whether they become gang members or the leadership of gang members, but they have the qualities. It's about making sure those qualities don't become street qualities rather than academic leadership qualities. (Administrator1)

Similarly, participant Administrator 3 spoke to the same topic but attributed part of the reason children go towards more socially destructive paths as a result of children not finding

themselves in the academic culture of schools. Administrator 3 described how the learning environment in the case study led to positive changes in a student.

I realize he has been taught wrong the entire time. He was ‘hands-on’ versus ‘let’s take notes.’ I think it made him feel successful, built his self-esteem and then he had the ability to be a leader in a good aspect, instead of a leader in a bad aspect. (Administrator 3)

Administrator 2 went further than the other two administrators and said that some children with social and emotional issues could potentially be left out of positive experiences that can lead to more positive outcomes.

We didn’t know he was (had a social-emotional disability), all we knew was that we had a new kid. We place him in classes; I scheduled his classes as a regular day. When I got the CUME folder and the IEP, it shows that he had (a social-emotional disability) and here he is doing all these fabulous things. Had we saw his file before, he would never have an opportunity, so that was the aha moment for me. That not just the really smart kids, but all kids can learn and benefit from something like this. (Administrator 2)

These barriers the administrators described before the students even participated in the workshop fall into the categories of academic and social. The barriers are arranged in Figure 9 to show how academic history and ability, instructional challenges, and teachers resistant to change are distinct to social challenges, discipline issues, and access.

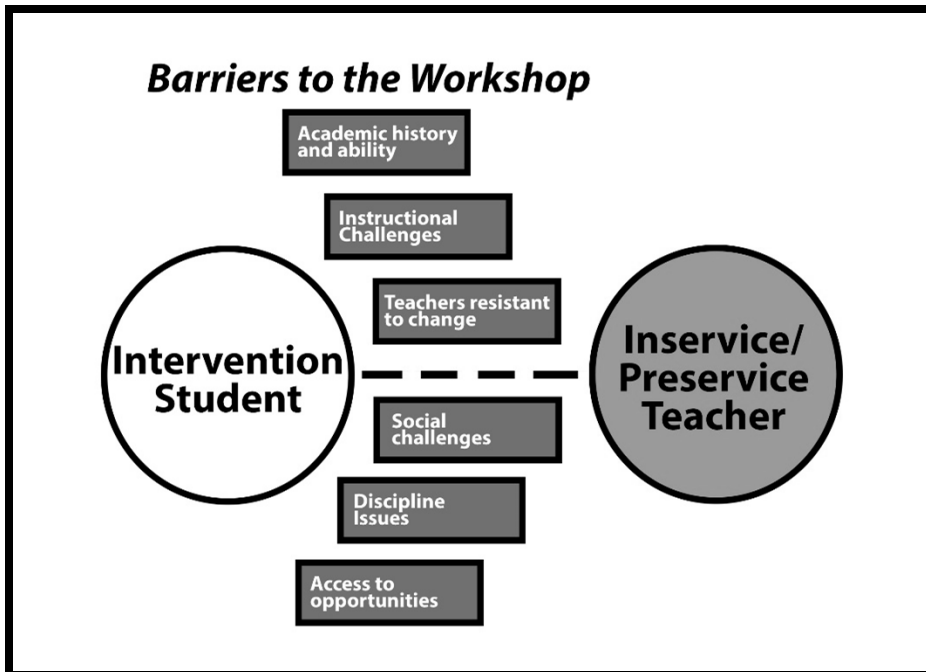


Figure 10. Barriers children faced before participating in the workshop

The comments in table 13 further give a more in depth understand of specific barriers that are out of the control of the student. Administrator 1 mentions the concept of zero tolerance relating to discipline issues and social challenges. Administrator 2 mentions the issue of access, and how children require opportunities. Finally, Administrator 3 mentions how the children struggled academically and have gaps in their learning. This finding is significant because it is the only instance in the study that offers a possible explanation as to why struggling students don't have similar opportunities.

Table 15

*Comments on Social Challenges Before the Workshop*

| Participant     | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Administrator 1 | I think there's a couple of things that have to be done. There has to be a culture of tolerance, removing the whole zero tolerance for XYZ. If we just follow the zero tolerance, it's no different than it would be out in the streets with the jail system. It's zero tolerance if you break the law, there are consequences and the you start on that route. And I think as a school site, if we practiced zero tolerance and got rid of (these students) then we're doing no different than what we would be doing out in the streets with the correctional system. So, we have to build a culture of tolerance and that's the hard part. |
| Administrator 2 | I think we can have empathy, of course, with the situation and the ACEs (Adverse Childhood Experiences) and all that, but don't have sympathy. Know that they can still have expectations, they can still meet those expectations. They can still have consequences, but they do need opportunities.                                                                                                                                                                                                                                                                                                                                          |
| Administrator 3 | Now, especially these kids and these roles because some these kids are troubled kids and have problems in classrooms learning. They have had roadblocks in their education or holes also in their education. They haven't had a real consistent learning process with them and either it is from absences because of school changes...but when they're in there teaching and they can show you, physically show you and teach you what they know, it gives them more self-esteem and proves they too can learn.                                                                                                                               |

*Video, journal, and fieldwork memo aligning to theme 2.* The theme of barriers children face is a significant finding in the study because it illuminates the reasons that academically and/or socially struggling students do not have access to the few opportunities that are available at a low-socioeconomic school. According to the researcher journal, there were two instances of children who were participating in the program that were expelled before the workshop, and another instance where a student was placed at a different school based on social/behavior needs. All three of the children were succeeding in the math intervention program but were severely struggling in the general education environment.

According to notations made in the field notes, on the day of the workshop two of the middle school students had detention for behavior issues. One student attended detention from 2:00 pm until 3:00 pm. When the student completed detention, they came to join the other students that were going to be at the workshop. When the student arrived from detention, he pointed out that another student in the workshop missed detention. Four students in the group encouraged the boy to go make up his detention so that he could attend the workshop. The boy said he did not want to attend detention and miss the workshop. The researcher and the students assured the student that he would make it back on time for the workshop. As the group continued to encourage the boy to attend detention, the student said that he would rather go home than attend detention. At this moment three of the students (also friends) walked the boy across campus to detention to ensure their friend would attend the workshop. The teacher who was hosting detention later came and told the researcher that she was “incredibly surprised and happy” to see the boys escorting the student to detention. The teacher also pointed out that one of the students helping escort the boy also had also missed detention. The teacher said she brought this up to the student, but she did not enforce the punishment because it seemed like the consequence would negatively affect the rest of the students. Without the extra support from the researcher and other children, these three students would have missed the workshop due to detention.

In the video recording, it is evident that all four of the participants mentioned in the journal and field notes were performing very well. The students were able to work collectively and independently in the learning environment. During the first break in the workshop where participants shared something they liked in the learning environment, one of the chaperones shared a compliment about two of the boys that were involved in the detention situation before

the workshop: “I wanted to go back and share more about (name redacted) and his group. What I liked was that after they worked out the problem, then he (the university student) explained it back to them, with all the steps.” The two middle school students looked very happy and proud to be mentioned.

During the second break in the workshop where participants shared comments, three of the boys that were involved in the detention situation stood purposefully near the camera. The three students were very happy and smiling as they whispered to each other. They were respectfully listening when participants shared, but it was evident that they were giddy and excited. They were also standing very close in proximity to each other displaying very comfortable and warmhearted behavior. It was evident that they felt accomplished as they stood proudly with their arms crossed and looked over the room.

**RQ4 Theme 3. Generational differences.** This code appeared with Administrator 1 and Administrator 2 creating five categories including, challenges with change, fear of change, natural changes, pedagogy change, and positive change. Every category had between five and eight codes, except fear of change, which had two codes. Challenges with change focused on a disconnect with the adults and the youth.

Administrator 1 discussed how children and adults do not share common interests through a natural process by which generations change. The administrator then comments that the case study event created a bridge in the learning environment where both the children and adults came together in a common task.

Whenever you think about a teenager you always think about them not wanting to talk to adults or being more isolated because adults don’t understand kids, and because they have nothing in common. But if you give them a purpose, like the collaboration they had,



so the communication, asking questions, guiding them, telling them that you can do this one way or you could do it another way and then seeing the college student ask them questions. So that communication, collaboration, is to me the highlight in this type of activity. (Administrator 1)

Administrator 1 then addressed how this natural process of change exasperates generational differences that filter down into the classroom environment.

I think it helps, in my opinion, that helps them understand kids better. I think over time, the older we get, become adults, we disconnect further from them. And we disconnect so much that we don't ever catch up to where they change, because they change. Every generation changes. They change, music changes, things that they're into change and we're never understanding that and I think that influences how they learn. The technology changes, everything that, society changes over time I think is what we don't learn. So as making those connections with either new and beginning teachers or people who are going to become teachers, I think allows them to hopefully realize that we have to maintain that connection with the current kids that were teaching so we stay up-to-date on what we can do in the classroom so they learn the content. (Administrator 1)

Administrator 2 addressed generational changes in how instruction or expectations are delivered and stated that the changes are an improvement to prior practices.

But people are afraid of change, so they want to teach the way that they were taught and I don't know that that's always the right way because I was taught one way 'this is how you do this math problem.' So when I see the kids in the room and they're able to do the math problem and the kids are doing all these different ways it's like you know, I'm thinking I even did a disservice to the kids when I was teaching because 'no we are going

to drill and kill. This is the way we're going to do it. Seven times five is thirty-five. I don't care about you drawing it or any of those things. This is what it is, so you need to just know it.' And it's different, so people will tend to go to what they know because that's easier for them. (Administrator 2)

### Relevance of Study Results

This chapter presented the findings on data collected from a qualitative single case study. The researcher collected data from a focus group with middle school student participants (n=6), university student participants (n=6), middle school administrators (n=3), field notes, and video documentation. The four research questions were designed to develop a thorough understanding of how low-socioeconomic students and university students benefited from a learning environment led by children. Figure 10 shows the themes aligned with the specific research questions.

|                                                                                                                                                        |                        |                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------|
| <b>Research Question 1. How is low-socioeconomic children's leadership perceived by both the adults they are teaching and the children themselves?</b> |                        |                                                  |
| Benefits of the Learning Environment                                                                                                                   | Empowering Children    | Generational Differences                         |
| <b>Research Question 2. How do low socioeconomic students perceive the benefits of teaching adults?</b>                                                |                        |                                                  |
| Child Reflecting                                                                                                                                       | Empowerment            | Overcoming Obstacles in the Learning Environment |
| <b>Research Question 3. How do university students perceive the benefits of being taught by low socioeconomic middle school students?</b>              |                        |                                                  |
| Benefits of the Learning Environment                                                                                                                   | Empowering Children    | Empathy for the Child Experience                 |
| <b>Research Question 4. How do administrators perceive the benefits of student instructional leadership?</b>                                           |                        |                                                  |
| Benefits of the Learning Environment                                                                                                                   | Barriers Children Face | Generational Differences                         |

Figure 11. Thematic analysis of all research questions.

An analysis of themes and corresponding questions shows how each group of participants perceived the benefits of a child-led instructional experience. The first research question was designed to determine the benefits of student leadership in the instructional environment. Research question 1 resulted in the themes of benefits of the learning environment, empowerment, and generational differences. The research question for middle school students was designed to collect data to address a gap in the literature on the benefits of low-socioeconomic children teaching adults in a formal university setting. The resulting themes from research question 2 were child reflecting, empowering children, and overcoming obstacles in the learning environment. This research question on the focus group of university students gained information on how the adult participants perceived learning from children. The resulting themes of research question 3 include benefits from the learning environment, empowering children, and empathy for the child experience. The research question for administrators participating in the study provided a critical view because they have intimate and first-hand knowledge of the children who participated in the learning event. The resulting themes from research question 4 included benefits from the learning environment, barriers children face, and generational differences. Together, these three separate perspectives triangulate the experiences of three distinct groups participating in a unique learning environment where low-socioeconomic children were teaching preservice and in-service teachers at a public university.

### **Summary**

This chapter presented the findings of a qualitative single-case study where middle school students taught university students. The participants in the study included middle school students (n=6), university students (n=6), and middle school administrators (n=3). Other data points include researcher field notes, a researcher journal, and a video recording of the session. The data

was transcribed using the online software Rev.com, manually coded in qualitative analysis, and then organized using the software NVivo 12. The coding process went through multiple cycles to find categories, subcategories, and themes within each research question targeting the different participant subgroups in the study. A final thematic analysis was conducted across all the research questions to find themes for all participants.

The study included four research questions to find the benefits of learning environments where children teach adults. The research questions were as follows:

- Research Question 1 (RQ1) is, How is low-socioeconomic children's leadership perceived by both the adults they are teaching and the children themselves?
- Research Question 2 (RQ2) is, How do low-socioeconomic students perceive the benefits of teaching adults?
- Research Question 3 (RQ3) is, How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?
- Research Question 4 (RQ4) is, How do administrators perceive the benefits of student instructional leadership?

Research question 1 addressed how adults and children perceived child leadership with the resulting themes of benefits of the learning environment, empowering children, and generational differences. These themes demonstrate that both children and adults perceive child-led experiences to be beneficial to both groups of learners, that these learning events empower children, and these events highlight generational differences.

Research question 2 addressed the children directly to elicit their perceptions of the learning environment. The three themes that emerged from research question 2 are child reflecting, empowering, and overcoming obstacles in the environment. These themes show that

child-led instructional experiences caused the child to reflect on the experience in the event, it caused the child to reflect on their experiences at school, and to reflect on experiences from the vantage point of adult learners. These themes also demonstrate that the learning environment empowered children. Furthermore, the final theme determined that children surmounted obstacles within the learning environment of the case study.

Research question 3 targeted the university student perceptions of the learning environment in the case study. The three themes that emerged are benefits from the learning environment, empowering children, and empathy for the child experience. These themes show that when learning from the children, adult university students reflected on the benefits of the learning environment for the children, and the benefits for themselves. The university student participants also believed the learning experienced empowered children and caused the adults to have empathy as they reflected on the experience of the child.

Research question 4 elicited the unique perspective of middle school administrators who supported the children as they trained for the workshop and then finally participated in the workshop. The three themes that emerged were benefits from the learning environment, barriers children face, and generational differences. These themes show that middle school administrators believe that both the university and middle school participants benefitted from the learning environment. This question also showed that middle school student participants faced extensive barriers before they entered the workshop. The administrator participants also highlighted the generational differences taking place not only in the learning environment of the case study workshop but also the generational differences that create gulfs in current learning environments.

In Chapter 5 the findings will be analyzed and interpreted. This will include a conceptual model that encompasses the results of Chapter 4. The researcher will also discuss the findings in

relation to the conceptual framework and the limitations of the study. The study will then conclude with practical implications and recommendations for future research.

## CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this qualitative single-case study was to gain an understanding of how academically and socially-struggling, low-socioeconomic, middle school students and university students benefit in a learning environment where children teach adults. There is research into student leadership (Mager & Nowak, 2010; Holdworth, 2014), peer teaching (Bowman-Perrott, Burke, Zhange, & Zaini, 2014; Wong Jun, Ramirez, & Cumming, 2011) , and children teaching adults (Bennett, 2000), but there was a gap in the literature on academically or socially struggling children from low-socioeconomic backgrounds teaching adults. This chapter will include a summary of the study, thematic findings and interpretations, a summary of the findings aligned to the research questions, a discussion, and recommendations for practice and future research.

### **Summary of Study**

The problem explored in this study is that there are formal and informal hierarchies in education. Within every educational hierarchy, children occupy the lowest roles. Children are subordinate to administrators, teachers, and staff in social hierarchies. In academic structures, standardized exams and curriculum are developed independently of specific community needs or child needs. Children have a history of influencing policy (Castro, 2011; Stanley, 2018), but decisions are made for them, not with them. The child is a receptive vessel for policy, instruction, and content. In the current environment, the child is a passive subject that can only be improved by a teacher, a pedagogy, or a policy. The success of the teacher, a pedagogy, or policy is based on how well a child retains knowledge as demonstrated on standardized exams. This study addressed this equity problem by researching a unique learning environment where children taught adults to determine the benefits of the practice. The findings of this study suggest that both children and adults benefit when children lead. The researcher gathered data from

middle school students, university students, and administrators, to determine the benefits for the participants in the learning environment using a qualitative single-case study. The research questions for this study were:

RQ1. How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves?

RQ2. How do low-socioeconomic students perceive the benefits of teaching adults?

RQ3. How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students?

RQ4. How do middle school administrators perceive the benefits of middle school students teaching university students?

The workshop in the case study included a total of 22 middle school students teaching 33 university students within a regular course at the university. The workshop lasted approximately one hour. In this workshop, the children taught adults at a ratio of one-to-one or one-to-two. The lesson was structured for the children to guide adults through a series of mathematical and technology challenges. The content the children taught was part of a unit they had learned in their math intervention classroom.

Participants ( $n = 15$ ) included six middle school students, six university students, and three administrators from the middle school. The students participated in focus groups, and the administrators participated in interviews. As a participant observer, the researcher also used field notes and a video recording analysis of the event to understand better how the participants were interacting in the workshop.

The researcher transcribed the audio data from the focus groups and interviews using Rev.com and then uploaded the documents into NVivo12. Through a process of manual coding,



the researcher went through cycles of open coding and focused coding to generate codes, subcategories, categories, and themes. The researcher then used the field notes and video recording to analyze further specific moments mentioned by participants.

### Thematic Findings and Interpretation

The findings of the thematic analysis revealed the themes as either positive, neutral, or negative. There are nine positive themes with empowerment and benefits from the learning environment being the most prevalent. The neutral theme of generational differences is classified as such because instances in this theme were both positive and negative. The only negative theme was barriers children face. Figure 11 lists the themes from positive to negative with a corresponding label aligning to research questions.

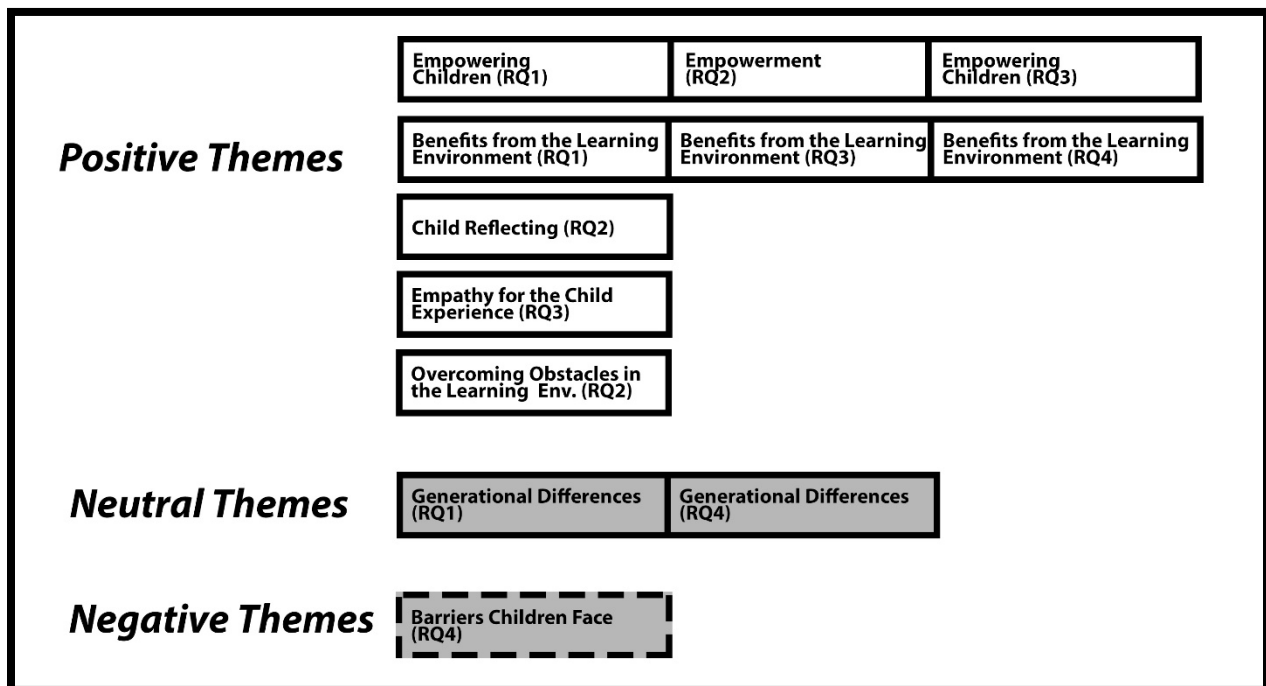
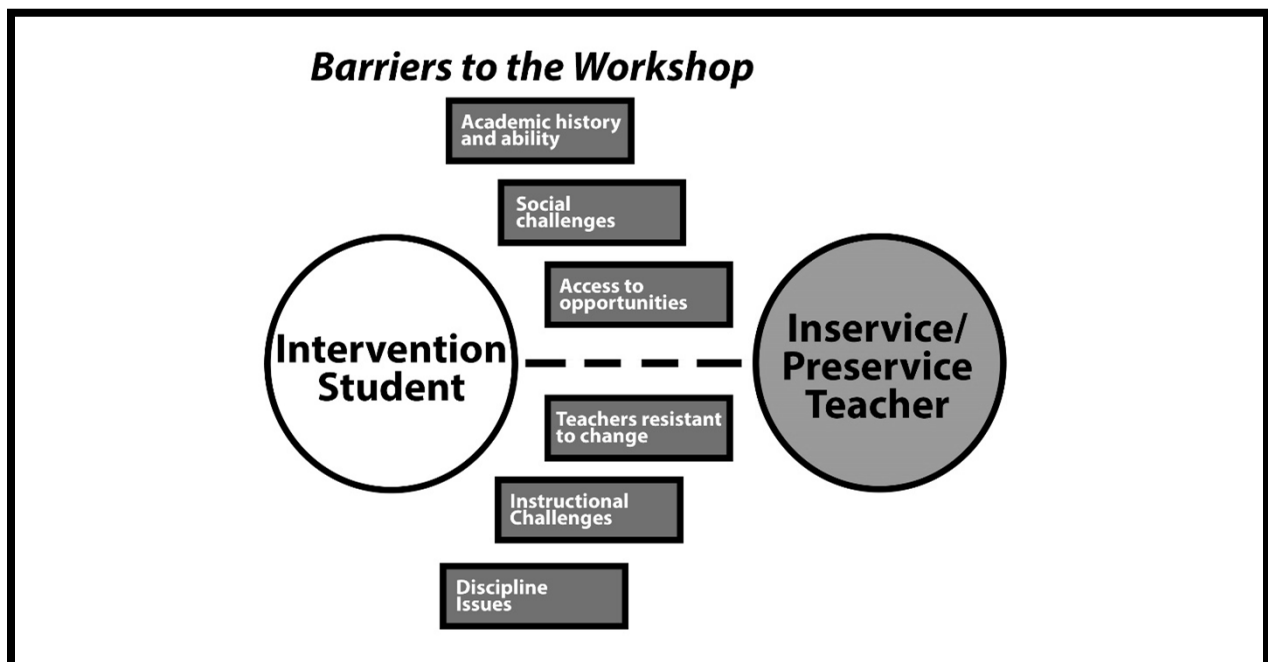


Figure 12. Frequency of themes classified as positive, neutral, or negative.

The positive themes outnumber the negative theme 9:1, but the negative theme was an unexpected finding that illuminates the problem of equity with the middle school intervention students because the barriers were so strong that they could potentially exclude the students from

the event altogether. The researcher documented instances where some of the barriers did exclude potential participants from the learning event through expulsion from school, social challenges, and access to the opportunity. The themes in Figure 12 are arranged to demonstrate how the barriers that emerged as categories in the content analysis create significant a significant challenge. These barriers were identified by all three administrators with specific examples. The researcher also identified specific instances in the hours before the workshop and documented these instances in the researcher field notes. The researcher journal also includes examples of how barriers were too high for some students who ultimately did not participate. The finding of this theme justifies the inclusion of the administrators as participants and the positionality of the researcher because this finding only emerged through a longitudinal perspective of the middle school student experience. It is likely the middle school students would not be aware of such institutional barriers or that the university students would not have enough classroom experience to identify the barriers.



*Figure 13.* Barriers between the middle school students and the workshop.

There were 8 chaperones that attended the workshop, and by chance all 8 chaperones contributed to removing different challenges leading to the workshop. The alignment of specific roles and barriers in Figure 13 illustrates how student support services facilitated the inclusion of the children in the learning environment. The barriers of academic history and ability, and instructional challenges were removed by the teachers and instructional assistants who taught the children. The barriers of teachers resistant to change and access to the opportunity were removed by administrators who facilitated the experience. The barriers of discipline issues and social challenges were removed by the restorative classroom teacher and the behavior intervention support specialist who worked extensively with the children before the workshop. Thus, the workshop required student support services to be aligned in order to include intervention students who were struggling socially or academically. Without the support of this team, a significant number of the children present in the workshop would have been excluded.

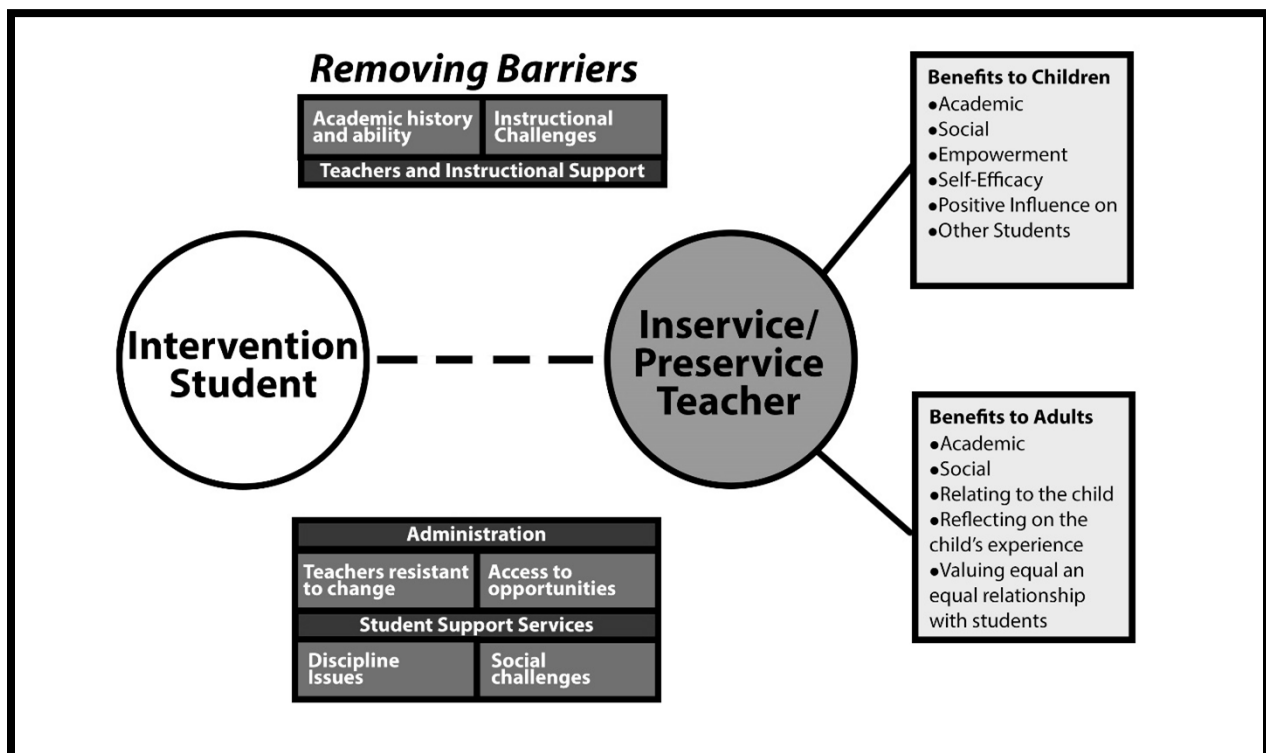


Figure 14. Student support removing barriers for student inclusion in the workshop.

These findings create potential answers as to why there is a gap in the literature on low-socioeconomic, academically and socially-struggling children participating as instructional leaders at the university or of adults in general: because the large number and intensity of barriers requires a stronger support system to provide adequate opportunities. The following section will delve deeper into the individual findings of the research questions and themes, as related to to the body of literature.

### **Summary of Findings Aligned to Research Questions and Themes**

This section details the findings of the qualitative case study. Each section is divided by the research question and then followed by the themes. The chapter is then concluded with a section on implications, strengths and weaknesses, recommendations, and the conclusion.

#### **Research Question 1**

How is low-socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves? Three primary themes that emerged were benefits of the learning environment, empowering children, and generational differences. This question was aligned to the focus group questions for the middle school student participants and the university student participants.

**RQ1 Theme 1. Benefits of the learning environment.** The theme of benefits of the learning environment generated 183 instances where participants mentioned a benefit from the learning environment. The benefits of the learning environment included academic and social benefits for both the middle school students and university students.

University Student 3 expressed that they learned new math strategies and how to use technology software. The participant was excited about the math strategy and surprised that the strategy could work with any large number sets. The technology software the participant learned

was the 3D modeling software of TinkerCad. The participant had never used this type of technology and was excited to see their design appear on the computer monitor.

My first ‘aha’ moment was learning about the tape diagram. So, I had no idea what a tape diagram was and I would solve the ratios or a table in my head and figure it out that way. And then her teaching me into doing it with that method, I’m like ‘so let’s plug in your numbers’ and it was working, and I was thinking ‘if you had like a hundred in there it is not going to work, no possible way’ and it did! And I’m like ‘yes, I’m learning something.’ My second aha moment was with TinkerCad where she showed me these scribbles. So I’m on the computer making 3d models, writing sentences with my mouse, and I was so excited and she was looking at me and said ‘you are really enjoying this aren’t you.’ To make something and then it becomes 3D, it can’t get any better than that. I was so excited and she was also so excited with me. (University Student 3)

Prior research has shown that adults and children work well in partnerships where the children are expected to lead technology instruction. In an analysis of a student-led instructional technology program, Bennett (2005) found that students enjoyed the role of teaching teachers and that 43.7% of teachers saw the program “as a serious model for providing professional development and offering technical support” (p. 6). These findings demonstrate that children can be instructional leaders with adult learners, including preservice and in-service teachers.

The review of literature for this study showed no findings of research where students teach teachers in the area of mathematics, but there were instances in the workshop where university students expressed that they learned new content. During a break in the workshop where volunteers were asked to share, one university student stated “I felt (she) did a great job. I’m a 7<sup>th</sup>-grade math teacher; she’s in 7<sup>th</sup> grade. I never understood a tape diagram until right

now.” This concept that children can be “pedagogical partners” with preservice teachers was explored by Pope, Beal, Long, and McCammon (2011). University Student 2 mentioned that children teaching can be a cross-curricular activity, but mathematics can be more difficult, which may partially explain why there is a gap in the research:

I think also with this, it’s not just the students teaching us as adults, I think you can have students teaching other students. I think just the general fact you can have these kids being able to see that they can show somebody something different. Whether I feel like it it’s a math or science, or any subject in itself, I just think that math is one of the more tricky ones (content area) because it’s one that a lot of people struggle with. (University Student 2)

There is well-documented research on children peer teaching in mathematics. Using an experimental design, Hott, Evmenova, and Brigham (2014) found that middle school students in a self-contained emotional support classroom showed improvements in math scores. Similarly, Hawkins and Shobana (2009) found that fifth-grade students showed significant increases in mathematical fluency after working in a class wide peer tutoring program. These findings also extend into online, face-to-face tutoring experiences where 10-11-year-old students showed significant increases in math scores after working with tutors in a synchronous environment (Tsuei, 2012). This study supports that children can teach other children new mathematics concepts, but further research must be conducted children teaching adults mathematics.

**RQ1 Theme 2. Empowering children.** The theme of empowering children generated 94 codes ranging from improving self-efficacy to affecting others. University Student 3 described how the skills in the environment translated into a sense of empowerment for the children. The participant then expresses that this feeling of empowerment can transfer into a stronger sense of

self-efficacy towards their academic future by stating,

I'm just going to go back to the empowerment and the confidence. And now building on what I was saying just a second ago about the skill sets kids, you know being in this environment and learning, they're getting empowered. In the end, they are seeing that they have the ability. They may not be at the proficiency that they need to be, but as we were saying earlier, they know, they know something, and they can share that information that they have. And hopefully from there, that'll give them the confidence that they need to say 'yes, I can do this, and I can take it to the next level.' But bringing them on to a university campus to teach adults that are going to be teachers takes that to the next step because it shows them 'yeah, you know, I do belong here.' (University Student 3)

For the middle school student participants, the empowerment was based on assessing more immediate situations within the workshop and the feeling of reflecting how much they had accomplished. Middle School Student 1 shared the following when asked about a moment that made him feel successful in the learning environment:

When they told me they didn't know how to do it (the math concepts) before. They just didn't know how to do any of it. When I showed them the easier way, they said that was a lot faster.

Then the student was prompted by the question: when you came in two months ago, did you think you would go this far? Middle School Student 1 then stated, "Honestly, I got far. I didn't think I was going to get that far. It makes me feel like I can do anything."

There is a robust body of research showing that when children teach, they show gains in self-efficacy. In a study of fourth-grade students peer teaching second-grade students, Paquette

(2008) found that not only did writing scores improve in pre and posttests but so did student attitude toward writing. Similarly, Gillies (2013) found fourth-grade students who tutored kindergarten students experience an increase in feelings of importance and confidence. These findings also extend to at-risk students, as Darrow, Novak, and Swedberg (2009) found that secondary students peer tutoring students in a special education program experienced positive and affirming feelings about working with special needs students and working with others. The findings of this study align with previous studies and show that child instructional leadership empowers the participants.

**RQ1 Theme 3. Generational differences.** The middle school students and university students generated a combined total of 15 codes on generational differences. The two subcategories generated were changing methods and changing experiences.

In one instance, both the middle school student and the university student expressed frustration at the generational differences between their experiences with teachers and faculty.

Middle School Student 4 stated:

So I kinda asked them ‘how is college?’ and they said it was sometimes hard because the teachers (faculty) don’t know how to talk to us (university students). Like they just give us work and don’t know, don’t explain it. And I was ‘oh same here, that’s why I (middle school student) am here for.

The middle school student concluded that education from the university might be a reason that teachers do not connect with their students once they are in the field teaching. Middle School Student 4 explicitly mentions the relationship between the faculty and the student. The initial literature review did not research generational differences between faculty and university students. In a case study, Lloyd (2006) suggested that preservice teachers benefit from fieldwork



that explicitly focused on student-centered mathematics discourse, activities, and roles; however, these roles did not include instances where the preservice teacher was learning content or pedagogy from the student. The findings of this study show that within the learning environment of the workshop, both the child and the adult were able to find common ground through the learning task.

The university students mentioned multiple instances of generational differences in pedagogy. University Student 6 distinguishes between traditional teaching pedagogy and newer student-centered pedagogy when she said,

Their confidence level goes up, if you introduce them to that safe environment in the classroom where you are not just doing that traditional teaching of, ‘here, open the book. This is what we are going to do.’ Giving them that power to be open and discuss it (the content) is really good for them.

Although this study includes university students, there was no initial research on changes in pedagogy or culture in different generations of researchers. There is, however, ample literature on generational gaps at the university level (Boyle, Gonyeau, Schwanda, Hritcko, Reza, & Sunil, 2018; Salajan, Schonwetter, & Blaine, 2010). There was no research available on the generational differences between students and teachers in the k-12 level.

## **Research Question 2**

How do low-socioeconomic students perceive the benefits of teaching adults? The prevalent themes to emerge in this question include child reflecting, empowerment, and overcoming obstacles in the learning environment. This question was aligned to the focus group questions for the middle school student participants, and only their responses generated these findings.

**RQ2 Theme 1. Child reflecting.** The theme of child reflecting had 72 codes and broke up into the categories of reflecting on systemic struggles, reflecting on the learning environment, and perceptions of adult learning. Through the reflective process of thinking about their accomplishments within the learning environment, the middle school students mentioned benefits, but the students also contrasted their experience in the workshop to their experiences in general education classes at the middle school. In the following exchange Middle School Student 4 and Middle School Student 1 state why, school is a challenge:

“And it is kind of boring the way teachers just give you a packet and tell you to do it.”

(Middle school Student 1)

“Yeah and then all you see is just black and white. We need color; we need pictures; we need you to break it down.” (Middle school Student 4)

“Yeah, we need you to come over and teach us how to do it, not just hand it to us.”

(Middle school Student 4)

“Like ‘here is some piece of paper, black and white, do it.’ No, give us some color.”

(Middle school Student 4)

“That’s why I can’t just really be in a class like that; you need to be up there teaching that.” (Middle school Student 1)

These comments reflect the frustrations of Middle School Student 6 who states:

Because every time we are in our class all we do is work solo. Always solo-work, never group work. Only like twice or once a month when we do projects for certain work. And here we do it every day. Every day we do group work and have fun.

The middle school participants shared these reasons as potential explanations as to why they struggled academically or socially in the classroom. Two of the participants admitted to

cutting class out of frustration. As a result of the workshop, the participants also reflected from the perspective of their teacher and their behavior and its effect on learning. Middle School Student 2 made the following reference regarding understanding how a teacher may feel due to discipline issues: “She (university student) was asking questions and every question has to have a good explanation and also like how I was low-key getting frustrated, now I see how teachers feel when we be in there acting up, be asking all these questions.”

Middle School Student 1 then remarked, “It can help us in our classes because now we know that when we’re getting taught not to be off-task and not to be asking too many questions cuz we feel how they feel. We feel how they feel when we ask too many questions, cuz they’re asking a lot of questions yesterday.”

Middle School Student 5 was very reserved throughout the focus group, but in this instance, he responded: “It kind of shows how the teacher-student relationship works a little bit, so we can try to reverse that and put it in use in other classes.”

This study did not follow up with teachers at the middle school to see if the middle school students showed any signs of changes in behavior or academic performance. Future research is needed to determine whether this experience shows a measurable change in social/behavior outcomes in the classroom. Initial research for the literature review did find any literature on children reflecting from the perspective of the teacher.

**RQ2 Theme 2. Empowerment.** The theme of empowerment generated 40 codes from the focus group of middle school student participants. Categories in this theme included positive effects on other students, child-to-child resourcefulness, striving for excellence, and self-efficacy.

Middle School Student 3 and Middle School Student 6 admit that they joined the program because of the encouragement from another friend in the program. Middle School Student 6 admits that he cut another class during the school day and came into the math intervention class. The student also admits that they wanted to join the program as a way of avoiding class.

When I first came with (name redacted), I was ditching. I didn't think I was going to like it. I was like 'I don't want to go back to class; I don't want to go to class.' But then (name redacted) was like 'come on, it's fun.' (Middle School Student 6)

The student then contrasted the learning environment in preparing for the event to the traditional learning environment where the participant was struggling socially by saying "Like my math class is way different. I feel like nobody do they work. We get along like this, it's like a fun way of doing math."

The researcher prompted Middle School Student 6 by asking, "what would it take for more students to join?" The student responded, "Because if a couple students do stuff (in the program), then a whole bunch want to do it. Then they become good to just to be in it."

The phrase "because if a couple of students do stuff" implies that the visible success of children will lead other children to join. The idea that other children will "become good" to participate in similar learning experiences also shows that the children believe their work will influence the children who did not participate in the workshop. Although the researcher did not find literature on the effect of peer teaching on outside friends, there is research on leadership opportunities and improved behavior (Hiatt-Michael, 2004).

**RQ2 Theme 3. Overcoming obstacles.** The theme of overcoming obstacles in the environment generated 19 codes with the two emerging categories of child struggling in learning

and adult struggling in learning. The term struggle is not used in a negative aspect, but rather as a description for overcoming a challenge.

Middle School Student 2 shared that they had forgotten how to complete a portion of the task but was able to persevere:

I mean it wasn't really a challenge, I low-key forgot the challenge too. I just couldn't remember how to do the shapes and then I remembered to teach them the shapes in a different way. It took me like two minutes. I just paused so it was low-key catching up, so it gave me a legitimate reason to come up with a solution.

This acknowledgment is an important instance of a productive struggle because, as documented in the researcher journal, this student had become angry in a similar event in the previous month and walked out without returning. In that event, the student came more than 10 minutes late and was disappointed that their preferred table was no longer available. The student did not return to the program for one week out of their own volition, but then returned because they wanted to participate in the workshop. Gumora and Arsenio (2002) found that emotional dispositions affect how students perform academically. Future research must explore specific factors that make a positive change on the emotional dispositions of students who are struggling academically and socially, and its relation to children teaching.

This finding on how children overcome challenges within a peer teaching-learning environment did not emerge in any of the studies for the literature review. Much of the previous literature has focused on academic and social factors in a peer teaching relationship, with no insight into how the children work through potential problems or barriers (Duran, 2010; Van Keer & Vanderslinder, 2009). There is, however, research into how individual students struggle in mathematics, Kawaguchi Warshauer (2014) showed that productive struggles maintain the

rigor of the objectives, facilitate student understanding, and allow students to proceed through a task. That study also found that mathematical struggles are directly related to socio-mathematical norms in a classroom, meaning that the struggles were not solely based on student ability but also in the classroom setting. These findings demonstrate that the success of the participants is not only related to the act of peer-teaching but the sociomathematical norms present in the learning environment.

### **Research Question 3**

How do adult university students perceive the benefits of being taught by low-socioeconomic middle school students? The emerging themes were benefits from the learning environment, empowering children, and empathy for child experience. These findings were generated from the university student participants.

**RQ3 Theme 1. Benefits from the learning environment.** The theme benefits from the learning environment generated 52 codes with the primary categories of child benefits and adult learning. The university student participants shared their perception on a range of child benefits such as academic and social benefits. The university students also learned new content and strategies from the children. University Student 3 stated that the benefits to the children also translated to benefits for the teacher.

Testing and things like that, it doesn't always go how you plan it to go. You can have all the knowledge in your head and when it's time for the test come out failing. But you know this (the content), so I feel like in situations like this you're able to show what you know. It's not about what's on the paper, that A, that B, that D, that F. It's not about that. I feel like those kids (academically or socially struggling children) are the most important

so that you can show them, and show yourself as a teacher, 'you got this,' it's possible and your test scores aren't everything.

The statement “and show yourself as a teacher” describes a validation that the participant believes a teacher would get after watching their students teach adults in a lesson. There is currently no research on the self-efficacy of teachers whose students teach adults in any setting or research into the self-efficacy of teachers whose students peer teach.

University Student 5 stated that teachers at their school site would benefit from experiencing a similar workshop. This statement expresses that the benefits of the workshop should expand to more veteran teachers.

I mean, it was very eye-opening because I was like ‘wow’. So, it's really amazing to see how, what they (students) can do. I think we can benefit, us (teachers) that we meet every Wednesday to talk about what they (students) can’t do. It would be really cool to be like ‘this is what they can do, so how do we build from what they already know and then help them achieve whatever it is they need to do.’ It was really cool to experience that.

(University Student 5)

University Student 5’s description of their experience in the workshop describes a moment where the participant experiences the Freirean term conscientizacao or critical consciousness. Freire (1970) describes a process of dialogue where teachers teach, but also learn from students when he stated: “the oppressed must be their own example in the struggle for their redemption (p. 29).” In this case, it is the children who are being academically oppressed because they are not decision-makers in their education and are considered to have a deficiency in their learning. University Student 5 continues to describe how teachers focus on student limitations and how this focus affects the morale of other teachers.

I agree. I think that we should, especially I mean as a new teacher. I go back and I work with older teachers and they're very set on the mentality where we have to do this, this, this, and this. and my students can't do this, my students don't know how to do this, and I'm going to try this and I mean they enjoy it and they loved it and I mean these are the experiences where I'm going to go back to my class tomorrow and there are going to be teachers that are going to tell me like 'hey let's do this'. And I'm glad, you know what? I'm going to do something different because I know and because I feel that that's the right thing to do.

These findings demonstrate that university students benefit by learning new content and pedagogy from children. Although there is current research on how student-led instruction can change the practices of teachers (Bennett, 2005), there are no studies on the long-term academic effects of the instruction.

**RQ3 Theme 2. Empowering children.** The theme of empowering children emerged as all university student participants stated that they want their current or future students to have experiences that build self-confidence. The university students also expressed the need for academically and socially struggling students to have empowering experiences.

“One of the things I’ve learned is kids love to help. Not just the ‘good’ ones but the kids that lack academically. They all want to help and when you give them confidence and you allow them to teach not just a student but tell them ‘hey, I learned something from you’ it empowers them. Their confidence level goes up, if you introduce them to that safe environment in the classroom where you are not just doing that traditional teaching of ‘here, open the book, this what we are going to do’ but making it safe to where ‘what do



you think we are learning in class? How can we change it?’ Giving them that power to be open and discuss it is really good for them.” (University Student 6)

This quote demonstrates the importance of an empowering learning experience on self-confidence. In a study on achievement goals and self-beliefs in middle school students, Pajares, Britner, and Valiante (2000) found that self-efficacy is positively correlated to academic performance. There is also literature to support the idea that the self-beliefs of lower achieving children negatively impact academic outcomes (Komarraju and Nadler, 2012).

**RQ3 Theme 3. Empathy for child experience.** Every university student participant reflected from the perspective of the middle school participant. The theme of empathy for child experience emerged in statements about the challenges the current generation faces, social struggles children face at a low-socioeconomic school, academic struggles, and the difficulty of teaching others. University Student 2 stated that experiencing the lesson as a student changed her perspective on different learning styles and how children learn:

I think it's also cool, because I haven't done these in such a long time, and I know it sounds wrong because math is so permanent. It's just that it's (math practices) changing. I feel like there is different ways that we have learned all the time. Again, we might have been taught one way and that's the way that we've always known how to do it, but once we incorporate, see like 'oh, maybe that's how the student learns. This is how the students see it.' So, it's kind of like, ok, this is the student's perspective. This is maybe how they want to be taught and this is maybe the best way to reach other students.

University Student 2 reflected from an academic perspective on the workshop, while University Student 4 reflected from a social and physical perspective of the challenges that children face in traditional education environments and stated,

I went to three CSET Test preps where I took off three Saturdays in a row. It is supposed to be from 8 am to 5 pm, but it was from 8 am to 3 pm. There was a bunch of information coming at me and it was really difficult to sit still for that amount of time. I had a lunch break too. That's what really reintroduced the concept to me of how much we ask of these kids, for how long we ask them to do it. And they're doing it five days in a row; I was just doing it three Saturdays in a row.

The statements from University Student 2 and 4 demonstrate that their reflections are based on understanding the child to better work with the child. When teachers empathize academically and socially with students, they improve the academic outcomes of students (Jaber, Southerland, & Drake, 2018). This ability to empathize with students must be introduced in preservice teacher education programs. The findings of this theme show that the learning environment in the workshop facilitated a host of benefits including empathy from the adult to the child, academic benefits, and social benefits.

#### **Research Question 4**

How do middle school administrators perceive the benefits of student instructional leadership of adults? This question is essential in understanding the significance of the workshop on middle school students and new teachers. The middle school administrators have in-depth knowledge of the middle school students participating in the workshop and currently, have 22 new teachers working at their school site. The three main themes that emerged from this research question are benefits from the learning environment, barriers children face, and generational differences.

**RQ4 Theme 1. Benefits from the learning environment.** The theme of benefits from the learning environment emerged with the distinct categories of solutions to class problems,

growing leaders, and raising expectations. These categories are distinct findings because similar categories did not emerge as benefits from either the university student participants or middle school participants.

Administrator 1 states that the learning environment provided an opportunity for the student to succeed and then transfer this success to their classroom environment:

You're not going to say I'm tired, I'm not going to waste my time because that's what they've been hearing over and over again...it goes to the support...where they're stuck talking to (a behavior support specialist) maybe one time, maybe two times, but I bet you, if in the beginning of the year it might have been 10 times and then we reduce it down to just two times. So okay "so I can self-correct and get back to what I'm supposed to be doing." But it goes back to providing the support. Providing a culture of tolerance and then, how can we talk to kids so that we don't put them down or belittle them, or scream at them, that's only going to increase the bad behavior.

In this specific case, the student was exhibiting negative behaviors in the two hours leading up to the workshop. The behaviors included continued use of profanity and disregard for any redirection. One of the teachers offering support in the learning environment pulled the student aside before entering the university classroom and spoke about how to model appropriate behavior at the university. In the researcher field notes, this is the same student who skipped a previous workshop. The student admitted they were nervous and did not think they could perform in front of adults. The researcher then spoke with the student on multiple occasions and reassured the student they would be successful and reminded the student they could work next to their friends during the workshop to feel comfortable and have support. The following excerpt is from the researcher field notes on the workshop:

About 15 minutes in, I looked over at (student), and he had one of the biggest smiles possible on his face, and he came and gave me a big high five and hug and said, 'yeah I got it, I got it.' He looked really happy, and he actually transformed. I know he was acting out earlier because he was nervous, but he is in a genuinely good place right now. This was one of the highlights of the evening for me.

The change in the student before and during the workshop was similar to the difference in how the student behaved (struggling) in the general education class environment and how the student behaved (positively) in the intervention classroom setting while preparing for the workshop. The researcher shared strategies for self-regulation before the workshop and a teacher supporting the workshop also coached the child immediately before the session. In a study on middle school-students, Herndon and Bembenuddy (2017) found that self-regulation strategies had a positive influence on academic achievement and performance. This finding indicates some children need additional self-regulating and coping strategies to be successful in a similar environment. Furthermore, self-regulation and motivation strategies can be used in a context outside of the workshop and as a solution to common classroom issues.

Administrator 3 worked extensively with students who participated in the workshop. As an administrator focused on social services at the school site, this participant had extensive experience with the positive and self-destructive behaviors of some of the students and stated,

And they (university students) only see good kids who are out there teaching, but they don't see some of the challenges that some of these kids have on the inside when we're here at school. But they also need to understand that transfer of this leadership role that they're taking on is also influencing them in the classroom, them on the playground, which is also then bleeding out to influencing some of their close friends because they are

pulling their friends in to keep them out of trouble, to keep themselves out of trouble, to keep having the opportunities they are getting. (Administrator 3)

This comment mirrors the comment from Middle School Student 6 who shared “then they (students) become good just to be in it.” In a study on the results from a government survey administered to students in Colorado, researchers Yang, and Anyon (2016) found that bonding in school among Black, Latino, and Multiracial students had a positive effect on academic outcomes. The literature indicates that this benefit to at-risk students is attributed to the relationships created by students in the learning environment. This benefit of bonding to “keep friends out of trouble” is not exclusive to the event, but a byproduct of the workshop in the study.

Administrator 2 indicates that for new and future educators to understand the benefits of the learning environment to children, they must see the experience first-hand:

A new teacher being able to come in and see a kid from the neighborhood, from the hood, you know I think it's it will open their eyes cuz I think when we come into teaching sometimes, we just want to we just want to teach those kids that are at a certain level. Because it'll be easier for us to teach those kids who are on grade level and above. So as a substitute teacher, or a person new to the profession, to come in and see ‘no these are not the top students, some of these kids are on an IEP and some are not on grade level but then they come into this setting and they are able to be successful.’ But them able to see it, that's the only way right now you can get the buy-in. We can tell them (teachers) but until they see it, I don't think people will believe it because he (a student) is not on grade level, he's testing poorly, he's ditching class, he's fighting kids, but then you tell me he can do all these things. You are going to have to prove that, so showing them that they can do it, is the best way.

This need for educators to “buy-in” is important, especially at low-socioeconomic schools where most students are minorities because these environments systematically lower the expectations for minority students. In a study on teacher expectations on race, Diamond, Randolph, and Spillange (2004) found that schools serving primarily African American and low-income students had more teachers with deficit-based conceptions of their students. Students are also aware of these deficit-based perceptions, as Carter Andrews and Gutwein (2018) found that students believed that teacher expectations based on race had a negative impact on schools. Thus, this statement by Administrator 2 illustrates the perception that the deficit-based perception of minority students does not evolve as educators gain more experience, but potentially begins before new teachers even begin working as credentialed teachers in the field.

**RQ4 Theme 2. Barriers children face.** The theme of barriers children face emerged from the distinct longitudinal perception of the administrators. There was a consensus among the participants that the children participating in the study typically did not participate in positive learning experiences for academic, social, and systemic reasons. Thus, the administrators believed that there are systemic barriers that keep these children from achieving their full potential.

Administrator 1 described how students in the study have leadership qualities that schools have trouble translating into academic and social leadership experiences, saying

I always think that a lot of the quote “bad kids” or the kids that misbehave, most of them have leadership qualities. That’s why they’re able to you know, run the street and be very independent, whether they become gang members or the leadership of gang members. But they have the qualities, its about making sure those qualities don’t become street qualities rather than academic leadership qualities.

Administrator 3 also states that students are not intentionally left out of learning experiences; rather their learning experiences do not suit their strengths.

I realize he has been taught wrong the entire time. He was 'hands-on' versus 'let's take notes.' I think it made him feel successful, built his self-esteem and then he had the ability to be a leader in a good aspect, instead of a leader in a bad aspect.

While Administrator 1 shared the need to adapt the leadership qualities of at-risk students to an academic setting, Administrator 3 shared how instructional practices can be counter-productive to building the self-esteem of at-risk students. Administrator 2 shared a specific anecdote on how systemic barriers can potentially prevent students from participating in learning environments like the workshop in this study:

We didn't know he was (had a social-emotional disability), all we knew was that we had a new kid. We placed him in classes, I scheduled his classes as a regular day...when I got the CUME folder and the IEP it shows that he had (a social-emotional disability) and here he is doing all these fabulous things. Had we saw his file before, he would never have an opportunity, so that was the aha moment for me. That not just the really smart kids, but all kids can learn and benefit from something like this.

The factors preventing an at-risk student from participating are systemic in the educational system and include social factors outside of school. In a study on at-risk high school students, Wilson and Dunham (2016) found that a correlation between achievement on the American College Testing exam and participation in extra-curricular activities, which in turn was tied to the level of family income. These findings correlated to those of Villareal (2017) who found that seventh grade Hispanic students, particularly females and bilingual speakers, were less likely to participate in extra-curricular sports. These systemic trends excluding at-risk

students can be reversed with programs that intentionally recruit and include at-risk students. In a partnership between the University of Michigan-Dearborn and public schools in Detroit, Murray, Napieralski, Luera, Thomas-Brown, and Reynolds-Keefer (2012) found that at risk-students participating in summer workshops showed academic benefits in science, social benefits in their relationship with teachers, and a future career opportunity. Consequently, the findings of this theme and the literature make clear the need for experiences that intentionally include at-risk students.

**RQ4 Theme 3. Generational differences.** The theme of generational differences included 28 codes with distinct categories of challenges with change, fear of change, natural changes, pedagogy change, and positive change.

Administrator 2 described how generational changes have led to new pedagogy and practices that some teachers may have trouble adapting to. In turn, these changes affect the delivery of lessons and academic outcomes for children, as Administrator 2 shared,

But people are afraid of change, so they want to teach the way that they were taught and I don't know that that's always the right way because I was taught one way 'this is how you do this math problem.' So when I see the kids in your room and they're able to do the math problem and the kids are doing it all these different ways, it's like you know, I'm thinking I even did a disservice to the kids when I was teaching because 'no we are going to drill and kill. This is the way we're going to do it. Seven times five is thirty-five. I don't care about you drawing it or any of those things. This is what it is, so you need to just know it.' And it's different, so people will tend to go to what they know because that's easier for them.



The literature on change and teaching is diverse, but researchers such as Tyack and Cuban (1997) argue that much of what is considered change and reform has been incremental at best. In a study on veteran teachers' professional development, Raider-Roth, Stieha, and Hensley (2011) found that teacher resistance to new pedagogies is closely tied to their professional development experiences. In the case of resistant teachers, there is a need to be able to voice their individual experiences in professional development that acknowledges their circumstances. In a study on teachers in struggling urban communities, Day and Hong (2016) found these teachers face more difficult pressures than other teachers such as "extreme emotional learning and behavioral challenges posed by students, combined with external demands for academic accountability (p. 123)." This finding aligns to the research because teachers, particularly urban teachers such as those of the students participating in the workshop, are facing extreme daily challenges and they form a type of resilience and do what Administrator 2 describes as, "go to what they know because that's easier for them." Thus, these findings show that there were benefits in the learning environment that bridged generational differences between children and adults, but future studies must bridge academic interventions to general academic coursework and relationships between teachers and students.

## **Discussion**

This section will include a discussion on the theoretical implications of the study, the practical implications, and the strengths and weaknesses of the study. The order of this section is meant to start broadly by addressing theoretical issues and findings, narrowing the discussion to the application and practice, and finally providing specific suggestions for implementation and future research.

### **Theoretical Implications**

The theoretical framework for this study includes Critical Pedagogy and the Instructional Core. Both theories addressed the positionality of the learner within a learning environment; Critical Pedagogy through a critical social lens and the Instructional Core through the learning task (City, Elmore, Fiarman, & Teital, 2014; Giroux, 2007). These theories are fundamental in understanding the social and academic roles a learner plays, particularly child students. Children have traditionally been marginalized in the decision-making of their education, and this is especially true for low-socioeconomic and minority students (Ulluci & Howard, 2015; Pope, Beal, Long, & McCammon, 2011).

Critical Theory falls into the different categories of cultural and economic (Giroux, 2004). In contrast to theory, Critical Pedagogies can incorporate difference spheres of theory into an applied problem solving teaching context that Giroux (2004) refers to as “a moral and political practice premised on the assumption that learning is not about processing received knowledge but actually transforming it as part of a more expansive struggle for individual rights and social justice (p. 34). This study lies firmly in the applied state of Critical Pedagogy. The findings demonstrating the benefits of student leadership in this study are evidence that students can also be a part of practices that intend to improve struggling low-socioeconomic schools. In his seminal work, Freire wrote “(a) the teacher teaches, and the students are taught; (b) the teacher knows everything and the students know nothing; (c) the teacher thinks and the students are thought about” (p. 73). The results of this research demonstrated that when the children taught the adults in the workshop, both the student and the adults received a host of social and academic benefits. Thus, in a Critical Pedagogy context, the student can share instructional leadership roles with adults in applied problem-solving relationships. Furthermore, these instructional leadership opportunities are not limited to high achieving students, but valid for

students at all academic levels. The caveat being that students with a history of more academic and social struggles require more support in order to have access to instructional leadership opportunities.

The Instructional Core, at its basic premise is the relationship between the teacher, the student, and the content (City, Elmore, Fiarman, & Teital, 2014). A key problem in education is that reform movements and practices have inherited paternalistic traditions within pedagogical practices (Cohen, 1999). In this scenario, theory and practice collide with reality: a pedagogy may call for student leadership and equality, but in practice the student must follow the teacher's directions. The findings in this study show that in a setting where the roles of the teacher and student are reversed, the student can be successful. This doesn't set the precedent that the student should always lead, but that roles in a learning environment have the potential to be undefined. Figure 14 illustrates how the roles of students and teachers are indistinguishable when both have training, an understanding of pedagogy, and individual experiences are valued. In this study the central component was the development of a learning relationship, and student achievement in the learning task was a by-product. The children delivered content they had learned over multiple months, but the benefits to the university students and middle school students was not a result of increased student achievement, it was a result of the brief instructional relationship they established in the learning environment.

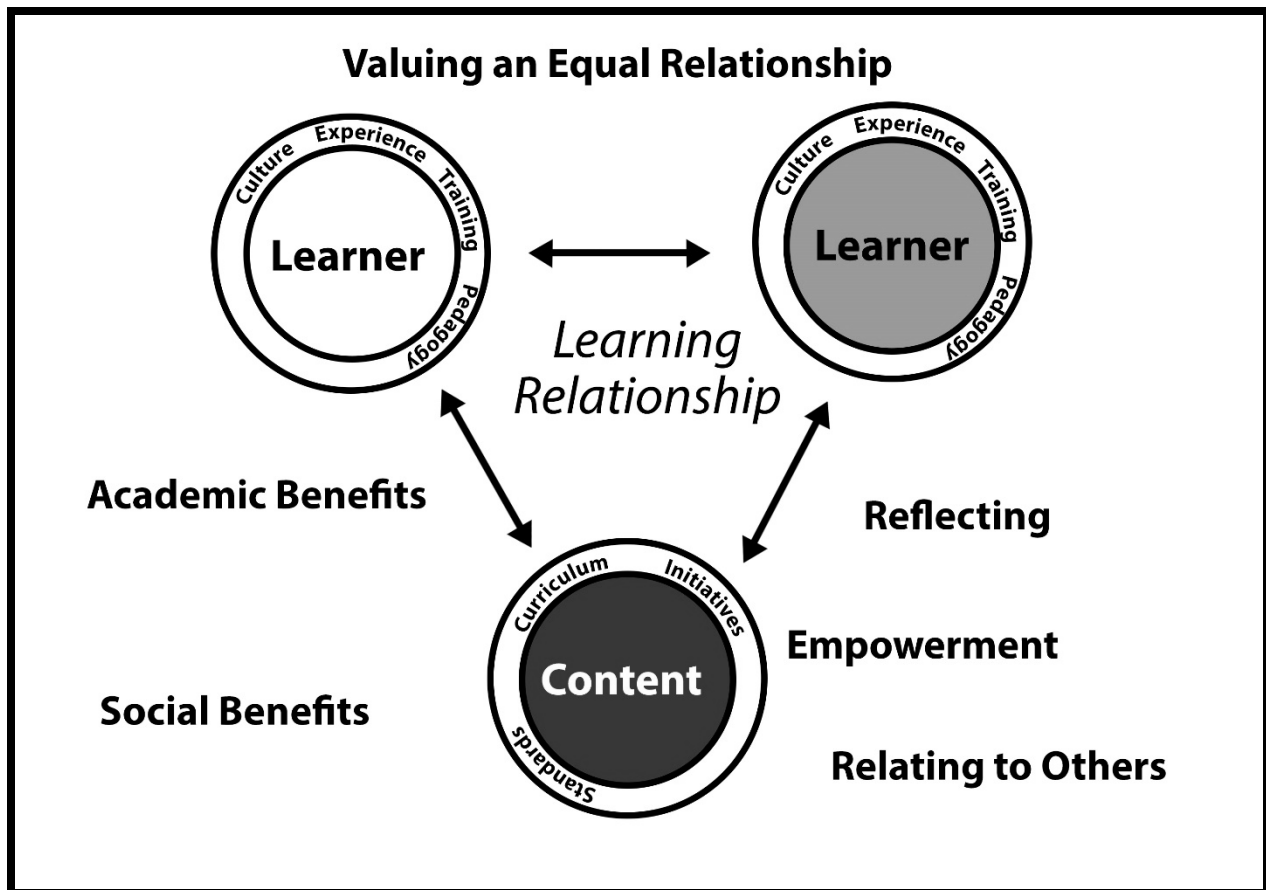


Figure 15. The student and the teacher as learners.

In this study, both the academic and social roles were reversed as the children taught the adults. There is sparse research in children teaching adults and this study filled a gap in research on academically and socially-struggling, children teaching adults. The findings in this study aligned to Critical Pedagogy by demonstrating that when children lead in an instructional environment both the adult and child gain social benefits. The findings also aligned to the theory of the Instructional Core by demonstrating that the learner (child) also possesses the ability and knowledge to lead an adult in an instructional activity where the adult can learn new content and pedagogy

### Practical implications

The purpose of this qualitative single-case study was to explore how middle school students and university students benefit when the roles are reversed, and the student teaches the teacher. The middle school students in this study were from a low-socioeconomic school and were identified as academically or socially struggling. The university students were either preservice or in-service teachers enrolled in a teacher preparation course.

The middle school students attended a school with 22 new teachers and the teacher turnover rate for new teachers exceeded 50% from the previous year. New teacher support/research at universities and central administrative offices should consider embedding components that include experiences where children teach adults. The lesson the middle school students delivered included the key components that were considered exemplary within the practices of the school district: (a) the lesson was designed to the rigor of grade-level standards, (b) the content was scaffolded down multiple grade levels for remedial students, (c) learning was differentiated for auditory, visual, and kinesthetic learners, (d) students worked independently and in collaboratively, and (e) the project-based learning environment allowed for students to demonstrate leadership in the design and outcome of their work. Considering the components of the lesson, the workshop was a model lesson delivered by a classroom of students rather than university faculty or a master teacher. For new teacher support programs, this practice would not supplant a lesson study or lesson observation but create a space where new teachers would observe/participate as insiders, rather than as outsiders.

For struggling students, it is imperative that they have access to opportunities that are empowering and offer academic and social benefits. Administrators and new teachers working in academically struggling low-socioeconomic schools understand the systemic issues children face. Given these realities, the findings of this study demonstrate that teacher preparation

programs and academic intervention programs should consider including opportunities for teachers to learn from students or for students to share a mastery of content by leading in an instructional setting with adults. This study shows that even with social or academic deficits, children and adults benefit in a structured learning environment where the children teach adults new content.

### **Strengths and weaknesses**

The positionality of the research, although initially a potential liability, was also a strength in the study. The researcher was the instructor for the university students and a teacher for the intervention math middle school students. The role of the researcher as a middle school math intervention teacher at a low-socioeconomic school gave the researcher access to children who were struggling academically and socially. This access was only granted through the building of relationships with middle school children, teachers, and administration over an extended period. The role of an instructor at the university granted the researcher access to the campus and courses that made it possible to facilitate the collaboration. The research documented the potential liabilities in the methods of the research and took steps to limit bias in the study.

### **Recommendations for Future Research**

The findings in this study demonstrated that when children teach adults in a structured environment, both adult and child participants benefit. A recommendation for future research is to work with marginalized students in a capacity that empowers the child while the study is conducted. Fals Borda (1995) stated,

do not monopolize your knowledge nor impose arrogantly your techniques, but respect your skills with the knowledge no impose arrogantly your techniques, but respect and

combine your skills with the knowledge of the researched grassroots communities, taking them as full partners and co-researchers (pp.16).

Future research should consider methodologies such as Youth Participant Action Research (YPAR) to move beyond understanding the benefits and into facilitating solution-based research with the participants and their community. In adopting a Critical-based research methodology, future research can better blend the theory and practice to advance knowledge in this area of study.

Further recommendations include studies that specifically improve the academic and social gains of child participants rather than only assess or measure the effectiveness of practices. It is important to understand the long-term academic benefits and whether these benefits transfer into other domains or academic areas. Furthermore, it is imperative to understand how social skills and empowerment transfer to learning outside of the targeted experiences.

This study did not include the experiences of general education teachers. Although the researcher's journal included encounters with the general education teachers of the child-participants, the opinions and ideas of these teachers were not included for this study. Future research designs must respect the role that these educators have in the education of intervention middle school students and include them as leadership within a study.

The last recommendation for future study is to include the voice of parents in the research. Leading up to the workshop there were multiple instances of parent participation that would have added a new dimension to the research. Understanding the effect of the research on the homelife of the student was not considered in the design of the research. This lack of awareness left the parents out of the research (aside from consent). In conclusion, future research

into children teaching must empower the child, lead to actionable conclusions, and it must include all stakeholders in the child's education.

### **Summary of recommendations for future research**

The researcher recommends that future research into children teaching adult includes:

1. Methodologies that empower the participants, such as Youth Participatory Action Research.
2. Specifically, target the long-term academic and social gains of child-participants.
3. Include input from educators who work with the children but may not be explicitly tied in the research.
4. Design experiences that support new teachers who work with struggling students from low-socioeconomic backgrounds
5. Include the voice of all stakeholders involved with participants, including parents.

### **Conclusion**

This study was a qualitative single-case study designed to explore how university students and middle school students benefit in a structured learning environment where the children teach adults. The child-participants in this study were academically and socially struggling middle school students from a low-socioeconomic background. The university students were either preservice or in-service teachers pursuing their teaching credentials.

Previous literature showed that children benefited academically and socially in peer teaching-learning environments. This study addressed the gap in the research on socially and academically struggling, low-income, children teaching adults, and the findings showed that both the children and adults benefited academically and socially. These findings are based on a content analysis and thematic analysis of participant focus groups and interviews. The emerging



themes included: empowering children, benefits of the learning environment, generational differences, child reflecting, empathy for the child experiences, overcoming obstacles in the learning environment, and barriers children face.

The findings of this study show that children are capable of teaching pre-service and in-service teachers new content in a structured learning environment. This ability to teach adults extends to academically and socially struggling middle school students from a low-socioeconomic school. The implications for this study are that any middle school child, regardless of social or academic backgrounds, can guide adults through new areas of learning. As researchers and educators continue to address the academic achievement gap, it is important to include the most vulnerable children as leaders within instructional environments.

## APPENDIX

## **Appendix A**

### **Middle School Student Focus Group Protocol**

#### **Research Question Guide for Child Participants in the Focus Group**

The focus group with children will be semi-structured and the questions are only meant to guide the process. These questions contribute to the general knowledge in the research gap because they take the first step in understanding the benefits of children teaching adults. Pope, Beal, Long, and McCammon (2011) conclude that “middle school students have typically been silent partners in teacher preparation; their voices have been underrepresented” (p. 345). Thus, these questions give a voice to underserved children and act as a guide to understand how future research and learning opportunities can target students in traditionally silent roles.

#### **Question prompts based on research question 1:**

- How did you feel teaching adults at the university?
- Is there something in the activity that made you feel successful?
- Why do you think it is important for future teachers to be taught by kids?

#### **Question prompts based on research question 2:**

- Where there any challenging moments while you were teaching? Were you able to adapt? How?
- Why do you think it is important for children to have the opportunity to teach future teachers?
- How can this event help you back at the middle school?

## Appendix B

### University Student Focus Group Protocol

#### Research Question Guide for University Student Focus Group

The focus group with the university students is semistructured and the questions are only meant to guide the process. Pope, Beal, Long, and McCammon (2011) concluded that “middle school students have typically been silent partners in teacher preparation; their voices have been underrepresented” (p. 345). The questions will gain information from university students on how they experienced being taught by children and whether or not this has an effect on their understanding of teaching and learner empowerment. The event in the case study has taken place on two previous occasions and university students have voiced support for more similar events.

**Research Question 1:** *How is low socioeconomic children’s instructional leadership perceived by both the adults they are teaching and the children themselves?*

The following questions are based on research question 1.

- How did you feel about being taught by middle school students?
- Is there a specific moment where you felt a sense of awe, or wonderment while the child was teaching? Where there any ‘aha’ moments?
- Why do you think it is important for future teachers to actually be taught by children?

**Research Question 2:** *How are low socioeconomic students benefiting from teaching adults?*

The following questions are based on research question 2.

- Did you witness any challenges in the learning environment? Where you and the children able to adapt? How?
- Why do you think it is important for children to have the opportunity to teach future teachers?
- How can this event help in your future teaching career?

## Appendix C

### Administrator Interview Questions Protocol

#### Research Question Guide for Administrator Interviews

The focus group with the administrators is semistructured and the questions are only meant to guide the process. The administrators participating in the study provide a critical view because they have intimate and first-hand knowledge of the children participating in the learning event documented in the case study. Some of the children have been selected because they were either struggling socially or academically, and the experience is meant to provide an opportunity for the child to grow from their strengths. The event in the case study has taken place on two previous occasions and administrators have voiced support for more similar events. The research questions are also meant to understand the logistical issues with holding such events in order to promote future collaboration with the university.

**Research Question 1:** *How is low socioeconomic children's instructional leadership perceived by both the adults they are teaching and the children themselves?*

The following questions are based on research question 1.

- How did you feel about your students teaching at the university?
- Is there a specific moment where you felt pride in the work your students were performing?
- Why do you think it is important for future teachers to actually be taught by children?

**Research Question 2:** *How are low socioeconomic students benefiting from teaching adults?*

The following questions are based on research question 2.

- Did you witness any challenges in the learning environment? Where the participants able to adapt? How?
- How do you believe your students benefit from teaching adults at the university?

- How can this event help children academically at the middle school?

**Research Question 4:** *How do school administrators perceive the benefits of student instructional leadership?*

The following questions are based on research question 4.

- In the learning event, did you have any “aha” moments?
- How do you believe your students benefit from teaching adults at the university?
- How can this event help children academically at the middle school?
- Is it possible to expand these opportunities where children are teaching? What do you see as the potential costs to this type of learning experience?

## **Appendix D**

### **Informed Consent for Middle School Students**

#### **Parental/Guardian Consent: MIDDLE SCHOOL STUDENTS TEACHING UNIVERSITY STUDENTS**

**Authorized by the California State University, Bakersfield Institutional Review Board and  
the [REDACTED] School District**

Your child's teacher, Mr. Edward Gonzalez, is doing research for his Doctoral Studies in Educational Leadership degree at California State University, Bakersfield. As part of his degree, Mr. Gonzalez is conducting a study at [REDACTED] Middle School.

Mr. Gonzalez and his students participate in an event where [REDACTED] Middle School children teach adult students at [REDACTED]. In the past, [REDACTED] students and [REDACTED] students have enjoyed the unique experience and asked for more similar opportunities.

#### ***Your child will participate in the study by:***

- Teaching university students in a workshop at [REDACTED] on Thursday, 12/6 at 5:30 pm.
- Being interviewed among a group of five other students to help Mr. Gonzalez understand how children benefit from teaching adults at the university. Information from this interview will not identify the child or be attributed to the child.
- The event will be video recorded, and your child will be in the recording along with about 40-50 other individuals in the learning environment. This recording will help Mr. Gonzalez understand how the children are positively interacting and teaching the adults. The video will not specifically identify your child or single out your child. The raw video will remain safely stored and not shared publicly.

#### ***Your child's privacy will be respected by:***

- Coding the interview responses of your child with an identification number that does not list the child's name.
- Your child's name will not appear in any reports.
- The information from this study will be kept in a locked cabinet.
- The final report will not contain any information that will make the identity of the children public.

#### ***The findings of this study will be shared through:***

- Published written work by Mr. Gonzalez.
- Conferences with other professional educators.
- Quotes from your child may be used in the above work, but those quotes will not be attributed to your child. Furthermore, quotes that identify your child will not be used.

You are completely free to choose whether to grant permission for your child's participation. If you decide not to grant permission, this will not affect my evaluation of your child in my class,

including any of his/her grades or privileges. The child can stop participating at any time throughout the event with no repercussions.

As the guardian, you are also welcome and invited to participate in the event! In the past, we have had parents attend the event, and we are welcoming parents again this year.

This study is not designed to provide direct educational benefits to the participants. However, it might result in more opportunities and partnerships for children from the middle school to participate at the university level.

There are no costs to the participant beyond those normally found in the classroom, such as anxiety about answering questions or boredom.

This project has been approved by [REDACTED] School District, [REDACTED]'s Institutional Review Board, and [REDACTED] Middle School Principal, [REDACTED]

If you have questions about this research project or would like a summary of the results, please contact:

**Edward Gonzalez**

Math Intervention Specialist at [REDACTED] Middle School  
Principal Investigator for this Study

[REDACTED]  
[REDACTED]  
[REDACTED]

Also participating in the event is [REDACTED], the [REDACTED] Middle School Behavior Intervention Support Specialist. [REDACTED] offers guidance to our children at [REDACTED] and will be available to answer any of your questions or address any concerns. The children will be made aware that they can reach out to [REDACTED] for any type of support related to the study before, during, and after the event.

[REDACTED]

Behavioral Intervention Specialist

[REDACTED]  
[REDACTED]  
[REDACTED]

If you have questions or concerns about your child's rights as a research participant, please contact:



Research Ethics Review Coordinator

Your signature below indicates that you have read and understood this form, that you had been given an extra copy of this form to keep and agree to allow your child's experiences to be used for research purposes. The informed consent forms will be stored for a period not less than three years in a locked container for at least three years in the office of the Faculty Mentor, and thereafter will be destroyed.

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## **Appendix E**

### **Informed Consent for University Students**

#### **CONSENT TO PARTICIPATE IN A RESEARCH STUDY**

##### **PROJECT TITLE: MIDDLE SCHOOL STUDENTS TEACHING UNIVERSITY STUDENTS**

**Principal Investigator:**      **Edward Gonzalez**  
CSUB Doctoral Candidate  
Teacher [REDACTED]  
[REDACTED] Adjunct Faculty

##### **Why are you doing this study?**

You are being asked to participate in a research study about how children and university students benefit from learning events where children do all the teaching. The purpose of the study is to learn how leadership opportunities in the classroom benefit both children and adults.

##### **What will I do if I choose to be in this study?**

You will be asked to participate in a one hour workshop where middle school children do all the teaching. The workshop will be video recorded. After the workshop you will participate in a 45 minute focus group with four other participants to share your experience in the activity. The interviewer will ask questions, but you will only respond to questions voluntarily. The session will be recorded with an audio device.

**How will you protect the information you collect about me, and how will that information be shared?** Results of this study may be used in publications and presentations. Your study data will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used.

##### **Participant Confidentiality**

All identifying information which might link you to the interview data will be kept confidential. Only an identification number or false name will appear on the tapes or printed materials. No one will be able to associate your name with your data. The taped interviews will be transcribed by the researcher. A master copy of all participant names will be kept in a locked file in the researcher's office. Only he will have access to this list. This list, the audio-tapes and the personal information sheets will all be destroyed within one year after the completion of the study. The narrative transcripts without identifiers will be kept for possible future research. Your name will not be used in written reports or presentations of the study findings.

##### **What are my rights as a research participant?**

Participation in this study is voluntary. You do not have to answer any question you do not want to answer. If at any time and for any reason, you would prefer not to participate in this study, please feel free not to. If at any time you would like to stop participating, please tell me. We can

take a break, stop and continue at a later date, or stop altogether. You may withdraw from this study at any time, and you will not be penalized in any way for deciding to stop participation. If you decide to withdraw from this study, the researchers will ask you if the information already collected from you can be used [or in the alternative, state that any information collected from the participant will not be used if the participant decides to withdraw before finishing the study.]

**What are the possible benefits for me or others?**

You are not likely to have any direct benefit from being in this research study. This study is designed to learn more about how children can be used in leadership roles at the university and in professional settings. The study results may be used to help other people in the future.

**What are the possible risks or discomforts?**

Your participation in this study does not involve any physical or emotional risk to you beyond that of everyday life.

As with all research, there is a chance that confidentiality of the information we collect from you could be breached – we will take steps to minimize this risk, as discussed in more detail below in this form.

**Financial Information**

Participation in this study will involve no cost to you. You will not be paid for participating in this study.

**Who can I contact if I have questions or concerns about this research study?**

If you have questions, you are free to ask them now. If you have questions later, you may contact the researchers at [add your contact information, including name, telephone number, and email address].

**Edward Gonzalez**

Principal Investigator

[REDACTED]

[REDACTED]

[REDACTED]

For questions regarding my rights as a research subject, I may contact:

[REDACTED]

University Research Ethics Review Coordinator

Institutional Review Board/Human Subjects Research

[REDACTED]

California State University, Bakersfield

[REDACTED]



## Consent

**I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form.**

The informed consent forms will be stored for a period not less than 3 years in a locked container for at least 3 years in the office of the Faculty Mentor, and thereafter will be destroyed.

Signatures:

Participant: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher: \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix F

### Approval for Research

|                                                                                                                                                                                 |                                                                                             |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>BAKERSFIELD CITY SCHOOL DISTRICT</b>                                                                                                                                         |                                                                                             |  |
| Instructional Support Services Division<br>1300 Baker Street<br>Bakersfield, CA 93305-4326<br>(661) 631-4872<br>FAX: (661) 861-0597<br><br>Tim Fulenwider, Ed. D.<br>Director I | EDUCATION CENTER, 1300 BAKER STREET<br>BAKERSFIELD, CALIFORNIA 93305-4399<br>(661) 631-4600 |                                                                                     |
| <br>December 1, 2018                                                                                                                                                            |                                                                                             |                                                                                     |
| Edward Gonzalez<br>801 4th Street<br>Bakersfield, CA 93304                                                                                                                      |                                                                                             |                                                                                     |
| <br>Dear Mr. Gonzalez,                                                                                                                                                          |                                                                                             |                                                                                     |
| This letter is inform you that your request to conduct research has been approved.                                                                                              |                                                                                             |                                                                                     |
|                                                                                                |                                                                                             |                                                                                     |
| Tim Fulenwider, Ed. D.<br>Director, Instructional Support Services                                                                                                              |                                                                                             |                                                                                     |

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## VITA

Edward Gonzalez was born in Anaheim, California, and raised in Santa Ana, California, until the age of 12. Edward's family relocated to Visalia, California, where he finished elementary, middle, and high school. Before earning his doctoral degree from California State University, Bakersfield, he earned his MA in Educational Technology from CSU Fullerton where he graduated with the highest honor of the Edwin Carr Fellow. Edward graduated from California State University, Bakersfield with his BA in Liberal Studies.

As an educator, Edward is well-known for child-led professional development for educators. This pedagogy earned him the Computer Using Educators LeRoy Finkle Fellow for the year of 2018. Edward has become a regular presenter at local educational technology-related conferences, at the National CUE Conference, and at the annual International Society for Technology in Education Conference.

Currently, Edward is a math intervention teacher and adjunct faculty at California State University, Bakersfield, and California State University, Fullerton.