DIFFERENCES IN ENGLISH LEARNERS' STUDENT ACHIEVEMENT BETWEEN DISTRICTS THAT PROVIDED TARGETED EL TRAINING FOR THEIR MAINSTREAM CLASSROOM TEACHERS AND THOSE THAT DID NOT

The undersigned, approved by the Department Chair of Graduate Studies in Education, have examined a dissertation entitled:

DIFFERENCES IN ENGLISH LEARNERS' STUDENT ACHIEVEMENT BETWEEN DISTRICTS THAT PROVIDED TARGETED EL TRAINING FOR THEIR MAINSTREAM CLASSROOM TEACHERS AND THOSE THAT DID NOT

Presented by DeAnna J. Sheets a candidate for the degree of Doctor of Education and hereby certify that in their opinion it is worthy of acceptance.

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DIFFERENCES IN ENGLISH LEARNERS' STUDENT ACHIEVEMENT BETWEEN DISTRICTS THAT PROVIDED TARGETED EL TRAINING FOR THEIR MAINSTREAM CLASSROOM TEACHERS AND THOSE THAT DID NOT

A Dissertation
Presented to
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By

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Dr. Nancy Colbaugh, Dissertation Advisor

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ABSTRACT

In response to legislation from the federal government and the rising number of ELs in public schools many school districts are searching for ways to ensure ELs are making adequate progress on English proficiency. The problem is defining the best method for teaching ELs in the mainstream classroom is difficult. The current gap in educational research includes the absence of studies on specific training for mainstream classroom teachers. There is sufficient research on practices regarding delivery services for Teachers of English to Speakers of Other Languages (TESOL) services. However, there is little research on EL training provided to mainstream classroom teachers and the impact of that training. The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts English Language Arts (ELA) Missouri Assessment Program (MAP) scores for third through fifth grades in Missouri districts with an EL enrollment of 20 or more. Results from this study showed no statistically significant difference occurred in school districts that provided EL training to their mainstream classroom teachers and those that did not, however though not statistically significant, there was a slight increase in MAP scores for districts that had provided training.

CHAPTER ONE

INTRODUCTION

English Learner (EL) is a term used to define students acquiring English proficiency. English Learners have been exposed to two or more languages and have difficulty speaking, reading, writing, or understanding English (Johnson, Tuttle, Harrison, & Shell, 2018; Moon, 2018; National Center for Education Statistics, 2020). The number of ELs in public-schools has fluctuated over the past 30 years, ranging from 5% in 1993 to its highest population in 1999 with 10% of students in school being identified as ELs. The most recent data at the time of this research show ELs represent over 8% of the public-school population (Hussar et al., 2020; Kreck, 2018; Office of English Language Acquisition, 2021; Rumpf, 2019). English Learners face substantial challenges, both academic and social-emotional. The most significant academic challenge is the challenge of learning the English language and grade-level academic content. The National Assessment of Educational Progress or NAEP provides data each year on the performance of fourth-grade ELs in reading comprehension. In 2019, ELs performed 33 points lower than their fourth-grade peers on the Missouri English Language Arts (ELA) assessment. In Missouri, ELs averaged a score of 199 while their peers averaged 219. English Learners were 20 points below their peers on the ELA assessment (Hussar et al., 2020; National Center for Education Statistics, 2019). This data suggest a clear gap between ELs and their peers' performance on ELA assessments.

Awareness there is a need to support ELs in public schools in the U.S. and Missouri would cause one to assume teacher training has also increased to prepare

mainstream classroom teachers to teach ELs. However, the preparation and training of mainstream classroom teachers has not kept pace with changing demographics in today's classrooms (Grant, Yoo, Fetman, & Garza, 2021). One study found while 54% of mainstream classroom teachers teach ELs, only 20% felt adequately prepared to teach them (O'Neal, Ringler, & Rodriguez, 2018). Most mainstream classroom teachers assert if they receive any EL training, it is a one-time workshop and not ongoing training (O'Neal et al., 2018; Thompson, 2019). The one-shot approach does not give enough in-depth training for mainstream classroom teachers. The most effective professional development is an ongoing process with support for mainstream classroom teachers as they implement practices learned in the classroom.

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. The 2019-2020 school year was not evaluated due to the COVID-19 pandemic and schools being shut down. The state did not give the MAP test in the 2019-2020 school year.

Theoretical Frameworks

This study was viewed through the lens of two theories which provided a foundation for this quantitative causal-comparative study. First, andragogy is the study of how adults learn differently than children (Desimone, 2011; Kapp, 1833; Knowles, 1962). Kapp and Knowles (1963) deemed adults required a distinctive set of learning

principles from children. Knowles developed and implemented four principles to evaluate adult learning opportunities. The four principles stated adult learners should be actively engaged in the learning and evaluating of their learning, not be focused on memorization of facts but focused on tasks, have immediate relevance to their jobs, and be problem centered. The theory of andragogy provides a lens to evaluate training provided for adult learners (Kapp, 1833; Knowles, 1962, 1973, 1984).

The second theoretical framework that provided focus for this study was Krashen's (1982) second language acquisition theory. Krashen's second language acquisition theory which consists of five hypotheses: the acquisition-learning hypothesis, the monitor hypothesis, the input hypothesis, the affective filter hypothesis, and the natural order hypothesis (Krashen, 1982, 1989; Krashen & Terrell, 1983). The theory around second language acquisition provided a lens to review services provided to ELs in schools.

Problem Statement

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. Many mainstream classroom teachers successfully teach non-EL students, but that pedagogical process does not inevitably transfer to effectively teaching ELs. There is a need for mainstream classroom teachers to receive specific training when working with ELs (de Jong & Harper, 2005; Grant et al., 2021). Today's mainstream

classroom teachers are underprepared to teach EL students (Grant et al., 2021; Thompson, 2019). The research report for the National Center for Educational Statistics described teacher training activities around ELs as the "least prevalent topic for professional development with 27% of the teachers participating" (Rotermund, DeRoche, & Ottem, 2017, p. 5). For decades, researchers have recognized that training for mainstream classroom teachers does not adequately equip them to teach ELs (de Jong & Harper, 2005). The long-time assumption is teaching ELs is no different from teaching non-EL students. The belief is if mainstream classroom teachers are effective, they can intentionally adapt their teaching strategies to meet the needs of ELs. Effective teachers should be able to teach ELs because they understand how to apply effective pedagogical approaches, such as cooperative learning strategies, graphic organizers, and hands-on activities (de Jong & Harper, 2005; Grant et al., 2021; Thompson, 2019), however this knowledge is insufficient. One must also acknowledge the importance and relevance of mainstream classroom teachers' understanding of second language development and how it differs from the development of a first language (de Jong & Harper, 2005). Krashen's (1982) theory of second language acquisition asserts that students do not learn a second language through the same process as learning a first language (Krashen, 1982; Krashen & Terrell, 1983).

The current gap in educational research includes the absence of studies on specific training for mainstream classroom teachers. There is ample research on best practices regarding delivery services for Teachers of English to Speakers of Other Languages (TESOL) and push-in and pull-out services (Desjardins, 2020; Shevchuk, 2018). However, there is little research on EL training provided to mainstream classroom

teachers and the impact of that training (de Jong & Harper, 2005; Szymanski & Lynch, 2020; Thompson, 2019). Professional development for mainstream classroom teachers around second language acquisition teaching can provide mainstream classroom teachers with the knowledge needed to close the gap between ELs and their peers (Szymanski & Lynch, 2020; Thompson, 2019).

Purpose of the Study

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. There were two independent variables for this study: the first independent variable was whether training was provided by the district for mainstream classroom teachers and the second independent variable was the grade level. For this study the researcher chose to review third, fourth and fifth grades. The dependent variable of the study was the sum of the ELA proficient and advanced scores on the MAP for the years of 2017-2018, 2018-2019, and 2020-2021. With limited resources in a tight economy, the question about whether schools should spend valuable resources and time providing training for mainstream classroom teachers of ELs undergirded this study (Kreck, 2018). The results of this study could assist school leaders in better meeting the needs of teachers of second language students, as well as improve achievement of ELs.

Increasing ELA achievement of ELs is an ongoing expectation following Every Student Succeeds Act (ESSA, 2015). A critical determinant of EL achievement is

progress towards English proficiency (Moon, 2018). With the substantial growing number of ELs in districts across the US, it is increasingly vital that mainstream classroom teachers receive training in teaching ELs within the regular education classroom. Districts cannot depend on English as a Second Language (ESL) services or teachers who are trained specifically in teaching ELs through push-in and pull-out services (Shevchuk, 2018; Thompson, 2019).

This quantitative causal-comparative study aimed to determine if there is a difference in EL scores on the ELA assessment on the MAP between districts that provided targeted EL training to mainstream classroom teachers and those that did not based on Grades 3, 4, and 5. There is ample research on the impact of services for ELs outside of the mainstream classroom provided by a certified TESOL teacher (Desjardins, 2020; Shevchuk, 2018; Thompson, 2019). The researcher was interested in this study due to the increase of ELs in Missouri and teachers' perceptions of lack of knowledge when teaching ELs (Grant et al., 2021; Szymanski & Lynch, 2020; Thompson, 2019). This study considered MAP EL scores on the ELA assessment for public schools in Missouri, and investigated differences between districts that provided EL training for their mainstream classroom teachers and those that did not.

Research Questions

The following research questions guided this study:

RQ1: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2017-2018?

RQ2: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2018-2019?

RQ3: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2020-2021?

Null Hypotheses

$H_0$1: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2017-2018 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$2: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2018-2019 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$3: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did

not for the year of 2020-2021 as measured by the percentage sum of EL students achieving proficient and advanced.

Significance of the Study

Public school districts across the United States are experiencing growing pressure to ensure ELs are making adequate progress towards English proficiency (Villegas & Pompa, 2020). The Every Student Success Act (2015) is the reauthorization of the 1965 Elementary and Secondary Education Act and was passed to keep schools committed to ELs by raising the expectation and being more explicit about the requirements of serving ELs (McFarland et al., 2018; Mitchell, 2018; Undergraduate Studies Collaborative for Early Enrollment., 2014). Since the enactment of ESSA a number of new requirements have been put in place including standardized criteria for identifying ELs' and English proficiency as a measurement in school quality (Villegas & Pompa, 2020) This has caused many school districts to put focused efforts on ELs achievement and English proficiency even though districts did not receive additional funding (Sugarman, 2021a). There is ample research on best practices regarding delivery services for TESOL and push-in and pull-out services (Desjardins, 2020; Grant et al., 2021; Shevchuk, 2018). There are also studies showing mainstream classroom teachers feel underprepared and lack confidence in teaching ELs (Santibañez & Gándara, 2018; Thompson, 2019; Von Esch & Kavanagh, 2018). However, there is little research on EL training provided to mainstream classroom teachers and the impact of that training (de Jong & Harper, 2005; Szymanski & Lynch, 2020; Thompson, 2019). The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training

for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. The findings could guide the conversation within school districts when making determinations about mainstream classroom teacher training and decisions about how to meet the needs of EL students (Santibañez & Gándara, 2018). If these findings are able to help districts in providing training for mainstream classroom teachers then it could help ELs gain English proficiency at a faster rate.

Definition of Key Terms

The researcher defined the following terms for this study to clarify for the reader.

Advanced. Students who demonstrate a high level of comprehension on the MAP (MODESE, 2021).

Andragogy. The study of how adults learn, also called adult learning (Kapp, 1833; Knowles, 1973).

Dual Language Learning (DLL). A term for programs taught by a bilingual teacher who utilize students' primary language and second language (Baker, 2019).

English Learners (ELs). English learners refers to students in schools whose primary language is not English and who are learning English (Polanco & de Baker, 2018; Rumpf, 2019).

English as a Second Language (ESL). Teachers certified in TESOL training provide systematic and explicit language development services in either a pull-out or push-in setting (Carrasquillo & Rodriguez, 2002; Missouri Department of Elementary and Secondary Education, 2020).

Limited English Proficient (LEP). Refers to an individual who does not speak English as their first language and has limited ability to read, write, speak, or comprehend English. As a result, language assistance may be required when learning English (Carrasquillo & Rodriguez, 2002; Office of English Language Acquisition, 2021; U.S. Department of Justice, 2018).

Mainstream classroom teacher. For the purposes of this study, referred to a general education or regular classroom (Webster, 2019).

Missouri Assessment Program (MAP). A required standardized assessment taken annually by students in Missouri in third through eighth grades in the content areas of ELA, math, and science (MODESE, 2021).

Pedagogy. The science and art of teaching children through methods used in the classroom; all activities, approaches, teaching styles, or methods the classroom teacher utilizes (De Piero, 2019).

Proficient. Students who demonstrate a satisfactory level of comprehension on the MAP (Missouri Department of Elementary and Secondary Education, 2021).

Professional development. Formal learning to improve teachers' knowledge, skill, and practice in the content area (Desimone, 2011).

Student achievement. A student's capability to understand content and share the knowledge on a yearly standardized assessment (Ballafkih & Van Middelkoop, 2019).

Limitations

Limitations are components of the study the researcher cannot control but may negatively impact the outcome (Gay, Mills, & Airasian, 2009). The researcher identified the following limitations:

- There was no MAP testing data available for the 2019-2020 school year due to the COVID-19 pandemic and schools being shut down.
- The fidelity of the MAP scores as an annual assessment.
- The lack of previous research studies on EL training for mainstream classroom teachers on second language acquisition.
- The reliability and validity of the responses from school districts.

Delimitations

The researcher intentionally imposed the following delimitations to narrow the scope of research (Roberts, 2010):

- The research only included public school districts in the state of Missouri.
- The research focused on third- through fifth-grade students.
- The research focused on the sum of the student achievement percentage in the proficient and advanced levels on the MAP.
- MAP data were delimited to 2017-2018, 2018-2019, and 2020-2021.
- This study only looked at formal EL training provided by the district, and no other components (i.e., the experience of the teacher, student-teacher ratio, etc.).
- The design of the study and the research questions utilized.
- The theoretical frameworks of andragogy and second language acquisition.

Assumptions

The researcher made the following assumptions or assertions presumed to be accurate but not verified (Gay et al., 2009) during this study:

- The district would respond openly and honestly.

- A participant can identify if formal EL training was provided for mainstream classroom teachers.
- The Missouri Department of Elementary and Secondary Education (MODESE) database was up-to-date and accurate.
- These results can be generalized to other Missouri grade levels who take the MAP test.

Design Controls

This quantitative causal-comparative study examined the differences in EL scores on the ELA assessment on the MAP between districts that provided targeted EL training to mainstream classroom teachers and those that did not. The MAP has four achievement levels: below basic, basic, proficient, and advanced. The proficient and advanced achievement levels were chosen because they represent an acceptable standard of achievement for students at a given grade level. Grades 3, 4, and 5 were chosen because they are typically in a self-contained elementary classroom and take the ELA test annually. The data for this study were available for the years 2017-2021, with data missing for the 2019-2020 school year. The state did not give the MAP test in the 2019-2020 school year due to the COVID-19 pandemic and schools being shut down. The MAP data were obtained from the MODESE open-access database for every public school in Missouri. A list of public schools was obtained from MODESE. Missouri partnered with the Northwest Evaluation Association (NWEA Psychometric Solutions, 2021) to develop a standardized test process that met reliability and validity standards. The scores were then analyzed using a two-way Analysis of Variance (ANOVA) to compare the means of each grade level for each year to determine if there was a

significant difference in the percent of students scoring proficient and advanced depending on whether schools had provided EL training to mainstream classroom teachers.

The researcher addressed each of the limitations as many variables can impact student achievement. Limitations are components of the study the researcher cannot control but may negatively impact the outcome (Gay et al., 2009). The study was limited to the years of 2017-2018, 2018-2019, and 2020-2021. There was no MAP testing data available for the 2019-2020 school year due to the COVID-19 pandemic and schools being shut down. The reliability, validity, and fidelity of the MAP scores as an annual assessment were limitations. When the MAP is administrated within the guidelines set by Data Recognition Corporation (Data Recognition Corporation, 2019), MAP is a valid, reliable and fair assessment. According to the Spring 2019 MAP Grade Level Assessment Technical Report, the assessment was evaluated for reliability using Cronbach's coefficient alpha (Data Recognition Corporation, 2019). A score between 0 and 1 was obtained, with a score of .8 considered reliable. According to DRC, Cronbach's alpha range is between .90-.94 for third-through fifth-grade ELA. Therefore, this is an acceptable range for reliability (Data Recognition Corporation, 2019). Another limitation identified by the researcher was the lack of previous research studies on EL training for mainstream classroom teachers on second language acquisition. Although there is much research around ESL pull-out and push-in services there is little to no research on providing targeted EL training for mainstream classroom teachers (Santibañez & Gándara, 2018; Szymanski & Lynch, 2020). Final limitations identified by the researcher were the reliability and validity of the responses from school districts. The

question posed to school district was a yes/no, however each district representative could interpret the question differently which would hurt the reliability and validity of the response.

The following delimitations were intentionally imposed by the researcher to narrow the scope of the study (Roberts, 2010). The study was limited to public school districts in Missouri because they were the only districts required to take the MAP. For this reason, it will not be possible to apply the results of this study to private or charter schools. Additionally, school districts in other states would not take the MAP. The study was limited to the achievement of students in Grades 3, 4, and 5 as those are grade levels that took MAP each year in ELA and those students were typically in a mainstream classroom and not departmentalized. Furthermore, the researcher limited the study to Missouri districts that had an EL enrollment of 20 or more in each grade level because if a district did not have 20 or more ELs they did not receive MAP scores for the EL subgroup. The researcher focused the study on the sums of percentages of ELs achieving proficient and advanced on the ELA MAP. This allowed the researcher to study districts whose ELs were performing high on the MAP. The MAP data were delimited to 2017-2018, 2018-2019, and 2020-2021. The researcher chose these years to utilize ex post facto data. Ex post facto data are previously compiled data that are available but not necessarily gathered for research purposes (Creswell & Creswell, 2018; Gay et al., 2009). This study only looked at formal EL training provided by the district, and no other components such as experience of the teacher, or student-teacher ratios. Final delimitations imposed by the researcher were the design of the study, the research

questions used, and the two theoretical frameworks of andragogy and second language acquisition.

Assumptions or assertations are items the research assumes to be true but cannot be verified during the study (Gay et al., 2009; Roberts, 2010). The researcher assumed each district representative would respond open and honestly. It was assumed the district representative could identify if there was formal EL training provided for mainstream classroom teachers. The final assumption was the Missouri Comprehensive Data System (MCDS) provided by the MODESE was up-to-date and accurate.

Summary

This research will fill the gap in literature where there is currently little to no research around providing targeted EL training to mainstream classroom teachers (Thompson, 2019; Von Esch & Kavanagh, 2018). Professional development for mainstream classroom teachers around second language acquisition teaching can provide our mainstream classroom teachers with the knowledge needed to close the gap between ELs and their peers (Szymanski & Lynch, 2020; Thompson, 2019). This quantitative causal-comparative study aimed to determine if there was a difference in EL scores on the ELA assessment on the MAP between districts that provided targeted EL training to mainstream classroom teachers and those that did not. This research could guide the conversation within school districts when making determinations about mainstream classroom teacher training and decisions about how to meet the needs of EL students.

In Chapter One the foundation for the study was introduced, including gaps in current research and a review of the current state of ELs across the United States. The theory of andragogy provided the perspective of adult learning theory and the second

language learning theory provided a lens to view how ELs should learn a second language. A clear problem was identified for mainstream classroom teachers in Missouri schools working with ELs. Finally, the researcher defined this study's limitations, delimitations, and assumptions and discussed design controls.

Chapter Two is organized thematically and includes the major themes of this study, and a review of the current literature beginning with the history of EL legislation to provide a foundation for understanding the rights of ELs in public schools. Next, a review of the stages of language acquisition provided a deep understanding of how students best learn a second language. Chapter Two also includes a review of the adult learning research through the lens of andragogy and the current gaps in EL training for teachers. Chapter Three consists of the details of the research methodology for this study, including participants, selection and sampling, instrumentation used, and data analysis. Chapter Four contains an analysis of the data collected in this study. Finally, Chapter Five concludes the research with a summary of findings, which contains the implications and ideas for future research.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

Since its beginning form, education in the United States has aimed to prepare students to be valued members of our society after graduation. For students to contribute and be valued members of our society, we expect them to be able to read, write, and communicate effectively in English (Beckham, 2020). English Learners in the United States have unique needs because their first language is different from the language used in public schools (Rios, Ihlenfeldt, & Chavez, 2020). If ELs cannot read, write, and comprehend English, they will likely incur devastating effects throughout their school years and beyond (National Academies of Sciences, Engineering, and Medicine, 2018). Research shows ELs across the United States are less likely to graduate on time than their peers. Across the United States in 2017-2018 only 68.4% of ELs graduated within 4 years of beginning high school compared to 85% of their non-EL peers (Office of Language Acquisition, 2020). A high school diploma demonstrates students' readiness for postsecondary activities and can lead to more successful employment than students without a diploma (U.S. Department of Education, 2018). Therefore, all students, including ELs, must leave high school with a diploma, ready to join the workforce.

This literature review aims to give a brief history of K-12 EL student populations and the history of EL policies in the United States. Next, a review of the stages of second language acquisition, dual language instruction, and English as Second Language Services will be explored, providing the groundwork for teaching ELs. Finally, a review of the current state of EL teacher training provided for mainstream classroom teachers

and preservice teacher training will be shared. This literature review provides a foundation for this quantitative causal-comparative study.

Theoretical Framework

The theoretical framework is a lens through which a research study can be examined and provides theoretical boundaries for the researcher (Roberts, 2010). Two lenses used in this research provided theoretical structure around the foundations of second language learning and teacher training. These theoretical frameworks were foundational and provided significance for the study and allowed the researcher to find gaps in the research and practices put in place (Roberts, 2010). The first theoretical framework provided a lens to examine adult learning based on the research of Knowles (1973). The second theoretical framework was Krashen's (1982) theory of second language acquisition, which is the foundation for how ELs obtain a second language.

Andragogy

The theory of andragogy, or the study of how adults learn, dates back to 1833, according to the book *Platon's Erziehungslehre* by Kapp, a German educationalist. Kapp produced the term andragogy from the Greek words "*leading men,*" which was a change from previous research centered on how children learn. Pedagogy is a term that is well-known by educators. It is derived from the Greek word *paid,* meaning "child," and *agogus*, meaning "leader of," and was interpreted as the art of teaching children (Bedi, 2004). A set of beliefs around pedagogy evolved during the Middle Ages and advanced as the only educational approach through the mid-1900s (Bedi, 2004). Knowles (1973) brought relevance to the term in education as we know it today. Kapp and Knowles deemed that adults required a distinctive set of learning principles different than those

needed by children. Knowles believed there is a dependency on the teacher in pedagogy, which only takes learning to a certain level. Knowles agreed pedagogy is appropriate in early life but decreases in importance as the learner becomes more self-directed (Kapp, 1833; Knowles, 1963, 1973, 1984). While implementing andragogy in graduate courses at Boston University, Knowles developed four principles to provide a lens through which to view training provided by districts.

Knowles' (1973) first principle centered around adults being actively involved in planning and evaluating their learning. The teacher must explain why specific information is being taught and allow the adult learner to participate in the planning process. The instructor should conduct a survey or another feedback collection method to ensure the adult learner is part of planning their learning. Before selecting learning topics, collecting feedback from adult learners allows for a higher level of buy-in (Atroshchenko, Ivanova, Popovych, Bobyrieva, & Kovrei, 2022). Additional studies supported Knowles' work, showing approximately 70% of adult learning is self-directed, and 90% of adults conduct at least one self-directed learning (SDL) project per year (Tough, 1971). Self-directed learning allows the learner to make decisions about the content, methods, and resources they will learn and evaluate the learning. This learning method put the adult learner in the driver's seat and allowed them to control their learning, which matched Knowles' principle that the adult learner is actively engaged in their learning.

A second pivotal principle for adult learning is to ensure a foundation for learning, so the learning does not focus on memorizing basic information (Knowles, 1963, 1973, 1984). In education, teachers will often utilize memorization strategies with

their students. Although research supports this teaching strategy with students (Alston, Marshall, & Smart, 2020), it is not recognized as an effective strategy when teaching adult learners. Instead, adult learning should focus on applying information learned in real-world tasks and not isolated skills (Knowles, 1962, 1984; Knowles, Swanson, & Holton, 2011). Adults learn rapidly and retain what they learn when the learning is utilized immediately in their personal or professional lives. Therefore, creating an atmosphere where adult learners can transfer their learning to their job will ensure the learner retains the information in long-term memory (Knowles, 1984; Tough, 1971).

The third vital principle for adult learning is to have immediate relevance to adults' jobs or personal life (Knowles, 1963, 1973, 1984; Knowles et al., 2011). Relevance or real-world application is called Science, Technology, Engineering, and Mathematics or STEM disciplines in student learning (Lo, 2021). Adult learning must apply to the adult's current job (Atroshchenko et al., 2022; Lo, 2021). Knowles (1973) emphasized the importance of the learner immediately applying learning to real-life situations and problems.

The fourth and final principle significant for effective adult learning is for learning to be problem centered. Since Knowles' (1973) original research, this principle has been utilized and proven effective with learners of all ages. It is often called problem-based learning (PB(Magaji, 2021). Knowles focused on ensuring adult learning opportunities centered around a problem to be solved rather than specific content to learn. Problem-based learning gives the learner a focus and reason to learn information. It also creates an environment where the learner is self-directed, and the teacher is a facilitator of learning. This principle applied in K-12 education has changed the role from teacher-

directed teaching to facilitation of learning (Goodrich & Icenogle, 2019). Adults are self-directed learners, and learning should allow adults to discover knowledge for themselves, with guidance when mistakes happen.

Knowles (1963) and his andragogy theory provided districts with a foundation on how adults learn best. These principles should be applied when developing professional development for teachers around any topic but specifically for the purposes of this study around training for mainstream classroom teachers on working with ELs (Grant et al., 2021). When districts plan professional development for mainstream classroom teachers they need to consider the four principles of adult learning to ensure the professional development is high-quality for teachers (Knowles, 1962). Providing high quality professional development will afford the greatest opportunity for the learning to transfer back to the classroom and to benefit ELs (Von Esch & Kavanagh, 2018).

Second Language Learning

A critical theory enlightening second language learning is Krashen's (1973) work on second language acquisition and development. Krashen is an expert in linguistics, and most of his research involved the study of ELs and bilingual language acquisition (Bailey & Fahad, 2021; Krashen, 1982; Krashen & Terrell, 1983). Krashen's second language acquisition theory consists of five hypotheses: the acquisition-learning hypothesis, the monitor hypothesis, the input hypothesis, the affective filter hypothesis, and the natural order hypothesis.

The acquisition-learning hypothesis is the most foundational of the five hypotheses and the most widely utilized. According to Krashen (1982), there are two independent systems of learning a second language. The first is the acquired system or

acquisition, and the second is the learned system or learning (Krashen, 1982; Krashen & Terrell, 1983). The acquired system is the most common process for learning a language. It requires meaningful and natural communication in the target language. Acquisition is the process most people use to learn their first language. The learning system is a conscious process and the product of formal learning, where the learner is aware of learning the target language. There is typically a teacher and a set of rules to learn the language in the learning system, such as grammar and spelling rules. Krashen believed the learning system is less important than the acquisition system (Bailey & Fahad, 2021; Krashen, 1982, 1989; Krashen & Terrell, 1983).

The monitor hypothesis is closely related to the acquisition-learning hypothesis. The monitor hypothesis explains how the learning and acquisition systems are utilized and related (Lai & Wei, 2019). The monitor hypothesis makes it possible for the learner to check their thought before or after speaking. Krashen (1982) believed only the acquisition system can promote second language learning while the learning system provides conscious knowledge of language structure and monitors and corrects the second language learner (Krashen, 1982; Lai & Wei, 2019). An example of the monitor hypothesis would be when an EL student learns a second language and speaks without proper grammar; this is the learning system at work. As the EL student develops an understanding of the second language, the student's monitoring system begins to work. The student will stop to correct words before or after speaking.

The input hypothesis explains how a second language is acquired. This hypothesis focuses on acquiring a language rather than the pedagogy of teaching language to ELs. According to the input hypothesis, the learner will improve and progress along with a

natural order as the EL receives input from the second language. This hypothesis is based on the idea that the second language input must be one level ahead of the EL's current language level. Krashen (1989) argued that because all learners are at different levels, it is difficult, if not impossible, for a teacher to teach a level above all of the students at one time. Therefore, the argument is the Input hypothesis is achieved through natural communication input (Bailey & Fahad, 2021; Krashen, 1982, 1989). The input hypothesis was the first attempt to explain second language learning through the process of comprehending the target language subconsciously, rather than being taught the language. This hypothesis parallels the natural process of learning a first language and a second language (Bailey & Fahad, 2021).

The affective filter hypothesis establishes learners have a particular affect or emotion when learning a second language, and that affect plays a role in the second language acquisition (Krashen, 1982). These affects include motivation, anxiety, self-confidence, and self-image. A positive affect is necessary for second language acquisition to occur (Krashen, 1982). If a student feels relaxed, safe, and content, then the learner's filter will be low, allowing information to be processed. If the learner feels anxious, scared, or unmotivated, a higher affective filter will be present, and more information will be blocked, which will slow the learning process (Bailey & Fahad, 2021; Krashen, 1982, 1989; Krashen & Terrell, 1983).

The fourth of Krashen's hypotheses is the natural order hypothesis, which suggests the acquisition of grammatical structures in a predictable sequence (Dulay & Burt, 1974; Krashen, 1982; Krashen & Terrell, 1983). This hypothesis applies to learning a first and second language. However, the order of acquisition of a first language

experience is different from a second language learning experience. Krashen (1982) believed this was the least important of the five hypotheses due to the focus on grammatical structure and not language acquisition. In this hypothesis, the order of grammatical structures will progress no matter the instruction provided. Krashen believed that the implication of the natural order of hypothesis is not the basis for second language acquisition (Krashen & Terrell, 1983).

The five hypotheses of second language acquisition by Krashen (1982) provide one with a roadmap to understanding how ELs obtain a second language and how it relates to acquiring a first language. Krashen stated,

> The best methods supply "comprehensible input" in low anxiety situations, containing messages that students want to hear. These methods do not force early production in the second language but allow students to produce when they are "ready," recognizing that improvement comes from supplying communicative and comprehensible input, and not from forcing and correcting production. (pp. 6-7)

Understanding how ELs obtain a second language provides districts valuable information on how to best train mainstream classroom teachers. Mainstream classroom teachers that have knowledge in second language learning will have a better understanding of how to support ELs in their journey towards English proficiency (Santibañez & Gándara, 2018).

English Learner Populations in K-12 Schools

The increase of non-English-speaking students in K-12 schools in the United States has been on the rise since the beginning of the 21st century (Kreck, 2018; Office of English Language Acquisition, 2021; Rumpf, 2019). The EL population in the United States is growing each year: in 2010 ELs represented 9.2% of the K-12 population and

by 2018 ELs represented almost 10.2% of the student population (Hussar et al., 2020; McFarland et al., 2018). English Learners are on the rise and are also demographically diverse, which creates unique challenges for schools (Johnson et al., 2018; Kreck, 2018; National Academies of Sciences, Engineering, and Medicine, 2018). The majority of EL students in public schools today were born in the United States but typically have at least one immigrant parent and speak a language other than English in their home (National Academies of Sciences, Engineering, and Medicine, 2018). Schools play an essential role in the assimilation of immigrant children into society. Some schools are more equipped to support these students in their educational journey (National Academies of Sciences, Engineering, and Medicine, 2018; U.S. Department of Education, Office for Civil Rights, 2020). Schools in cities that have been considered gateway cities or cities that have high concentrations of ELs— such as Los Angeles; Washington, DC; San Diego; New York; Houston; and Miami— typically have been better prepared to help ELs acclimate to their surroundings (Johnson et al., 2018; National Academies of Sciences, Engineering, and Medicine, 2018). Southern states and Midwestern states have seen an increase of ELs in the past decade and are making efforts to accommodate the new students by offering ESL classes but are still behind in ELs' student achievement (Kreck, 2018; National Academies of Sciences, Engineering, and Medicine, 2018). For schools to provide the services needed for ELs, additional training is needed for mainstream classroom teachers. Public school districts have many demands to meet and convincing districts to allocate funds towards training their teachers can be challenging. Public schools are held accountable and motivated by legislation (Villegas & Pompa, 2020). For years legislation provided requirements school districts must meet, centered around subgroups such as

special education and gifted students (Borg, 2018). English Learners are no different than other subgroups; ELs are protected by legislation that has required school districts to pay attention to ELs' achievement and progress (Villegas & Pompa, 2020).

Brief History of English Learner Legislation

English Learners have continued to enroll in public schools over the past 40 years. English Learners are more likely than their peers to grow up in underprivileged circumstances (Kalyanpur, 2019; National Academies of Sciences, Engineering, and Medicine, 2018). Increase in EL enrollment and lack of available social and academic resources for EL families put considerable pressure on school districts to meet the needs of this growing population (Shevchuk, 2018). Legislative action for ELs began with the Civil Rights Act of 1964. This act provided ELs with equal access to education and put a responsibility on schools to meet their language needs (Moon, 2018; *U.S. Department of Education, Office for Civil Rights*, 2020). In May of 1970, a memorandum titled, *Identification of Discrimination and Denial of Services on the Basis of National Origin* (Pottinger, 1970) was issued to selected school districts with 5% of their student population speaking a second language. This memorandum confirmed the legal obligation of schools to address the needs of students whose primary language was not English (Moon, 2018; Pottinger, 1970; Shevchuk, 2018). In 1974, ELs began their entrance into educational policy with the Supreme Court case *Lau v. Nichols*. The Supreme Court ruled in favor of 1,800 students of Chinese descent, who argued the school system of San Francisco denied them an appropriate education (*Lau v. Nichols*, 1974; Moon, 2018).

The Fifth Circuit Court made a ruling in *Castaneda v. Pickard*, 1978 that set a standard for educating language minority students. This ruling included a three-part test to evaluate EL programs. The first part required the EL program to be based on educational theory. The second part of the evaluation required the personnel teaching ELs to be highly qualified. The final part was that the school was required to create a method of evaluating its EL program (Shevchuk, 2018; U.S. Department of Education, Office for Civil Rights, 2020). The Supreme Court followed a year later, in 1982, handing down a 4 to 5 decision in *Plyler v. Doe*, stating the 14th Amendment prohibits states from denying students an education based on their immigration status (*Plyler v. Doe*, 1982; U.S. Department of Education, Office for Civil Rights, 2020; Shevchuk, 2018).

The U.S. Department of Education required ELs to meet the same proficiency as native speakers on state tests by authorizing the No Child Left Behind Act (NCLB) of 2001 (No Child Left Behind Act of 2001, 2002). No Child left Behind also required states to increase their EL programs and encourage family involvement. Districts operated under NCLB for 14 years until December 2015, when the Elementary and Secondary Education Act (ESEA) was reauthorized under ESSA. The Elementary and Secondary Education Act was passed to keep schools committed to ELs by raising the expectation and being more explicit about the requirements of serving ELs (McFarland et al., 2018; Mitchell, 2018; Undergraduate Studies Collaborative for Early Enrollment., 2014). The Elementary and Secondary Education Act required states establish clear English Language Proficiency (ELP) standards and adopt an assessment to classify ELs for school districts (Villegas & Pompa, 2020). Along with those requirements, ESSA (2015) requires schools to provide additional educational opportunities such as gifted

education, Advanced Placement (AP) courses, and access to other rigorous coursework and assessments for ELs (Villegas & Pompa, 2020). These laws and regulations have been put in place to ensure that EL students in the U.S. have equal access to an education no matter their immigration, socioeconomic status, or location. As each of these laws were passed requirements and policies have been provided for districts to ensure ELs are making adequate progress towards English proficiency (Villegas & Pompa, 2020). The Every Student Succeeds Act of 2015 ties EL achievement to Title I funding and puts additional obligation on districts to ensure that students are learning English. In order for students to learn a second language teachers must have an understanding of second language acquisition (Every Student Succeeds Act of 2015, 2015; Villegas & Pompa, 2020).

Stages of Second Language Acquisition

English Learners face substantial challenges when entering public schools in the United States (Kalyanpur, 2019). The most significant academic challenge is that of learning English and grade-level academic content (Carrasquillo & Rodriguez, 2002). English Learners learning a second language go through language acquisition stages similar to the stages a young child goes through to learn their first language (Krashen & Terrell, 1983). However, the length of time each student spends at a given stage varies. Krashen and Terrell (1983) introduced the five stages of second language acquisition: preproduction, early production, speech emergence, intermediate fluency, and advanced fluency. The five stages of second language acquisition correspond with Krashen's (1982) previous work around his five hypotheses. Educators that understand the stages of language acquisition and how they relate to second language acquisition

theory are better prepared to teach ELs in the classroom effectively (Hill & Miller, 2013; Krashen, 1982, 1989; Krashen & Terrell, 1983).

The first stage of second language acquisition is the preproduction stage. The preproduction stage typically begins when the EL enters the country and lasts for about six months to a year. The preproduction stage is also called the silent period. The EL may have up to 500 receptive words in their vocabulary; receptive words are words they understand but are uncomfortable using in conversation (Hill & Miller, 2013; Krashen & Terrell, 1983). During this time, it is not uncommon for the student not to speak any English, have little comprehension, and only communicate through gestures such as head nods and pointing (Dulay & Burt, 1974; Krashen & Terrell, 1983). As suggested by Krashen (1982), the acquired system is at work during the preproduction stage, as the EL takes in the language around them. English Learners will focus on oral language through communication as they begin to acclimate to daily life surrounded by students speaking another language. During this time, classroom teachers can support ELs by not forcing the students to speak and utilizing gestures, movements, and visuals to help students develop a repertoire of English words (Krashen, 1982; Krashen & Terrell, 1983).

After the preproduction stage, around six months to one year of regular exposure to English, ELs move into the next stage of language acquisition, the early production stage (Dulay & Burt, 1974; Krashen & Terrell, 1983). English Learners progress through the stages at different rates depending on the ELs' age, immersion level, and the abilities of each specific student. Learners in the early production stage will develop a receptive and active vocabulary of approximately 1,000 words. English Learners can respond with one- or two-word phrases during the early production stage, only using present tense

verbs. English Learners will continue developing and utilizing gestures and movements to communicate (Krashen & Terrell, 1983). The student may be able to answer yes and no questions, list items, and label pictures. Krashen's (1982) acquisition-learning hypothesis is distinct during the early production stage. During this stage, the acquired system, rather than the learning system, is the student's focus. The EL focuses on meaningful and natural communication with peers. Another of Krashen's theories, the input hypothesis theory, is evident during the early production stage. The EL is progressing along a natural order as described in the input hypothesis theory: as the EL receives the second language information that is one level above their current level, they grow in their comprehension input and their language development (Bailey & Fahad, 2021; Krashen, 1982, 1989; Krashen & Terrell, 1983).

As an EL progresses into the third stage of second language acquisition called speech emergence, a vocabulary of approximately 3,000 words is developed and communicated with simple phrases. This stage can last one to three years, during which comprehension will improve, and the student will be able to read, write, understand, and respond with simple sentences. However, the student will continue to make grammar and pronunciation errors and will struggle with homophones, jokes, and slang in conversation (Bailey & Fahad, 2021; Krashen, 1982; Krashen & Terrell, 1983). The EL will begin to initiate short conversations with peers during this stage. In the classroom, the EL will be able to understand stories with the support of pictures and complete limited content work with teacher support (Hill & Miller, 2013). The mainstream classroom teacher should limit the amount of correction, or this could produce anxiety and cause the EL to shut down, as discussed in Krashen's (1982) affective filter hypothesis theory. Krashen stated

that several affective variables play a part in second language acquisition. If the student feels relaxed, safe, and content, then the EL's filter will be low, allowing information to be processed. If the learner feels anxious, scared, or unmotivated, they will have a higher affective filter, and less information will be received, which will slow the learning process (Bailey & Fahad, 2021; Krashen, 1982, 1989; Krashen & Terrell, 1983). Another relevant theory from Krashen during the speech emergence stage is the natural order hypothesis theory. The natural order hypothesis suggests that grammar structures will develop at their own pace in a predictable order, therefore, there is no need for teachers to correct students' grammar. Instead, grammar will develop as ELs progress further through the stages of second language acquisition (Krashen & Terrell, 1983).

The fourth stage of second language acquisition is the intermediate fluency stage. The EL will possess approximately 6,000 active words (Hill & Miller, 2013; Krashen & Terrell, 1983). This stage typically lasts from three to five years, during which the EL will begin to use more complex sentences in speaking and writing. They will gain the confidence to express opinions and ask clarifying questions in class. Most ELs at this stage will be able to work on grade-level content in science and math with support from the classroom teacher. Comprehension of social studies will continue to increase, and the EL will begin to use their native language to navigate content in English. English Learners in the intermediate fluency stage will have errors as they gain proficiency in English grammar (Bailey & Fahad, 2021; Hill & Miller, 2013). Krashen's (1982) monitor hypothesis theory is active during the intermediate fluency stage. The EL begins to move from the acquisition system to the learned system, where the learned system performs the role of a monitor or editor (Krashen, 1982; Krashen & Terrell, 1983; Lai & Wei, 2019).

During this stage, the role of the monitoring function varies depending on the student. Some learners overuse the monitoring function and edit themselves too often. On the other hand, some learners prefer not to use their conscious knowledge and rarely correct their mistakes, even when they notice them. Both over and under monitoring can be detrimental to an EL. A balance is essential to ensure the EL continues to progress through the stages (Lai & Wei, 2019).

The final and longest stage of second language acquisition is advanced fluency. It can take ELs between four and 10 years to achieve academic language proficiency in a second language.During this final stage, the EL develops a near-native level of speech (Hill & Miller, 2013; Krashen & Terrell, 1983). At the beginning of advanced fluency, ELs will continue to need support from their classroom teachers, especially in social studies and writing. Towards the end of the advanced fluency stage, most ELs have exited from an ESL program and other support programs. This stage can take longer for ELs who are not yet fluent in a first language (Hill & Miller, 2013; Krashen & Terrell, 1983). During this stage, Krashen's (1982) acquisition-learning theory is fundamental. English Learners rely heavily on the learning system rather than the acquisition system to continue progressing and learning new information. The learned system increases the ELs' knowledge through formal instruction (Bailey & Fahad, 2021; Krashen, 1982; Krashen & Terrell, 1983).

Mainstream classroom teachers often have little training in teaching ELs. They could benefit from understanding the stages of second language acquisition and how the second language theories developed by Krashen (1982) play a role in ELs' learning. Applying the development stages and second language acquisition theory could provide

mainstream classroom teachers with valuable teaching strategies to benefit their ELs (Bailey & Fahad, 2021; Hill & Miller, 2013; Krashen, 1982). Unfortunately, most mainstream classroom teachers do not receive training in second language learning and therefore are underprepared to work with ELs (Grant et al., 2021; Santibañez & Gándara, 2018; Szymanski & Lynch, 2020).

The stages of second language acquisition provide a framework for districts and students in how to utilize a student's first language to develop their second language (Polanco & de Baker, 2018). Mainstream classroom teachers need to develop awareness of the role of ELs' first language and their second language and the role each plays in learning. Mainstream classroom teachers can be taught instructional strategies to foster the students' bilingualism; one way to do this is through dual language learning (Carrasquillo & Rodriguez, 2002; Lemberger & Reyes-Carrasquillo, 2011).

Dual Language Learning

Dual Language Learning (DLL) or dual language instruction develops students' academic skills in their native or home language while also building skills in a second language. There is ample research to support DLL in public schools, yet frequently ELs' are not encouraged to utilize their first language in schools while trying to learn a second language (August, 2018; Baker, 2019; Espinosa, 2018). Often, DLL is not available where ELs live since it requires a bilingual teacher. When available, DLL is proven to lead to greater academic achievement for students. One study followed students in early education in a DLL setting and found that 90% of students were considered proficient in English by third grade. By fifth grade, only 1% of those students were still considered to have limited English proficiency (Espinosa, 2018). Although a full-fledged DLL

classroom may not be available in most classrooms, mainstream classroom teachers that connect the students' previous learning or language to the new content see greater success for their ELs (August, 2018; Espinosa, 2018; Hill & Miller, 2013). One study showed even monolingual English-speaking teachers can implement strategies to support the home language maintenance while developing English (Espinosa, 2018). When working with ELs, mainstream classroom teachers should remember ELs come to us with knowledge and information from their first language. English Learners are not “blank slates” with no prior knowledge. There are multiple ways the first language can be used to boost the development of English. The first is when teaching cognates or words with common meanings, such as *geography* and *geographia*. These cognates connect students’ prior knowledge to their new knowledge (Espinosa, 2018).

Another DLL strategy is to use brief explanations in the first language and then connect it to English. One study found that if reading comprehension was first taught to students in their first language and then taught in their second language, students were more likely to master the reading skill (Hill & Miller, 2013). This strategy is especially useful when students seem to be struggling with learning English and it can aid them in their journey to become proficient in English (Espinosa, 2018; Polanco & de Baker, 2018).

A third DLL strategy is to create visual displays that represent the languages, cultures, and family traditions of the student’s primary language. This strategy serves two purposes, the first of which is to provide students with connections to their primary language. Students who see words written in their primary language and then the same information in the language they are learning are able to make stronger connections in

their brain (Espinosa, 2018; Johnson et al., 2018). The second purpose of this strategy is to provide a sense of belonging and community in the classroom for the ELs. This can also be referred to as culturally responsive teaching. Culturally responsive teaching was first introduced by Gloria Ladson-Billings (1995). Culturally responsive teaching refers to the practice of being aware of students' cultural backgrounds and interests. Understanding students' cultural backgrounds and blending them into the classroom enhances meaning and provides a safe environment for learners (Ladson-Billings, 1995; Martorana, 2022). Culturally responsive teaching supports Krashen's (1982) affective-filter theory, in which several affective variables play a part in second language acquisition. If the learner feels relaxed, safe, and welcome, then the ELs filter will be low, allowing information to be processed at a faster rate (Bailey & Fahad, 2021; Krashen, 1982, 1989; Krashen & Terrell, 1983; Ladson-Billings, 1995). Although not all mainstream classroom teachers will be able to fully implement DLL in their classrooms, they can utilize valuable DLL strategies that will serve all students and not just those learning a second language (Ladson-Billings, 1995; Monyai, 2021).

English As a Second Language

English as a Second Language, also called English for Speakers of Other Languages (ESOL), is a combination of specialized instructional strategies designed for students with a primary language other than English. The theory of ESL dates back as early as the 1940s as an approach to language learning during World War II (Carrasquillo & Rodriguez, 2002). By the 1950s, teachers were teaching English to non-English speakers using several practices during World War II, such as oral practice and language structures (Carrasquillo & Rodriguez, 2002). Awareness of ESL began to spread quickly,

requiring educators to meet together to discuss how to best serve this unique set of students. In 1966 the professional organization of TESOL was established by five organizations vitally concerned about second language problems in the United States. The five organizations that met to create TESOL included The Center for Applied Linguistics, The Modern Language Association of America, The National Association of Foreign Student Affairs, The National Council of Teachers of English, and The Speech Association of America. The development of the TESOL organization aided in expanding resources for ESL classes (Carrasquillo & Rodriguez, 2002).

English as a Second Language classes offer support for ELs to learn to function in the mainstream classroom (Carrasquillo & Rodriguez, 2002). English as a Second Language teachers are certified teachers who have received a degree in TESOL. Depending on the state program, there are two ways teachers can obtain TESOL certification. The first is to add a TESOL certification to an already existing certification. The second is to complete a specific teacher preparation program approved by the state. The federal government does not set any standard for teacher certification requirements for states, which means there are varying levels of programs across states (Burke, Case, & Hamstra, 2021). The sole purpose of ESL is to develop language skills and content-area knowledge. The perception of ESL is it is a remedial program, but that is not its purpose. This misconception could have developed due to the pull-out service approach (Carrasquillo & Rodriguez, 2002). Pull-out programs are designed for students to spend part of their day in the mainstream classroom. The ESL teacher pulls students out of the mainstream classroom and teaches them in 45-minutes to one-hour increments depending on student needs. Students in pull-out ESL programs are pulled according to their English

proficiency level and taught with students in other grade levels (Lemberger & Reyes-Carrasquillo, 2011).

The general objectives of an ESL program are the development of the following areas: vocabulary, automatic control and fluency, natural communication, creative grammatical construction, development of strategies, and writing development. The first objective of an ESL program is vocabulary development, which includes the development of both social and academic vocabulary (Carrasquillo & Rodriguez, 2002). Social vocabulary is the vocabulary needed for ELs to function in social situations, sometimes called conversational vocabulary. According to Krashen (1982), social vocabulary comes through the acquisition system, acquired in meaningful and natural communication in English. Academic vocabulary in schools is for content areas, formal presentations, and written communications. Academic vocabulary varies across content areas, making it even more challenging for ELs to master academic vocabulary (August, 2018). Since teachers teach academic vocabulary, ELs learn academic vocabulary through the learning system rather than the acquisition system. The learning system is a conscious process and does not occur naturally. Therefore, academic vocabulary learning will not happen naturally but rather through direct instruction in ESL or mainstream classrooms (Krashen, 1982). Building on Krashen's theory (1982), recent research indicates vocabulary instruction is best learned through embedded instruction and not isolated teaching (August, 2018; Krashen, 1982). Another critical component of vocabulary development in an ESL program is that the vocabulary is meaningful and engaging for ELs (Alghamdi, 2018). Mainstream classroom teachers can support ESL programs in vocabulary development by partnering with the EL teacher to introduce the

same vocabulary and definitions to ensure transfer between the classrooms. A final strategy for developing vocabulary in ELs is the role of volume reading. Volume reading is where students choose books and read for enjoyment without a specific academic purpose (Alghamdi, 2018; August, 2018). These methods help ELs develop a vocabulary allowing them to move forward in their English language development journey.

The second objective of an ESL program is for ELs to develop automatic control and fluency. Automatic control or accuracy refers to how precisely an EL uses the second language and how often they can correct errors (Hucke, 2021). Fluency refers to the flow and steadiness of delivery when speaking or reading. Although ELs may be working on their fluency and accuracy, mastery cannot be obtained until the fifth stage of Krashen's (1982) second language acquisition stage, the advanced fluency stage. As discussed previously, Krashen's acquisition-learning theory is vital during this stage. Therefore, ELs rely on the learning system rather than the acquisition system to progress and learn new information (Bailey & Fahad, 2021; Krashen, 1982; Krashen & Terrell, 1983). Fluency and accuracy of the second language are goals of any EL to be able to express thoughts in a given situation (de Jong & Harper, 2005).

Natural communication is the third objective of an ESL program and goes hand in hand with the social vocabulary previously mentioned (Carrasquillo & Rodriguez, 2002). Communicating with adults and peers is essential for learning a second language for ELs. Teaching something like conversation and communication skills seems contradictory, but it is critical in ESL programs. Teaching greetings and basic conversation skills will help the EL student become acquainted with peers and allow them to communicate questions and needs to those around them (August, 2018; Krashen, 1982). Natural communication

can be encouraged through peer-to-peer learning opportunities and role-playing opportunities. These opportunities allow the EL to interact via speaking, listening, reading, and writing with peers in their second language and further their second language development (August, 2018).

The fourth objective of an ESL program is for ELs to develop grammatical construction (Carrasquillo & Rodriguez, 2002). Grammar construction is an approach to analyzing language structures and provides rules and theories around grammatical structures (Ahmad, Abdullah, & Ibrahim, 2018). Although Carrasquillo and Rodriguez (2002) believed grammar construction was a vital part of an ESL program, some previous theorists would not agree with this objective. In Krashen's (1982) natural order hypothesis, he suggested grammatical structure acquisition occurs in a predictable sequence (Carrasquillo & Rodriguez, 2002; Dulay & Burt, 1974; Krashen, 1982; Krashen & Terrell, 1983). In the natural order hypothesis, the order of grammatical structures will progress no matter the instruction provided. Krashen believed the implication of the natural order of hypothesis is not the basis for second language acquisition (Krashen & Terrell, 1983). Nonetheless, some argue there is a place for grammar teaching within an ESL program to ensure ELs learn the structures on their journey to second language acquisition (Carrasquillo & Rodriguez, 2002; Vega, 2021).

The fifth and final objective of an ESL program is the development of strategies and writing development (Carrasquillo & Rodriguez, 2002). It is not surprising that writing development is a vital part of an ESL program. There are several challenges for ELs when trying to develop writing pieces. One challenge is that writing requires a person to think, concentrate, and organize their ideas as well as summarize and analyze

their thinking. To write, a student needs the correct vocabulary, grammar, punctuation, capitalization, spelling, and an ability to structure correct sentences to complete a writing piece (Selvaraj & Aziz, 2019). An EL student has to master all of those skills and process their thoughts in their first language and then translate them into their second language before actually writing. Many EL students lose interest in writing during this process as it overloads their working memory (Selvaraj & Aziz, 2019). Although it is a difficult task to master, EL students will need to develop the skill of writing to be successful in school (Carrasquillo & Rodriguez, 2002).

There are different types of ESL programs, and the previously discussed objectives provide consistency between the various types of ESL programs across the nation. Pull-out ESL programs fall under this umbrella. During pull-out services, the EL spends a part of their school day in the mainstream classroom and are pulled out for a portion of the day to receive second language lessons (Carrasquillo & Rodriguez, 2002). Intensive ESL programs are for high schools where students have less time to develop their second language skills. These students receive a focus on reading, writing, speaking, and listening. The focus is not on other content areas (Lemberger & Reyes-Carrasquillo, 2011). No matter which type of ESL program the school or district implements, the five objectives should still be part of the program to ensure the success of the ELs' second language development (Carrasquillo & Rodriguez, 2002; Lemberger & Reyes-Carrasquillo, 2011). Most ESL programs are effective and provide adequate support for ELs but as described, those services are only for part of the school day (Carrasquillo & Rodriguez, 2002). The rest of the day ELs are in the mainstream classroom. There are instructional strategies that ESL programs and mainstream classroom teachers can

implement that have been proven to be effective when helping ELs learn a second language. One example is utilizing pictures and visuals to help build ELs vocabulary capacity; this is often referred to as nonlinguistic representations and is fairly easily implemented into mainstream classrooms benefitting ELs' language development (Zhang, 2021).

Nonlinguistic Representations

Hill and Flynn (2006) stated that information is stored in two ways: linguistically and nonlinguistically. In education, most information is presented linguistically or verbally. Teachers ask students to read or listen to new information. When information is presented linguistically or in the form of words, then the brain stores the information as words (Zhang, 2021). Rather, if the information is presented nonlinguistically then the brain stores the information as a picture or other physical sensation (Hill & Miller, 2013). Since ELs are still developing their English proficiency, classrooms that are heavy on the linguistic side of teaching will be more difficult for ELs. Classrooms that utilize pictures or nonlinguistic approaches to teaching will enhance ELs' success and ability to store information (Hill & Miller, 2013). Classroom teachers can use nonverbal information such as real objects, pictures, charts, and graphs to help bring the lessons alive for students (Ollerhead, 2018; Zhang, 2021).

Nonverbal teaching methods are not simply for teachers to deliver information to students, but can also be used for ELs to demonstrate their knowledge and offer the teacher a chance to check for understanding. Providing students time to create representations of information and knowledge learned allows the students to make a physical model of the knowledge (Hill & Miller, 2013). This method offers teachers an

opportunity to check students' understanding for misconceptions as well as inaccurate information.

The teaching strategy of utilizing nonlinguistic representations is supported by Krashen's (1983) comprehensible input theory (Krashen & Terrell, 1983). The comprehensible input approach suggests that ELs can only acquire information if it connects to something they already know and takes them one step further in their learning (Bailey & Fahad, 2021; Krashen, 1982). When the nonlinguistic representation strategy is used by teachers to teach content, the teacher is starting with a picture that will trigger information from the ELs' first language and help them connect it to their new learning in the second language (Zhang, 2021). Nonlinguistic representations are one teaching strategy that can be used by ESL teachers and mainstream classroom teachers. If mainstream classroom teachers are provided targeted EL training educators could learn more strategies like this to utilize in the mainstream classroom to support ELs (de Jong & Harper, 2005). However, there is little research on providing targeted EL training to mainstream classroom teachers. Schools are required to provide professional development to teachers each year but the focus of that professional development is up to the individual school (Mizell, 2010).

Professional Development in K-12 Schools

In 1983, A report conducted by the National Commission on Excellence in Education titled *A Nation at Risk*, warned the United States that America could be in jeopardy of losing status in the world if changes were not made in education. This report created a narrative around education that emphasized the impact to the economy and national security if there were not shifts in education (National Commission on

Excellence in Education, 1983; Wright, 2020). Several crucial issues were identified in the report including teacher salary, lack of education for teacher preparation, decreasing test scores, and an increase in illiterate Americans (National Commission on Excellence in Education, 1983). Each of these issues with the exception of teacher salary could be adjusted with a focus on professional development. Professional development refers to many types of education experiences related to an individual's work. Many fields require employees to participate in professional development, sometimes as a requirement for keeping their jobs. In education, professional development is one of the only strategies to strengthen educators' teaching and raise student achievement (Mizell, 2010). This could include formal training such as seminars, workshops, book studies, collaborative learning, college courses, or conferences (Mizell, 2010). Professional development can also include informal training such as discussions with colleagues, research, independent reading, or observations of a colleague teaching (Lo, 2021; Mizell, 2010). Knowles (1973) supported this informal training in his first principle that stated adults should be actively involved in the planning of their professional development (Knowles, 1973). Informal learning is also referred to as SDL. This type of learning allows the adults to select the content, methods, and resources for their professional development (Atroshchenko et al., 2022; Tough, 1971). According to Knowles (1973), when educators are selecting professional development one will have greater buy-in and will be more actively engaged in learning (Knowles, 1973).

Another type of professional development that has gained popularity in school districts is the instructional coaching method. An instructional coach is an individual with extensive training in pedagogy and andragogy and is an on-site resource for teachers

(Mangin & Dunsmore, 2018). Instructional coaches partner with mainstream classroom teachers to provide one-on-one support through modeling lessons, observing lessons and coaching the teacher through reflective practices, and providing scaffolding for the teacher to help implement best practices (Mangin & Dunsmore, 2018; Rotermund et al., 2018). The instructional coaching method is supported by Knowles' (1973) third principle of andragogy, which refers to the idea that professional development should have immediate relevance to the adults' job (Knowles, 1962, 1973, 1984). Instructional coaching is on-the-job training that immediately impacts teaching and learning (Mizell, 2010).

The reauthorization of the ESEA was the largest federal professional development appropriation. These funds come through several different avenues of federal money (Borg, 2018). Although all public school districts are required to provide professional development for teachers, each individual district is permitted to provide professional development in areas that are important to their individual district (Borg, 2018; Mizell, 2010). Districts typically focus their professional development based on data from state achievement tests, local benchmark assessments, or other district initiatives (Mizell, 2010). In addition to a district focus, some educators take the initiative to engage in independent professional development to meet their own professional goals (Atroshchenko et al., 2022). Funds are available for professional development or training to better equip mainstream classroom teachers to work with ELs but the question still remains if districts are providing this training for mainstream classroom teachers or if educators are left to seek this training out on their own volition.

English Learner Training for Mainstream Classroom Teachers

The changing demographics of K-12 classrooms, and the growing number of EL students in the United States, create a need to ensure our mainstream classroom teachers enter the classroom prepared to work with ELs (Grant et al., 2021; Hussar et al., 2020; National Academies of Sciences, Engineering, and Medicine, 2018). The role of teacher preparation programs has traditionally been to prepare future teachers with knowledge of content and understanding of cognitive and psychological development, as well as the current and historic pedagogy theories (O'Neal et al., 2018). Some teacher preparation programs have added additional courses such as multicultural teaching and diversity training. Even with that small step there are still no states that require training for working with ELs as part of their preservice teacher training (Grant et al., 2021). Most training provided for teaching ELs focuses on ESL teachers specifically, therefore there is a need for more research on the benefits of preparing mainstream classroom teachers who have not chosen ESL as their specialty area (O'Neal et al., 2018). Given the changing demographics and increase in ELs in the classroom, it is the responsibility of all teachers to teach ELs, and therefore could be argued it is the responsibility of teacher education programs to prepare all teachers to work with ELs (Von Esch & Kavanagh, 2018). When most preservice teachers are entering the field without training to support ELs in the classroom the responsibility falls on individual districts to train their mainstream classroom teachers in teaching ELs (O'Neal et al., 2018; Von Esch & Kavanagh, 2018).

According to current research from the National Center for Education Statistics, almost 99% of teachers reported participating in professional development. However,

only 27% of teachers participated in professional development related to teaching ELs, and 65% of teachers said they received less than 8 hours of training on teaching ELs during their teaching career (Rotermund et al., 2018). Mainstream classroom teachers were much more likely to have content-specific professional development. Mainstream classroom teachers who understand the importance of teaching ELs are requesting additional professional development around working with ELs (Grant et al., 2021; Rotermund et al., 2018; Santibañez & Gándara, 2018; Thompson, 2019).

Knowles (1973) developed four principles of andragogy. The first principle revolves around involving adults in choosing a topic to learn. The data show that mainstream classroom teachers are requesting additional training on teaching Els in their classrooms (de Jong & Harper, 2005; Rotermund et al., 2018; Santibañez & Gándara, 2018; Thompson, 2019). Another principle of Knowles' research was that adult learning must be immediate and relevant to their job. Mainstream classroom teachers work with ELs daily, see their struggles, and ask for training to better assist ELs in their classrooms (Knowles, 1973; Thompson, 2019; Von Esch & Kavanagh, 2018). Finally, Knowles suggested that adult learning should be problem centered rather than content specific. According to research by the National Center for Education Statistics, 65% of teachers received professional development on content specific knowledge; although content-specific training is essential there must be a place for additional training for working with ELs. The U.S. has an apparent problem with the increasing number of ELs in mainstream classrooms and a lack of training for teachers in those classrooms (Irwin et al., 2021; Thompson, 2019; Von Esch & Kavanagh, 2018).

Summary

If ELs cannot read, write, and comprehend English, they will likely incur devastating effects throughout their school years and beyond (National Academies of Sciences, Engineering, and Medicine, 2018). Districts and educators across the nation are responsible for ensuring these students are successful and are college or career ready upon graduation (Sugarman, 2021b). This literature review contained a summary of the topics surrounding ELs, such as student population and the history of EL legislation in the United States.

Next, a thorough review of Krashen and Terrell's (1983) theory on how ELs learn a second language through the stages of language acquisition was presented. A review of DLL and ESL provided a deep understanding of how students best learn a second language. A review of professional development and how it ties to Knowles' (1973) lens of andragogy provided valuable insight into how adults learn and the current state of professional development in schools. Finally, a review of the current state of teacher preparation EL training for mainstream classroom teachers who work with EL students daily was summarized to provide our current reality for teacher education training.

Chapter Three will include the details of the research methodology for this study, including participants, selection and sampling, instrumentation used, and data analysis. Chapter Four will contain an analysis of the data collected in this study. Finally, Chapter Five concludes the research with a summary of findings, which will contain the implications and ideas for future research.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introduction

English Learners face substantial challenges in public school. The most significant academic challenge are learning the English language and grade-level academic content. There is abundant research on best practices regarding delivery services for TESOL around push-in and pull-out services (Desjardins, 2020; Grant et al., 2021; Shevchuk, 2018), but little research on EL training provided to mainstream classroom teachers (de Jong & Harper, 2005; Szymanski & Lynch, 2020; Thompson, 2019). This causal-comparative study was conducted to determine the differences in ELs' student achievement between districts that provided targeted EL training for their mainstream classroom teachers and those that did not. Purposive sampling was utilized to select school districts to include in this study. Public school districts in the state of Missouri were chosen if they had a student population of 20 or more EL students.

In this chapter the researcher addressed the purpose of the study, the research questions, and null hypotheses. The research setting and research design are outlined as well as the participants and selection process. Finally, the procedures and instrumentation used and a detail of the item analyses are presented.

Purpose of the Study

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA

MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. The specific MAP data used in the analyses were the sums of percentages of ELs achieving proficient and advanced. There were two independent variables for this study: the first independent variable was whether training was provided by the district for mainstream classroom teachers and the second independent variable was the grade level. For this study the researcher chose to review third, fourth, and fifth grades. The dependent variable of the study was the sum of the ELA proficient and advanced scores on the MAP for the years of 2017-2018, 2018-2019, and 2020-2021.

Increasing ELA achievement of ELs in Missouri is an ongoing expectation following ESSA (2015). A critical determinant of EL achievement is their progress towards English proficiency (Moon, 2018). Mainstream classroom teachers who understand the importance of teaching ELs are requesting additional professional development focused on effective work with ELs (Grant et al., 2021; Santibañez & Gándara, 2018; Thompson, 2019). The purpose of examining EL training provided for mainstream classroom teachers is to shed light on whether school districts with limited resources should spend valuable resources and time providing training for mainstream classroom teachers of ELs. The results of study could provide school leaders with data on which to base their decisions of where to use limited professional development resources.

Research Questions

This study examined EL training provided to mainstream classroom teachers. The following research questions guided this study:

RQ1: What is the difference in English Learners' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving

proficient and advanced among districts that provided targeted English Learner training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2017-2018?

RQ2: What is the difference in English Learners' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted English Learner training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2018-2019?

RQ3: What is the difference in English Learners' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted English Learner training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2020-2021?

Null Hypotheses

In an effort to answer the research questions in this study, the following null (H_0) hypotheses were investigated:

$H_0$1: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2017-2018 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$2: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that

provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2018-2019 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$3: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2020-2021 as measured by the percentage sum of EL students achieving proficient and advanced.

Research Design

The researcher chose a quantitative, causal-comparative design for this study. The quantitative method of research was appropriate for this study as quantitative research utilizes numerical data that have been collected and analyzed to support or reject a hypothesis (Creswell & Creswell, 2018). Additionally, findings in quantitative research can be generalized to a larger population. The goal of the quantitative research design is to add to the literature regarding the subject (Gay et al., 2009). The researcher chose a causal-comparative study. Causal-comparative research attempts to determine a cause or reason for existing differences in the groups or individuals (Gay et al., 2009). A causal-comparative study was appropriate for this research design because the researcher wanted to compare differences in school districts that had provided EL training to their mainstream classroom teachers and those that had not. There were two independent variables for this study: the first independent variable was whether training was provided by the district for mainstream classroom teachers and the second independent variable was the grade level. For this study the researcher chose to review third, fourth, and fifth

grades. The dependent variable of the study was the sum of the ELA proficient and advanced scores on the MAP for the years of 2017-2018, 2018-2019, and 2020-2021.

Data regarding the MAPS results for the years 2017-2018, 2018-2019, and 2020-2021 were collected using the open-access MCDS portal. Ex post facto was appropriate for this causal-comparative study because ex post facto is data that have been previously compiled and available, but not necessarily gathered for research purposes (Creswell & Creswell, 2018; Gay et al., 2009). Utilizing ex post facto data allowed the researcher to use 3 years of data for comparison to determine if any difference existed in ELs' scores on the ELA MAP for third through fifth grades when comparing school districts that provided EL training to their mainstream classroom teachers and those that did not. In this study, both the training and the measures of student achievement had already occurred. When both the cause and effect have taken place, the research is ex post facto, which is typical of a causal-comparative study (Gay et al., 2009).

Participants

According to DESE's open-access MCDS, for the 2020-2021 school year, there were 518 public school districts. Each district in the study served elementary grades through 5. Districts were selected from rural, urban, and suburban communities. The EL population across districts in the state of Missouri was 23,690. The EL population in Missouri made up approximately 4% of the student population. There were several languages spoken by ELs in Missouri: 55.9% of ELs in Missouri spoke Spanish, 4.9% spoke Arabic, 4.2% spoke Bosnian, 3.2% spoke Vietnamese, 3.4% spoke Somali, and 27% spoke a variety of other languages (U.S. Department of Education, 2021). Each district selected served students in Grades 3 through 5, and had an EL enrollment of 20 or

more. These districts were selected because districts with an EL enrollment of 20 or more received MAP results back on the EL subgroup, if districts did not have 20 or more students, they did not receive MAP results for their EL subgroup. The participants in this research study were the EL students in districts with 20 or more EL students. A list of district superintendent, assistant superintendent and professional development chair names and email addresses were downloaded from the MODESE open-access website. The researcher emailed the question to district representatives (superintendents, assistant superintendents and professional development chairs) about whether training was provided to mainstream classroom teachers to each of these representatives. If districts answered yes, they did provide professional development, a follow-up question was asked about the topic of the professional development. Districts who did not respond after 2 weeks were contacted via phone. When responses were received any duplicate responses from districts were deleted.

Selection/Sampling

The researcher used an open-access database provided by the MODESE website. This database allowed the researcher to compile a list of all school districts in Missouri that served Grades 3 through 5 and had at least 20 ELs enrolled in their district. For districts to receive MAP scores on the EL subgroup, they must have had at least 20 ELs in their district. All districts with an EL enrollment of 20 students or more were sent an invitation to attempt to reach the greatest number of potential participants. These district superintendents, assistant superintendents and, professional development chair were then contacted via email to determine whether or not they provided EL training to their mainstream classroom teachers by answering a yes/no question for each of the school

years. Districts that did not respond after 2 weeks were sent a follow-up email and then contacted via phone. The yes/no question (same question for each school year year) was provided to all districts to allow for accurate data comparison. If districts answered yes, they did provide professional development, a follow-up question was asked about the topic of the training. District participants were offered a copy of the research results, upon request, in return for completing the survey. Purposive sampling was the method chosen to select the districts to participate in this study. Purposive sampling is also known as judgmental, selective or subjective sampling . Therefore, the researcher applied a purposive sampling to Missouri districts to identify which school districts in Missouri had an EL population of 20 or more. The researcher included all districts that met these criteria in the study. To make comparison in this two-way ANOVA, it was determined, an alpha level of .05, a medium effect size, and a power of .08 would be sought with a sample size of 225 (Faul, Erdfelder, Buchner, & Lang, 2009; Gay et al., 2009). Alpha represents the point at which it is determined an outcome cannot be attributed to chance, and is typically set at .05, or five percent. This is based on the work of statistician Fisher, who determined that an occurrence of one in 20 trials was rare enough to attribute statistical significance to a 67 outcome and reject the concern that the outcome could be due to chance (Faul et al., 2009; Gay et al., 2009). Additionally, effect size represents the strength of the relationship between the variables in the study. Effect size can have a negative or positive value and is expressed as a decimal. An effect size around .20 would indicate a small effect while an effect size around .80 would indicate a large effect (Creswell & Creswell, 2018; Gay et al., 2009). For the purpose of this study, a medium effect size was sought. Finally, a power of .08 was chosen for the study. “Power refers to

the ability of a significance test to identify a true research finding (i.e., there's really a difference, and the statistical test shows a significant difference), allowing the experimenter to reject a null hypothesis that is false" (Gay et al., 2009).

Missouri Assessment Program ELA data for each of these districts for Grades 3 through 5 for 2017-2018, 2018-2019, and 2020-2021 were collected from the MCDS portal at the MODESE open-access website. These data were considered ex post facto data. Ex post facto data is previously compiled data that are available but not necessarily gathered for research purposes (Creswell & Creswell, 2018; Gay et al., 2009). Utilizing ex post facto data allowed the researcher to use 3 years of data for comparison to determine if any difference existed in ELs scores on the ELA MAP for third through fifth grades when comparing school districts that provided EL training to their mainstream classroom teachers and those that did not.

Research Setting

Public school districts across Missouri were utilized to identify districts with an EL population of 20 students or more. According to the 2020 census, Missouri consisted of a population of 6,168,187. The percentage of the school-age population (ages 5-18) was 22.3% (U.S. Census Bureau, 2021). The K-12 enrollment for public schools in Missouri for 2020-2021 was 859,320 students. The following race/ethnicity data represent students in Missouri during the 2020-2021 school year: American Indian, 0.4%; Asian, 2.1%; Black, 15.4%; Hispanic, 7.2%; Multiracial, 7.2%; Pacific Islander, 0.4%; and White, 69.6%. Additional demographics of Missouri K-12 students included Free & Reduced Lunch, 45.9%; Gifted, 4.11%; Special Education, 13.5%; Homeless, 2.4%; and English Learner, 3.8%. There were 559 public school districts across rural, urban, and

suburban communities in Missouri. Of these school districts, 120 had 20 or more EL students enrolled in their district. The EL population across these 120 schools was 31,743.

Procedures

Southwest Baptist University (SBU) Research Review Board (RRB) approved this study. The RRB for this research study granted approval to utilize student achievement data for 2017-2018, 2018-2019, and 2020-2021. The RRB granted permission to collect and analyze data and report findings. Data used were EL student percentages in each district who scored at the level of proficient and advanced on the ELA MAP.

The data analyzed in this study were gathered from the MCDS, an open-access database. Purposive sampling was the method chosen to select the districts to participate in this study. The MCDS application maintained a list of all districts and the total number of ELs in their district. Any districts with fewer than 20 ELs were eliminated from the list. The researcher included all districts that met these criteria in the study. The selected districts were then contacted via email to determine whether or not they provided EL training to their mainstream classroom teachers by answering a yes/no question for each school year. All districts were asked to enter their district name on the questionnaire. Districts that did not respond after 1 week were sent a follow-up email and then contacted via phone. The single question (same question for each year) was provided to all districts to allow for accurate data comparison. If districts answered yes, they did provide professional development, a follow-up question was asked about the topic of the

professional development. Districts who did not respond after 2 weeks were contacted via phone.

The timeline for data collection, analysis, and completion of Chapters Four and Five was June 1, 2022 to September 30, 2022. Because data collection was limited to each district's percentage of students scoring proficient and advanced on the ELA MAP, student and teacher identities were protected, thus eliminating the risk of bias or conflict of interest by the researcher. Additionally, the data collected were kept in a password-protected file by the researcher for the required 5 years, and then destroyed.

Following RRB approval, data on ELA MAP performance for each district selected for the study were collected from the MCSD database. The percentage of ELs scoring proficient and advanced in each grade level for the years 2017-2018, 2018-2019, or 2020-2021 was collected for each district. Data were entered into a spreadsheet containing the complete list of the districts in the corresponding row and column for each district, grade, and year. Following the data collection and organization into the spreadsheet, an ANOVA was conducted to determine the differences in the scores between the groups.

Instrumentation

The data analyzed in this study were gathered from the MCDS, an open-access database. As the data were public knowledge, it was not necessary to obtain permission from individual districts to conduct research, however, SBU provided permission to conduct the study through the formal RRB process. Missouri Comprehensive Data System, an instrument to analyze data, was comprehensive as every public school student in Missouri was required to complete the MAP, according to grade-level requirements.

The MODESE Assessment office partnered with Northwest Evaluation Association (NWEA, 2019) to create a standardized assessment that passed reliability and validity standards. Missouri Assessment Program data were collected annually in the spring. Missouri Assessment Program measures students on grade-level standards and skills and provides proficiency levels for each student (DRC, 2019). Each proctor or teacher administrating MAP must undergo district-level test coordinators' training. Proctors must sign a waiver verifying they have completed training and will follow precise procedures. These training processes allow MAP to be consistent and protect the reliability and validity of the student scores (MODESE, 2021). Students complete MAP by logging into a secure platform, called INSIGHT. Once students submit their tests, answers are sent directly to the DRC to be scored. Teachers, administrators, and the state department do not have access to the answers or scores until DRC sends the results to districts. The district receives a proficiency level for each student. MAP has four achievement levels: below basic, basic, proficient, and advanced (MODESE, 2021). After districts have had one month to review the information, the data are posted publicly on the MCDS. A list of districts with an EL enrollment of 20 or more students was obtained through the state report card on the MCSD website and their EL scores were downloaded.

Furthermore, according to the Spring 2019 MAP Grade level Assessment Technical Report, the assessment was evaluated for reliability using Cronbach's coefficient alpha (DRC, 2019). A score between 0 and 1 was obtained, with a score of .8 considered reliable. According to DRC, Cronbach's alpha range is between .90-.94 for third-through-fifth grade ELA. Therefore, this was an acceptable range for reliability (DRC, 2019).

The ELA MAP consists of multiple styles of questions. Styles of questions may include selected response (SR) items, constructed response (CR) items, writing tasks (WT), technology enhanced (TE), and evidence-based selected response (ESBR). The entire ELA assessment can take 3-5 hours to complete (DRC, 2019). The majority of items on the assessments are scored digitally. Although psychometrics regarding the accuracy of the data was not available from DESE, the state department is a public entity that reports to the state legislature, and it is assumed the data were accurate. The MCDS system was used to collect data from every public school district and verified through the Missouri School Improvement Program (MSIP).

Data Analysis

Accurate results are essential in a research study, therefore it is important for researchers to look for inaccuracies in the data collected (Pelham, 2013). The first data-cleaning task dealt with missing data. Missing data, or those with a value of 0, were removed from the sample to prevent the data from affecting the outcome of the ANOVA. This was acceptable because the sample collected was large enough to run the ANOVA (Pelham, 2013).

Following the data collection, a two-way ANOVA test was conducted to determine the differences in between groups within the study. The two-way ANOVA was selected as appropriate for this study due to the linear relationship between the measured variables (Pelham, 2013). A two-way ANOVA compares the mean differences in two groups that have been split between two independent variables. The purpose of the two-way ANOVA for this study was to understand if there was an interaction between the two independent variables, training provided and grade-level, and the dependent variable,

which was the sum of the ELA proficient and advanced percentages. There are six assumptions that must be passed in order for a two-way ANOVA to be used (Pelham, 2013). The first assumption is for the dependent variable to be measured at a continuous level (Pelham, 2013). The dependent variable, the MAP, an assessment of academic achievement, was measured on a continuous level, which passed the first assumption. The second assumption was the two independent variables should each consist of two or more independent groups. The independent variables for this study were the training provided by schools (yes or no) and the grade level (third, fourth, or fifth). Therefore, this passed the second assumption. The third assumption, independent of observation, was also passed: no participant of any group in this study was a participant in another group in the study. The fourth assumption was passed because there were no significant outliers in the data that did not follow the usual pattern. The data were examined for outliers in the dependent variable, which was the MAP, within the groups of the independent variable, which included the training provided and the grade level, as required by the fourth assumption to run a two-way ANOVA. Outliers are identified as any data points that lie more than 1.5 box lengths from their own box edge. To identify outliers, the researcher used code as described in Laerd Statistics (2022) to create boxplots. Each school district in each category was given a case identifier, which included a unique number. After running the code, any number falling 1.5 boxes, or more, outside the edge of the original box was considered an outlier. Assumption 5 requires a test for normality; as required by Assumption 5, the Shapiro-Wilk test was conducted on the dependent variable, the MAP, for each group of the independent variables, which included the training provided (yes or no) and the grade levels (third, fourth, or fifth grade; Laerd Statistics, 2022). The final

assumption, homogeneity of variances for each combination, was tested in SPSS Statistics using Levene's test of homogeneity of variances when the ANOVA was conducted. If the test is not statistically significant, the probability will be greater than .05 (i.e., $p > .05$), indicating homogeneity of variances. However, if the probability is less than .05 (i.e., $p < .05$), the variances are not equal and the assumption of homogeneity of variances has been violated (Laerd Statistics, 2022).

After determining all assumptions were met, the two-way ANOVA was conducted to compare the means of the of the subgroups of the percent of ELs scoring proficient and advanced in Grades 3, 4, and 5 on the ELA MAP in 2017-2018, 2018-2019, and 2020-2021 depending on the training provided to mainstream classroom teachers, to determine any statistically significant differences in the scores. A two-way ANOVA compares the mean differences between groups that have been divided on two independent variables. The purpose of the two-way ANOVA is to determine if there is an interaction between the two independent variables on the dependent variable (Laerd Statistics, 2022). The two-way ANOVA will indicate if there are significant differences, but it will not tell where the differences are (Gay et al., 2009).

When considering a sample size the researcher strived to have enough samples to reasonably detect if an effect was present without gaining too many samples (Creswell & Creswell, 2018). To make comparison in this two-way ANOVA, it was determined, an alpha level of .05, a medium effect size, and a power of .08 would be sought with a sample size of 200 (Faul, Erdfelder, Buchner, & Lang, 2009; Gay et al., 2009). Alpha represents the point at which it is determined an outcome cannot be attributed to chance, and is typically set at .05, or five percent. This is based on the work of statistician Fisher,

who determined that an occurrence of one in 20 trials was rare enough to attribute statistical significance to a 67 outcome and reject the concern that the outcome could be due to chance (Faul et al., 2009; Gay et al., 2009). Additionally, effect size represents the strength of the relationship between the variables in the study. Effect size can have a negative or positive value and is expressed as a decimal. An effect size around .20 would indicate a small effect while an effect size around .80 would indicate a large effect (Creswell & Creswell, 2018; Gay et al., 2009).

Summary

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. Data on the districts were collected from MODESE's MCDS portal. Purposive sampling was the method chosen to select the districts to participate in this study. The sample was determined by identifying which school districts in Missouri had an EL population of 20 or more for the years 2017-2018, 2018-2019, and 2020-2021. The researcher included all districts that met these criteria in the study. These districts were then contacted via email to determine whether or not they provided EL training to their mainstream classroom teachers by answering a yes/no question for each of the school years. Districts that did not respond after 1 week were sent a follow-up email and then contacted via phone. The yes/no question (same question for each year) was provided to all districts to allow for accurate data comparison. If districts answered yes, they did

provide professional development, a follow-up question was asked about the topic of the professional development. Districts that did not respond after 2 weeks were contacted via phone. District participants were offered a copy of the research results, upon request, in return for completing the survey.

Analysis of the data was conducted by using a one-way ANOVA. The test was conducted to determine if there were differences in the percent of ELs scoring proficient and advanced, depending on whether training was provided for their mainstream classroom teachers or not. The effect size was calculated to determine if a minimum medium effect size was achieved.

In Chapter Four the researcher presents the findings from the study and the data analysis. Finally, Chapter Five presents the research questions. Included with the questions is a summary of the research method and design controls. Findings are shared to accept or reject the null hypothesis connected to each of the three research questions in the study. Chapter Five will conclude the study with the implications and recommendations for future research.

CHAPTER FOUR

ANALYSIS OF DATA

Introduction

The number of ELs in public-schools has fluctuated over the past 30 years, ranging from 5% in 1993 to its highest population in 1999 with 10% of students in school being identified as ELs. The most recent data at the time of this research show ELs represent over 8% of the public-school population (Hussar et al., 2020; Kreck, 2018; Office of English Language Acquisition, 2021; Rumpf, 2019). English Learners face substantial challenges, both academically and in social-emotional areas. The most significant academic challenge is the challenge of learning the English language and grade-level academic content. Awareness there is a need to support ELs in public schools in the U.S. would cause one to assume teacher training has also increased to prepare mainstream classroom teachers to teach ELs. However, the preparation and training of mainstream classroom teachers has not kept pace with changing demographics in today's classrooms (Grant et al., 2021). One study found while 54% of mainstream classroom teachers teach ELs, only 20% felt adequately prepared to teach them (O'Neal et al., 2018). Most mainstream classroom teachers assert that if they receive any EL training, it is a one-time workshop and not ongoing training (O'Neal et al., 2018; Thompson, 2019). The one-shot approach does not give enough in-depth training for mainstream classroom teachers. The most effective professional development is an ongoing process with support for mainstream classroom teachers as they implement practices learned in the classroom. With limited resources in a tight economy, the question about whether schools should spend valuable resources and time providing training for mainstream classroom teachers

of ELs undergirded this study (Kreck, 2018). The results of this study could assist school leaders in better meeting the needs of teachers of second language students, as well as improve achievement of ELs.

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. In addition, the researcher explored the differences in the percentage of students scoring proficient and advanced on the MAP between schools that offered training for all teachers and schools that did not.

The researcher outlined procedures for conducting the study in Chapter Three, which explained the selection process and participants. Using the collected data, a two-way ANOVA was conducted to find the differences, and whether there were statistically significant differences in the data among schools that provided training and among grade levels. To accomplish this task, the researcher developed a set of research questions. In this chapter, the research questions and null hypotheses are shared and an analysis and results of the data are presented.

A total of 57 school districts, 46% of eligible districts answered the survey regarding training provided for their regular mainstream classroom teachers for the three years in question, 2017-2018, 2018-2019, and 2020-2021. These survey responses provided the researcher with 171 valid samples for each year and 513 results for the 3

years. There were no missing answers, and all schools had ELA scores available, so all 513 were valid samples; see Table 1.

Table 1

Case Processing Summary

		Cases					
		Valid		Missing		Total	
Year	Training	*N*	Percent	*N*	Percent	*N*	Percent
2017-2018	Yes	51	100%	0	0.0%	51	100%
	No	120	100%	0	0.0%	120	100%
	Total	171	100%	0	0.0%	171	100%
2018-2019	Yes	66	100%	0	0.0%	66	100%
	No	105	100%	0	0.0%	105	100%
	Total	171	100%	0	0.0%	171	100%
2020-2021	Yes	66	100%	0	0.0%	66	100%
	No	105	100%	0	0.0%	105	100%
	Total	171	100%	0	0.0%	171	100%

Research Questions

The following research questions guided this study:

RQ1: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2017-2018?

RQ2: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2018-2019?

RQ3: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and

advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2020-2021?

Null Hypotheses

$H_0$1: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2017-2018 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$2: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2018-2019 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$3: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2020-2021 as measured by the percentage sum of EL students achieving proficient and advanced.

In Chapter Four, an analysis of the data and findings are shared. The samples tested and their demographics are presented along with the data-cleaning process. For each null hypothesis, results of the assumptions testing are presented, followed by the research findings, a summary of the data analysis, and an interpretation of the outcomes. Finally, the researcher will either accept or reject the null hypotheses, based on the

statistical conclusion reached. Following is the analysis of the data and the findings of the research conducted.

Data Analysis and Findings

This study explored the differences in ELA student achievement of students in third-, fourth-, and fifth-grade public school districts in Missouri for the years 2017-2018, 2018-2019, and 2020-2021 among schools that provided targeted EL training to mainstream classroom teachers. The independent variables were the responses from district leaders regarding whether targeted EL training was provided to mainstream classroom teachers as well as the grade levels, and the dependent variables were the sums of the proficient and advanced ELA MAP scores. The MCDS portal on MODESE Web applications contains information on the number of ELs in each district and grade level for each year. The information was retrieved, and a list of schools was created in a Microsoft Excel document. Schools that did not have 20 or more ELs in third, fourth, or fifth grade were removed from the list. After determining the list of schools to include in the sample, a three-question survey was created in Google forms. Next, an email invitation to participate in the study was sent to 124 district leaders in Missouri. The districts were asked if they provided targeted EL training for their regular classroom teachers in 2017-2018, 2018-2019, and 2020-2021. The survey was left open for one month, and then a follow-up email was sent to districts that had not responded. At the close of the survey, there were 57 school districts that had responded to the survey. The researcher then used the MCDS portal to gather English Language Arts MAP scores for the 57 districts that participated for each of the years, which was 46% of eligible districts.

The percentages were entered into the Microsoft Excel spreadsheet by year and whether or not the district had provided training.

Research Question 1

RQ1: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2017-2018?

$H_0$1: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2017-2018 as measured by the percentage sum of EL students achieving proficient and advanced.

A two-way ANOVA was conducted to examine the effects of grade level and training provided by schools on the sum of ELA MAP scores for the 2017-2018 school year. Residual analysis was performed to test for the assumptions of the two-way ANOVA. Accurate results are essential in a research study; therefore, it is important to look for errors and inaccuracies in the data collected. The first data-cleaning task dealt with missing data. Missing data, or those with no response, were removed from the sample to prevent the data from affecting the outcome of the ANOVA. This was acceptable because the data sample was large enough to run the ANOVA (Laerd Statistics, 2022). After dealing with the missing data, data were examined for the last three assumptions of the two-way ANOVA. There are six assumptions that must be met to complete a two-way ANOVA. The first three assumptions were met and addressed in

Chapter Three. The fourth assumption states there should not be a significant outlier in any cell of the design. Outliers are data points within data that do not follow the usual pattern. These outliers can have a negative impact on the two-way ANOVA (Laerd Statistics, 2022). Outliers were assessed by inspection of a boxplot, normality was assessed using Shapiro-Wilk's normality test for each cell of the design, and homogeneity of variances was assessed by Levene's test. For the year of 2017-2018 there were a few outliers, but none of them were more than 1.5 box lines and were not considered extreme outliers. These data entries were verified as correct. The researcher chose to include these outliers in the data (See Appendices A-F).

Assumption 5 is the assumption of normality. This states the dependent variable, in this study the ELA MAP percentages, should be approximately normally distributed for each cell of the design (Laerd Statistics, 2022). The researcher ran the Shapiro-Wilk test of normality, which showed whether the sample data fit a normal distribution. The Shapiro-Wilk test of normality showed that all years passed the Shapiro-Wilk test of normality ($p > .05$), except third-grade schools with training in 2017-2018 and fifth-grade schools with no training in 2017-2018, as shown in Table 2. The null hypothesis for the Shapiro-Wilk's test, which indicated the data's distribution was equal to a normal distribution, was accepted for all samples except the 2 years noted. While the null hypothesis could not be accepted for 2 of the 6 samples, the researcher chose to proceed with running the two-way ANOVA. The two-way ANOVA can provide acceptable results, as an ANOVA is able to handle deviations from normal sample size distributions (Laerd Statistics, 2022). The sixth and final assumption, the test for homogeneity of variances, was conducted when the ANOVA was run and is presented with the findings.

Table 2

Tests of Normality for 2017-2018 Data

				Shapiro-Wilk	
Year	Training	Grade	Statistic	*df*	Sig.
2017-18	No	3rd	.871	40	<.001
	No	4th	.961	40	.179
	No	5th	.958	40	.142
2017-18	Yes	3rd	.944	17	.364
	Yes	4th	.969	17	.792
	Yes	5th	.833	17	.007

The interaction effect between grade level and training provided on ELA MAP percentages was not statistically significant, $F(2, 165) = .083$, $p = .921$, partial $\eta^2 = .001$. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. There was not a statistically significant difference in ELA MAP Percentages between third-grade students who had training provided and those who did not, $F(1, 165) = .994$, $p = .320$, partial $\eta^2 = .006$; thus the researcher failed to reject the null hypothesis. The interaction effect between fourth-grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = 1.733$, $p = .190$, partial $\eta^2 = .010$; thus the researcher failed to reject the null hypothesis. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. The interaction effect between fifth-grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = 2.468$, $p = .118$, partial $\eta^2 = .015$; thus the researcher failed to reject the null hypothesis. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. All of these results are shown in Tables 3 and 4.

Table 3

Tests of Between-Subjects Effects for 2017-2018 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages						
Source	Title II Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	1819.45[a]	5	363.89	1.16	.330	.034
Intercept	307936.02	1	307936.02	984.10	<.001	.856
Training 1718	1573.55	1	1573.55	5.02	.026	.030
Grade	149.43	2	74.71	.23	.788	.003
Training 1718 Grade	51.80	2	25.90	.08	.921	.001
Error	51630.26	165	312.91			
Total	400361.31	171				
Corrected Total	53449.71	170				

[a]*R* Squared = .034 (Adjusted *R* Squared = .005).

Table 4

Univariate Tests by Grade Level for 2017-2018 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Grade Level		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
3rd	Contrast	310.92	1	310.92	.994	.320	.006
	Error	51630.26	165	312.91			
4th	Contrast	542.12	1	542.12	1.73	.190	.010
	Error	51630.26	165	312.91			
5th	Contrast	772.32	1	772.32	2.46	.118	.015
	Error	51630.26	165	312.91			

An analysis of the main effect for schools that provided training versus schools that did not provide training was run, which indicated that the main effect was not statistically significant for either type of school. There was not a statistically significant difference in ELA MAP Percentages for schools that did not provide training,

$F(2,165) = .285$, $p = .752$, partial $\eta^2 = .003$; thus the researcher failed to reject the null hypothesis. There was not a statistically significant difference in ELA MAP Percentages for schools that did provide training, $F(2, 165) = .108$, $p = .898$, partial $\eta^2 = .001$; thus the researcher failed to reject the null hypothesis. All of these results are shown in Table 5.

Table 5

Univariate Tests by Training Provided for 2017-2018 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Training		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Yes	Contrast	178.29	2	89.14	.28	.752	.003
Yes	Error	51630.26	165	312.91			
No	Contrast	67.61	2	33.80	.10	.898	.001
No	Error	51630.26	165	312.91			

Although there was not a statistical significance in the data presented the researcher did find practical significance when looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. As shown in Table 6, districts that provided EL training to their third- grade classroom teachers found students scored an average of 5.10% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers found students scored an average of 6.74% higher on their ELA MAP percentages. At the same time, districts that provided EL training to their fifth-grade classroom teachers found students scored an average of 8.05% percent higher on their ELA MAP percentages. The practical significance of these results will be discussed more in Chapter Five.

Table 6

Mean ELA MAP Percentage for 2017-2018 Data

Training	Grade	Mean ELA MAP Percentage
No	3rd	43.27
Yes	3rd	48.37
No	4th	44.44
Yes	4th	51.18
No	5th	41.47
Yes	5th	49.52

Research Question 2

RQ2: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2018-2019?

$H_0$2: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2018-2019 as measured by the percentage sum of EL students achieving proficient and advanced.

A two-way ANOVA was conducted to examine the effects of grade level and training provided by schools on the sum of ELA MAP scores for the 2018-2019 school year. Residual analysis was performed to test for the assumptions of the two-way ANOVA. Accurate results are essential in a research study; therefore, it is important to look for errors and inaccuracies in the data collected. The first data-cleaning task dealt with missing data. Missing data, or those with no response, were removed from the sample to prevent the data from affecting the outcome of the ANOVA. This was

acceptable because the data sample was large enough to run the ANOVA (Laerd Statistics, 2022). After dealing with the missing data, the data were examined for the last three assumptions of the two-way ANOVA. There are six assumptions that must be met to complete a two-way ANOVA. The first three assumptions were met and addressed in Chapter Three. The fourth assumption states there should not be a significant outlier in any cell of the design. Outliers are data points within data that do not follow the usual pattern. These outliers can have a negative impact on the two-way ANOVA (Laerd Statistics, 2022). Outliers were assessed by inspection of a boxplot, normality was assessed using Shapiro-Wilk's normality test for each cell of the design, and homogeneity of variances was assessed by Levene's test. For the year of 2018-2019 there were a few outliers, but none of them were more than 1.5 box lines and were not considered extreme outliers. These data entries were verified as correct. The researcher chose to include these outliers in the data (See Appendices G-L).

Assumption 5 is the assumption of normality. This states the dependent variable, in this study the ELA MAP percentages, should be approximately normally distributed for each cell of the design (Laerd Statistics, 2022). The researcher ran the Shapiro-Wilk test of normality, which shows whether the sample data fit a normal distribution. The Shapiro-Wilk test of normality showed that all years passed the Shapiro-Wilk test of normality ($p > .05$), except third-grade schools with no training provided in 2018-2019, third-grade schools with training provided in 2018-2019, and fifth-grade schools with training provided in 2018-2019, as shown in Table 7. The null hypothesis for the Shapiro-Wilk's test, which indicated the data's distribution was equal to a normal distribution, was accepted for all samples except the 3 years noted. While the null hypothesis could

not be accepted for 3 of the 6 samples, the researcher chose to proceed with running the two-way ANOVA. The two-way ANOVA can provide acceptable results, as an ANOVA is able to handle deviations from normal sample size distributions (Laerd Statistics, 2022). The sixth and final assumption, the test for homogeneity of variances, was conducted when the ANOVA was run and is presented with the findings.

Table 7

Tests of Normality for 2018-2019 Data

			Shapiro-Wilk		
Year	Training	Grade	Statistic	*df*	Sig.
2018-19	No	3rd	.926	35	.021
	No	4th	.958	35	.205
	No	5th	.975	35	.605
2018-19	Yes	3rd	.883	22	.014
	Yes	4th	.959	22	.462
	Yes	5th	.859	22	.005

The interaction effect between grade level and training provided on ELA MAP percentages was not statistically significant, $F(2, 165) = .435$, $p = .648$, partial $\eta^2 = .005$. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. There was not a statistically significant difference in ELA MAP Percentages between third-grade students who had training provided and those who did not, $F(1, 165) = .267$, $p = .606$, partial $\eta^2 = .002$; thus the researcher failed to reject the null hypothesis. The interaction effect between fourth-grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = .309$, $p = .081$, partial $\eta^2 = .018$; thus the researcher failed to reject the null hypothesis Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. The interaction effect between fifth-

grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = .232$, $p = .130$, partial $\eta^2 = .014$; thus the researcher failed to reject the null hypothesis. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. All of these results are shown in Tables 8 and 9.

Table 8

Tests of Between-Subjects Effects for 2018-2019 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages						
Source	Title II Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	1798.34[a]	5	359.66	1.335	.252	.039
Intercept	345586.17	1	345586.17	1282.86	<.001	.886
Grade	175.14	2	87.57	.325	.723	.004
Training 1819	1294.97	1	1294.97	4.807	.030	.028
Grade Training 1819	234.30	2	117.15	.435	.648	.005
Error	44448.87	165	269.38			
Total	400687.80	171				
Corrected Total	46247.22	170				

[a]*R* Squared = .039 (Adjusted *R* Squared = .010).

Table 9

Univariate Tests by Grade Level for 2018-2019 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Grade Level		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
3rd	Contrast	71.86	1	71.86	.267	.606	.002
	Error	44448.87	165	269.38			
4th	Contrast	832.30	1	832.30	.309	.081	.018
	Error	44448.87	165	269.38			
5th	Contrast	625.09	1	625.09	.232	.130	.014
	Error	44448.87	165	269.38			

An analysis of the main effect for schools that provided training versus schools that did not provide training was run, which indicated that the main effect was not statistically significant for either type of school. There was not a statistically significant difference in ELA MAP Percentages for schools that did not provide training, $F(2,165) = .849$, $p = .430$, partial $\eta^2 = .010$; thus the researcher failed to reject the null hypothesis. There was not a statistically significant difference in ELA MAP Percentages for schools that did provide training, $F(2, 165) = .085$, $p = .919$, partial $\eta^2 = .001$; thus the researcher failed to reject the null hypothesis. All of these results are shown in Table 10.

Table 10

Univariate Tests by Training Provided for 2018-2019 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Training		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Yes	Contrast	45.76	2	22.88	.085	.919	.001
Yes	Error	44448.87	165	269.38			
No	Contrast	457.613	2	228.80	.849	.430	.010
No	Error	44448.87	165	269.38			

Although there was not a statistical significance in the data presented the researcher did find practical significance when looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. As shown in Table 11, districts that provided EL training to their third-grade classroom teachers found students scored an average of 2.31% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers found students scored an average of 7.85% higher on their ELA MAP percentages. Also, districts that provided EL training to their fifth-grade classroom teachers found students

scored an average of 6.80% percent higher on their ELA MAP percentages. The practical significance of these results will be discussed more in Chapter Five.

Table 11

Mean ELA MAP Percentage for 2018-2019 Data

Training	Grade	Mean ELA MAP Percentage
No	3rd	46.25
Yes	3rd	48.56
No	4th	42.31
Yes	4th	50.16
No	5th	41.46
Yes	5th	48.26

Research Question 3

RQ3: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2020-2021?

$H_0$3: There are no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2020-2021 as measured by the percentage sum of EL students achieving proficient and advanced.

A two-way ANOVA was conducted to examine the effects of grade level and training provided by schools on the sum of ELA MAP scores for the 2020-2021 school year. Residual analysis was performed to test for the assumptions of the two-way ANOVA. Accurate results are essential in a research study; therefore, it is important to look for errors and inaccuracies in the data collected. The first data-cleaning task dealt

with missing data. Missing data, or those with no response, were removed from the sample to prevent the data from affecting the outcome of the ANOVA. This was acceptable because the data sample was large enough to run the ANOVA (Laerd Statistics, 2022). After dealing with the missing data, the data were examined for the last three assumptions of the two-way ANOVA. There are six assumptions that must be met to complete a two-way ANOVA. The first three assumptions were met and addressed in Chapter Three. The fourth assumption states there should not be a significant outlier in any cell of the design. Outliers are data points within data that do not follow the usual pattern. These outliers can have a negative impact on the two-way ANOVA (Laerd Statistics, 2022). Outliers were assessed by inspection of a boxplot, normality was assessed using Shapiro-Wilk's normality test for each cell of the design, and homogeneity of variances was assessed by Levene's test. For the year of 2020-2021 there were a few outliers, but not of them were more than 1.5 box lines and were not considered extreme outliers. These data entries were verified as correct. The researcher chose to include these outliers in the data (See Appendices M-R).

Assumption 5 is the assumption of normality. This states the dependent variable, in this study the ELA MAP percentages, should be approximately normally distributed for each cell of the design (Laerd Statistics, 2022). The researcher ran the Shapiro-Wilk test of normality, which shows whether the sample data fit a normal distribution. The Shapiro-Wilk test of normality showed that all years passed the Shapiro-Wilk test of normality ($p > .05$), except third-grade schools with no training provided in 2020-2021, fourth-grade schools with no training provided in 2020-2021, and fifth-grade schools with no training provided in 2020-2021, as shown in Table 12. The null hypothesis for

the Shapiro-Wilk's test, which indicated the data's distribution, was equal to a normal distribution, was accepted for all samples except the 3 years noted. While the null hypothesis could not be accepted for 3 of the 6 samples, the researcher chose to proceed with running the two-way ANOVA. The two-way ANOVA can provide acceptable results, as an ANOVA is able to handle deviations from normal sample size distributions (Laerd Statistics, 2022). The sixth and final assumption, the test for homogeneity of variances, was conducted when the ANOVA was run and is presented with the findings.

Table 12

Tests of Normality for 2020-2021 Data

			Shapiro-Wilk		
Year	Training	Grade	Statistic	*df*	Sig.
2020-2021	No	3rd	.849	35	<.001
	No	4th	.918	35	.012
	No	5th	.608	35	<.001
2020-2021	Yes	3rd	.951	22	.329
	Yes	4th	.929	22	.118
	Yes	5th	.967	22	.641

The interaction effect between grade level and training provided on ELA MAP percentages was not statistically significant, $F(2, 165) = .872$, $p = .420$, partial $\eta^2 = .010$. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. There was not a statistically significant difference in ELA MAP Percentages between third-grade students who had training provided and those who did not, $F(1, 165) = 3.120$, $p = .079$, partial $\eta^2 = .019$; thus the researcher failed to reject the null hypothesis. The interaction effect between fourth-grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = 1.024$, $p = .313$, partial $\eta^2 = .006$; thus the researcher failed to reject the null hypothesis. Therefore, an analysis of the

main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. The interaction effect between fifth-grade students who had training provided and those who did not was not statistically significant, $F(1, 165) = .008$, $p = .928$, partial $\eta^2 = .008$; thus the researcher was able to reject the null hypothesis. Therefore, an analysis of the main effect for each grade level was performed, which indicated that the main effect was not statistically significant for any of the grade levels. All of these results are shown in Tables 13 and 14.

Table 13

Tests of Between-Subjects Effects for 2020-2021 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages						
Source	Title II Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	3591.08[a]	5	718.21	1.34	.249	.039
Intercept	291831.75	1	291831.75	545.37	<.001	.768
Grade	997.18	2	498.59	.93	.396	.011
Training 2021	1288.21	1	1288.21	2.40	.123	.014
Grade Training 2021	933.58	2	466.79	.872	.420	.010
Error	88292.77	165	535.10			
Total	390469.65	171				
Corrected Total	91883.85					

[a]*R* Squared = .039 (Adjusted *R* Squared = .010).

Table 14

Univariate Tests by Grade Level for 2020-2021 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Grade Level		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
3rd	Contrast	1669.44	1	1669.44	3.120	.079	.019
	Error	88292.77	165	535.10			
4th	Contrast	547.94	1	547.94	1.024	.313	.006
	Error	88292.77	165	535.10			
5th	Contrast	4.41	1	4.41	.008	.928	.000
	Error	88292.77	165	535.10			

An analysis of the main effect for schools that provided training versus schools that did not provide training was run, which indicated that the main effect was not statistically significant for either type of school. There was not a statistically significant difference in ELA MAP Percentages for schools that did not provide training, $F(2,165) = 1.838$, $p = .162$, partial $\eta^2 = .022$; thus the researcher failed to reject the null hypothesis. There was not a statistically significant difference in ELA MAP Percentages for schools that did provide training, $F(2, 165) = .314$, $p = .731$, partial $\eta^2 = .004$; thus the researcher failed to reject the null hypothesis. All of these results are shown in Table 15.

Table 15

Univariate Tests by Training Provided for 2020-2021 Data

Dependent Variable: Advanced and Proficient ELA MAP Percentages							
Training		Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared
Yes	Contrast	1967.20	2	983.60	1.83	.162	.022
Yes	Error	88292.77	165	535.10			
No	Contrast	335.66	2	167.83	.314	.731	.004
No	Error	88292.77	165	535.10			

Although there was not a statistical significance in the data presented the researcher did find practical significance when looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. As shown in Table 16, districts that provided EL training to their third-grade classroom teachers found students scored an average of 11.11% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers found students scored an average of 6.37% higher on their ELA MAP percentages. Also, districts that provided EL training to their fifth-grade classroom teachers found students

scored an average of 0.57%% percent lower on their ELA MAP percentages. The practical significance of these results will be discussed more in Chapter Five.

Table 16

Mean ELA MAP Percentage for 2020-2021 Data

Training	Grade	Mean ELA MAP Percentage
No	3rd	33.55
Yes	3rd	44.66
No	4th	41.88
Yes	4th	48.25
No	5th	43.39
Yes	5th	42.82

Summary

Chapter Four included an analysis and findings of the study. The research questions and null hypothesis were presented. A two-way ANOVA was used to determine when to reject or fail to reject each of the null hypotheses in three research questions. The null-hypothesis stated there will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the years of 2017-2018 ($H_0$1), 2018-2019 ($H_0$2), and 2020-2021 ($H_0$3) as measured by the percentage sum of EL students achieving proficient and advanced. The researcher failed to reject the null hypothesis in all three research questions (see Tables 17-19). Chapter Five provides description of the data interpretation as well as considerations for possible applications of findings. Additionally, future recommendations for further study are also addressed in Chapter Five.

Table 17

Null Hypothesis Summary for 2017-2018 Data

Null Hypothesis	Grade	Test	Sig.	Decision
$H_0$1	3rd	ANOVA	.320	Failed to reject the null hypothesis
$H_0$1	4th	ANOVA	.190	Failed to reject the null hypothesis
$H_0$1	5th	ANOVA	.118	Failed to reject the null hypothesis

Table 18

Null Hypothesis Summary for 2018-2019 Data

Null Hypothesis	Grade	Test	Sig.	Decision
$H_0$2	3rd	ANOVA	.606	Failed to reject the null hypothesis
$H_0$2	4th	ANOVA	.081	Failed to reject the null hypothesis
$H_0$2	5th	ANOVA	.130	Failed to reject the null hypothesis

Table 19

Null Hypothesis Summary for 2020-2021 Data

Null Hypothesis	Grade	Test	Sig.	Decision
$H_0$3	3rd	ANOVA	.079	Failed to reject the null hypothesis
$H_0$3	4th	ANOVA	.313	Failed to reject the null hypothesis
$H_0$3	5th	ANOVA	.928	Failed to reject the null hypothesis

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The changing demographics of K-12 classrooms, and the growing number of EL students in the United States, create a need to ensure our mainstream classroom teachers enter the classroom prepared to work with ELs (Grant et al., 2021; Hussar et al., 2020; National Academies of Sciences, Engineering, and Medicine, 2018). The importance of this study could help districts determine if providing training to mainstream classroom teachers is worth the money districts would spend to provide the training. The review of literature supported that many mainstream classroom teachers often have little training in teaching ELs. Mainstream classroom teachers do not receive training in second language learning and therefore are underprepared to work with ELs (Grant et al., 2021; Santibañez & Gándara, 2018; Szymanski & Lynch, 2020). In education, professional development is one of the only strategies to strengthen educators' teaching and raise student achievement (Mizell, 2010; Von Esch & Kavanagh, 2018). Furthermore, providing high-quality professional development will afford the greatest opportunity for learning to transfer back to the classroom and to benefit ELs (Von Esch & Kavanagh, 2018).

This chapter provides a summary of the methods used to collect and analyze the data connected to the three research questions of this study. The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018,

2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. The specific MAP data used in the analyses were the sums of percentages of ELs achieving proficient and advanced. In Chapter Five the researcher presents a summary of the methods and findings for each of the research questions and implications for educational change. Chapter Five ends with the researcher's conclusion of the study.

Research Questions

The following research questions guided this study:

RQ1: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2017-2018?

RQ2: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2018-2019?

RQ3: What is the difference in ELs' student achievement on the Missouri Assessment Program as measured by the percentage sum of ELs achieving proficient and advanced among districts that provided targeted EL training for mainstream classroom teachers and those that did not based on Grades 3, 4, and 5 for the year of 2020-2021?

Null Hypotheses

$H_0$1: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that

provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2017-2018 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$2: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2018-2019 as measured by the percentage sum of EL students achieving proficient and advanced.

$H_0$3: There will be no statistically significant differences between EL student achievement in ELA in Grades 3, 4, and 5 as measured by the MAP between schools that provided targeted EL training for their mainstream classroom teachers and those that did not for the year of 2020-2021 as measured by the percentage sum of EL students achieving proficient and advanced.

Summary of Methods

This quantitative research study was conducted after the approval of the Research Review Board of Southwest Baptist University, which occurred in June 2022. Once approval was granted, the researcher downloaded student demographic information from the MODESE open-access website for all 518 school districts in the state of Missouri. The researcher eliminated any districts with fewer than 20 ELs from the list. The researcher included all districts that met these criteria in the study, which included 120 districts. The researcher collected each district's superintendent, assistant superintendent, and professional development chair names and email addresses from the MODESE open-access website. A three-question survey was then emailed to district representatives

(superintendents, assistant superintendents, and professional development chairs) about whether training was provided to mainstream classroom teachers for each of the years: 2017-2018, 2018-2019, and 2020-2021. Thirty-five districts completed the survey within the first 2 weeks the survey was opened; after 3 weeks passed the researcher sent a follow-up email to the districts who had not responded. An additional 26 districts completed the survey for a total of 61 districts. At the end of a 5-week window, the survey was closed and all completed survey responses were collected. Additional time was not provided for further collection. The researcher removed four districts because they did not have ELA MAP data for their EL subgroup for those years. This left the researcher with 57 school districts that responded regarding all 3 years. The researcher then separated the data into three spreadsheets, one for each year. Percentages of ELA MAP data were collected from the MODESE open-access website, for each grade level, and EL subgroup; the percentages were put in a column by grade level. The fourth column displayed whether training was provided or not. This provided the researcher with 171 data points for each of the school years in the study. Following the data collection and organization into the spreadsheet, a two-way ANOVA was conducted to determine statistical significance. Using this information, the researcher rejected or failed to reject the null hypothesis of each of the three research questions included in this study.

Summary of Findings

The number of ELs has risen over the last decade in public schools (Hussar et al., 2020; Office of English Language Acquisition, 2021). The focus of this research was to identify if there were differences in EL scores for districts that provided targeted EL training to their mainstream classroom teachers versus those that did not. While

significant research has been conducted around push-in and pull-out programming for ELs, there is little research around successful programming and professional development for mainstream classroom teachers (Alghamdi, 2018; Burke et al., 2021; Thompson, 2019). As a result of the review of literature, which indicated a gap in the research, the researcher established three research questions to analyze the difference in ELA MAP scores for ELs in districts that provided training versus those that did not provide training to their mainstream classroom teachers. Utilizing the andragogy theory of adult learning principles the researcher hypothesized that districts that provided targeted EL training to their mainstream classroom teachers would score significantly higher on the ELA MAP than districts that did not provide training (Anderson & Boutelier, 2021; Knowles, 1984). However, the results of this study did not indicate an increased ELA MAP proficiency for districts that provided training for mainstream classroom teachers.

Through exploring the differences in the percent of students scoring proficient and advanced on the ELA MAP among schools that provided EL training to their mainstream classroom teachers and those that did not, the researcher failed to reject the null hypothesis of each of the three research questions. The study had three null hypotheses, each comparing ELA MAP scores to whether training was provided by the district or not. There was no statistically significant difference for districts that provided EL training to their third-, fourth-, and fifth-grade mainstream classrooms teachers and those that did not during the 2017-2018, 2018-2019, or 2020-2021 school years. Despite the lack of statistical significance, there were some practical implications that could be

considered when exploring the data in relation to what is known about ELA MAP proficiency scores for school districts.

Assuming the principles of andragogy theory of adult learning are incorporated into professional development for classroom teachers, it would have been expected students whose teachers were provided training would have performed better than those who were not provided training (Anderson & Boutelier, 2021; Bedi, 2004; Knowles, 1984). However, the findings in this study did not suggest that EL training for mainstream classroom teachers resulted in a change in a student's proficiency score on the ELA MAP. This interpretation of the findings was not anticipated when the study was first described, as the review of the literature appeared to indicate there was a lack of training for mainstream classroom teachers (Bailey & Fahad, 2021; Knowles, 1973; Santibañez & Gándara, 2018).

Discussion of Research Question 1

This section provides an in-depth interpretation, analysis, and synthesis of the results and findings of Research Question 1. There were 57 school districts that responded to the question regarding data for 2017-2018. This provided 171 responses for the 2017-2018 school year, of those districts, 51 school districts provided training around working with ELs for their third-, fourth-, and fifth-grade mainstream classroom teachers. The other 120 districts did not provide targeted EL training for their third-, fourth-, and fifth-grade mainstream classroom teachers. A two-way ANOVA was run to determine if a statistically significant relationship ($p < .05$) was identifiable among the three grade levels and whether training was provided or not. Data revealed $F(2, 165) = .083$, $p = .921$; thus there was no statistically significant difference in schools that provided EL

training to mainstream classroom teachers in third-, fourth-, and fifth-grade, and those that did not. The findings from Research Question 1 contradict prior studies, which found ELs perform better when their classroom teachers have been trained and have an understanding of second language learning (Ladson-Billings, 1995; Martorana, 2022). The previously reviewed literature suggested that when the principles of andragogy are applied in professional development there would be an increase in the teacher skillset, which would be reflected in student scores (Anderson & Boutelier, 2021; Knowles, 1984). Although the researcher expected if teachers' skillset and instructional practices improved then this would transfer to student learning and achievement, this was an incorrect assumption. Another possible issue with the study was assuming all EL training provided by the school districts was consistent with Knowles' theory of andragogy (Kapp, 1833; Knowles, 1984). Knowles (1962) developed and implemented four principles to evaluate adult learning opportunities. The four principles stated adult learners should be actively engaged in the learning and evaluating of their learning, not be focused on memorization of facts but focused on tasks, have immediate relevance to their jobs, and be problem centered. The theory of andragogy provides a lens to evaluate training provided for adult learners (Kapp, 1833; Knowles, 1962, 1973, 1984). The researcher failed to include this in research study. The researcher will address future recommendations for correcting this error later in the chapter.

The results from Research Question 1 of this quantitative, causal-comparative study showed very little difference between districts that provided EL training for their mainstream classroom teachers and those that did not. Although there was not a statistical significance in the data presented, the researcher did find practical significance when

looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. Districts that provided EL training to their third-grade classroom teachers found students scored an average of 5.10% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers found students scored an average of 6.74% higher on their ELA MAP percentages. Also, districts that provided EL training to their fifth-grade classroom teachers found students scored an average of 8.05% percent higher on their ELA MAP percentages. This indicates districts that provided EL training for mainstream classroom teachers in 2017-2018 scored an average of 6.63% higher on their ELA MAP percentages. Although that percentage may not seem notable, for public schools any increase or difference is substantial (NWEA Psychometric Solutions, 2021; Rios et al., 2020). Another possible benefit this study could not show is whether a difference in training provided by mainstream classroom teachers would increase ELs' scores on the WIDA ACCESS, which measures the students' English proficiency (WIDA, 2020). Raising students' overall English proficiency is the goal of educating ELs in public schools (Sugarman, 2021b; U.S. Department of Justice, 2018).

Discussion of Research Question 2

This section provides an in-depth interpretation, analysis, and synthesis of the results and findings of Research Question 2. There were 57 school districts that responded to the question regarding data for 2018-2019. This provided 171 responses for the 2018-2019 school year, of those districts, 66 school districts provided training around working with ELs for their third-, fourth-, and fifth-grade mainstream classroom teachers. The other 105 districts did not provide targeted EL training for their third, fourth and fifth

grade mainstream classroom teachers. A two-way ANOVA was run to determine if a statistically significant relationship ($p < .05$) was identifiable among the three grade levels and whether training was provided or not. Data revealed $F(2, 165) = .435$, $p = .648$; thus there was no statistically significant difference in schools that provided EL training to mainstream classroom teachers in third-, fourth-, and fifth-grades, and those that did not. Similar to Research Question 1, the findings from Research Question 2 contradicted prior studies that found ELs perform better when their classroom teachers have been trained and have an understanding of second language learning (Ladson-Billings, 1995; Martorana, 2022). The previously reviewed literature suggested that when the principles of andragogy are applied in professional development there would be an increase in the teacher skillset, which would reflect on student scores (Anderson & Boutelier, 2021; Knowles, 1984). Again, this was an incorrect assumption and will be addressed in recommendations for future research.

The results from Research Question 2 of this quantitative, causal-comparative study showed very little difference between districts that provided EL training for their mainstream classroom teachers and those that did not. Although there was not a statistical significance in the data presented the researcher did find practical significance when looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. Districts that provided EL training to their third-grade classroom teachers found students scored an average of 2.31% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers found students scored an average of 7.85% higher on their ELA MAP percentages. At the same time, districts that provided EL training to their fifth-grade classroom teachers

found students scored an average of 6.80% percent higher on their ELA MAP percentages. This means district that provided EL training for mainstream classroom teachers in 2018-2019 scored an average of 5.65% higher on their ELA MAP percentages. Although that percentage may not seem notable, for public schools any increase or difference is substantial (NWEA Psychometric Solutions, 2021; Rios et al., 2020). Another possible benefit this study could not show is whether a difference in training provided by mainstream classroom teachers would increase ELs' scores on the WIDA ACCESS, which measures the students' English proficiency (WIDA, 2020). Raising students' overall English proficiency is the goal of educating ELs in public schools (Sugarman, 2021b; U.S. Department of Justice, 2018).

Discussion of Research Question 3

This section provides an in-depth interpretation, analysis, and synthesis of the results and findings of Research Question 3. There were 57 school districts that responded to the question regarding data for 2020-2021. This provided 171 responses for the 2020-2021 school year, of those districts, 66 school districts provided training around working with ELs for their third-, fourth-, and fifth-grade mainstream classroom teachers. The other 105 districts did not provide targeted EL training for their third, fourth and fifth grade mainstream classroom teachers. A two-way ANOVA was run to determine if a statistically significant relationship ($p < .05$) was identifiable among the three grade levels and whether training was provided or not. Data revealed $F(2, 165) = .872$, $p = .420$; thus there was no statistically significant difference in schools that EL provided training to mainstream classroom teachers in third-, fourth-, and fifth-grades, and those that did not. The findings in Research Question 3 contradicted prior research that found

ELs performed better when their classroom teachers had been trained and had an understanding of second language learning (Ladson-Billings, 1995; Martorana, 2022). The previously reviewed literature suggested that when the principles of andragogy are applied in professional development there would be an increase in the teacher skillset, which would reflect on student scores (Anderson & Boutelier, 2021; Knowles, 1984). Although the researcher expected if teachers' skillset and instructional practices improved then this would transfer to student learning and achievement; this was an incorrect assumption.

The results from Research Question 3 of this quantitative, causal-comparative study showed little difference between districts that provided EL training for their mainstream classroom teachers and those that did not. Although there was not a statistical significance in the data presented the researcher did find practical significance when looking at the ELA MAP percentages for schools that provided training versus those that did not provide training. Districts that provided EL training to their third-grade classroom teachers found students scored an average of 11.11% percent higher on their ELA MAP percentages. Districts that provided EL training to their fourth-grade classroom teachers, found students scored an average of 6.37% higher on their ELA MAP percentages. Also, districts that provided EL training to their fifth-grade classroom teachers found students scored 0.57% lower on their ELA MAP percentages. Even with the fifth-grade scores being lower in districts that provided EL training for mainstream classroom teachers in 2020-2021, students still scored an average of 6.01% higher on their ELA MAP percentages. Although that percentage may not seem notable, for public schools any increase or difference is substantial (NWEA Psychometric Solutions, 2021; Rios et al.,

2020). Another possible benefit this study could not show is whether a difference in training provided by mainstream classroom teachers would increase ELs' scores on the WIDA ACCESS, which measures the students' English proficiency (WIDA, 2020). Raising students' overall English proficiency is the goal of educating ELs in public schools (Sugarman, 2021b; U.S. Department of Justice, 2018). According to Krashen (1982), the best way to raise English proficiency would be focusing on second language acquisition strategies in the ESL and mainstream classroom.

Professional Implications

Public school districts across the United States are experiencing growing pressure to ensure ELs are making ample progress towards English proficiency (Villegas & Pompa, 2020). Since the authorization of the ESSA (2015), a number of new requirements have been put in place including consistent criteria for measuring growth of ELs' on English proficiency (Villegas & Pompa, 2020). This has caused many school districts to put focused efforts on ELs achievement and English proficiency even though districts did not receive additional funding (Sugarman, 2021a). On top of the urgency due to ESSA (2015), teachers are requesting training on how to best serve growing EL populations (Zhang, 2021). Capitalizing on this desire and providing timely training for teachers follows the andragogy theory of adult learning, which asserts school districts should focus professional development training on topics that are of interest to their adult learner (Knowles, 1962; Knowles et al., 2011). However, there is little research on EL training provided to mainstream classroom teachers and the impact of that training (de Jong & Harper, 2005; Szymanski & Lynch, 2020; Thompson, 2019). This study sought to understand the differences in EL performance on ELA MAP for Grades 3, 4, and 5 in

districts that provided training to mainstream classroom teachers and those that did not. Although this study did not show a statistical significance to encourage districts to train all mainstream classroom teachers who work with ELs, it did add to the body of research. The results of this study show school districts' ELA MAP proficient and advanced scores may benefit from providing training to mainstream classroom teachers and benefit ELs, as schools did show improved ELA MAP scores. Finally, school districts should consider improving EL training for mainstream classrooms teachers to impact student achievement and ensure teachers feel prepared and confident in working with ELs in their classrooms (Missouri Department of Elementary and Secondary Education, 2020; Moon, 2018; Thompson, 2019). School districts should utilize Knowles' (1962) andragogy theory when providing EL professional development for mainstream classroom teachers and include the four principles of adult learning; ensuring professional development is systematic, targeted, and provides real-world learning is at the heart of the andragogy theory and other professional development research (Giroir, Grimaldo, Vaughn, & Roberts, 2015; Knowles, 1962; Knowles et al., 2011; Mitchell, 2018).

As noted in previous chapters, a limitation to this study included the lack of MAP testing data for the 2019-2020 school year due to the COVID-19 pandemic and schools being shut down. Other limitations included the fidelity of the MAP scores as an annual assessment and the lack of previous research studies on EL training for mainstream classroom teachers on second language acquisition. Another limitation for this study includes the reliability and validity of the responses from school districts. An unanticipated limitation the researcher found during the study by not asking more detailed questions in the survey was the results regarding andragogy were affected.

Learning the type of training provided by districts is not enough. The researcher should have had additional follow-up questions regarding the type of training provided, the fidelity of the training provided, and even the frequency, or how much training was provided for the mainstream classroom teachers. By doing so, more specific data might have been gathered, which could have better addressed the theoretical frameworks and how they may affect the outcomes of professional development. In the following sections, an in-depth analysis and synthesis of the results of this study are shared as well as possible practical implications and further research for K-12 schools.

Recommendations for Future Research

Considering the results of this study, it is evident more information and research are needed to determine if providing training to mainstream classroom teachers can yield positive outcomes for ELA MAP proficient and advanced scores. The following recommendations for future research could add to the field of educational research in the area of professional development for mainstream classroom teachers working with ELs. If further research is completed regarding EL training provided for mainstream classroom teachers it should center around the theoretical framework of second language learning (Krashen, 1982, 1989; Lai & Wei, 2019). This study failed to evaluate the type and frequency of training provided by districts. Focusing EL training on Krashen's (1982) second language acquisition will ensure training is founded in second language learning that has been proven effective in ESL classrooms and credited as one of the strongest methods for teaching ELs (Krashen, 1982; Lai & Wei, 2019; Mitchell, 2016). Additionally, knowledge of whether or not Knowles' (1962) theory of adult learning principles were included as part of the EL training would provide specific information

about the type of training that could benefit ELA MAP scores and provide districts with additional data regarding the most effective type of instruction for ELs in the mainstream classroom. Another recommendation for future research would be to conduct a similar study but rather than on ELA MAP scores, the study could focus on English proficiency. That is, it would focus on English proficiency or the ELs' English development rather than ELA grade-level skills. This study could include whether specific trainings provided to mainstream classroom teachers have districts has any influence on WIDA ACCESS. The WIDA ACCESS is an assessment that measures an ELs' English proficiency level; there is a consortium of multiple states that utilize WIDA ACCESS and could provide substantial data (WIDA, 2020). Another recommendation for future research would be to study WIDA ACCESS scores and ESL program models being utilized. Although research around different ESL methodologies exists, there is little research around how those ESL methodologies might influence WIDA ACCESS scores. Finally, an alternative to quantitative studies would be to conduce a qualitative study to observe classroom teachers teaching ELs, which would provide a deeper view of teachers' pedagogical practices and how those practices might influence ELs' English development. A qualitative study could add to the body of research around second language acquisition strategies being taught to ELs and the success of those strategies (Alghamdi, 2018; Bailey & Fahad, 2021; Krashen, 1982, 1989). Continued research could yield insight that may impact ELs' future in public schools.

Conclusion

The purpose of this causal-comparative study was to test the andragogy theory that provided guidance on adult learning principles by comparing EL achievement in

districts that provided targeted EL training for their mainstream classrooms teachers and those that did not in 2017-2018, 2018-2019, and 2020-2021 in terms of the districts' ELA MAP scores for third through fifth grades at Missouri districts with an EL enrollment of 20 or more. There were two independent variables for this study: the first independent variable was whether training was provided by the district for mainstream classroom teachers and the second independent variable was the grade level. For this study the researcher chose to review third, fourth, and fifth grades. The dependent variable of the study was the sum of the ELA proficient and advanced scores on the MAP for the years of 2017-2018, 2018-2019, and 2020-2021. The focus of the researcher was to highlight whether districts could benefit from providing mainstream classroom teachers targeted EL training.

Increasing achievement of ELs is an ongoing expectation following the passing of ESSA (2015). Existing research focused on English as a Second Language (ESL) services or teachers who are trained specifically in teaching ELs through push-in and pull-out services (Shevchuk, 2018; Thompson, 2019). There is minimal research on EL training provided to mainstream classroom teachers and the impact of that training on EL students (de Jong & Harper, 2005; Szymanski & Lynch, 2020; Thompson, 2019). Based on the adult learning principles devised by Knowles (1962), the researcher had the expectation if districts provided targeted EL training to mainstream classroom teachers there would be an increase in student achievement. The current gap in educational research this study sought to fill centered around the lack of research on specific training for mainstream classroom teachers. This study added to the body of knowledge in the area of professional development for mainstream classroom teachers. The researcher was

unable to reject the null hypothesis for any of the three research questions. There was not a statically significant difference in ELA MAP scores for schools that provided training and those that did not. There was some practical significance as schools that provided training for their classroom teachers scored at least 5.0% higher on the ELA MAP. Although this study could not prove providing training for mainstream classroom teachers provides substantial benefit to ELs on ELA MAP, additional research focusing on specific types of training or specific professional development implemented would benefit schools (Szymanski & Lynch, 2020; Thompson, 2019). The fact remains that classroom teachers still feel underprepared to educate ELs and described it as the least prevalent topic for professional development with 27% of the teachers participating (Rotermund et al., 2018). For decades, researchers have recognized lack of training for mainstream classroom teachers regarding ELs and second language learning (de Jong & Harper, 2005; Grant et al., 2021; Thompson, 2019). Additional research in how to best serve EL students in mainstream classrooms could benefit districts across the country (O'Neal et al., 2018).

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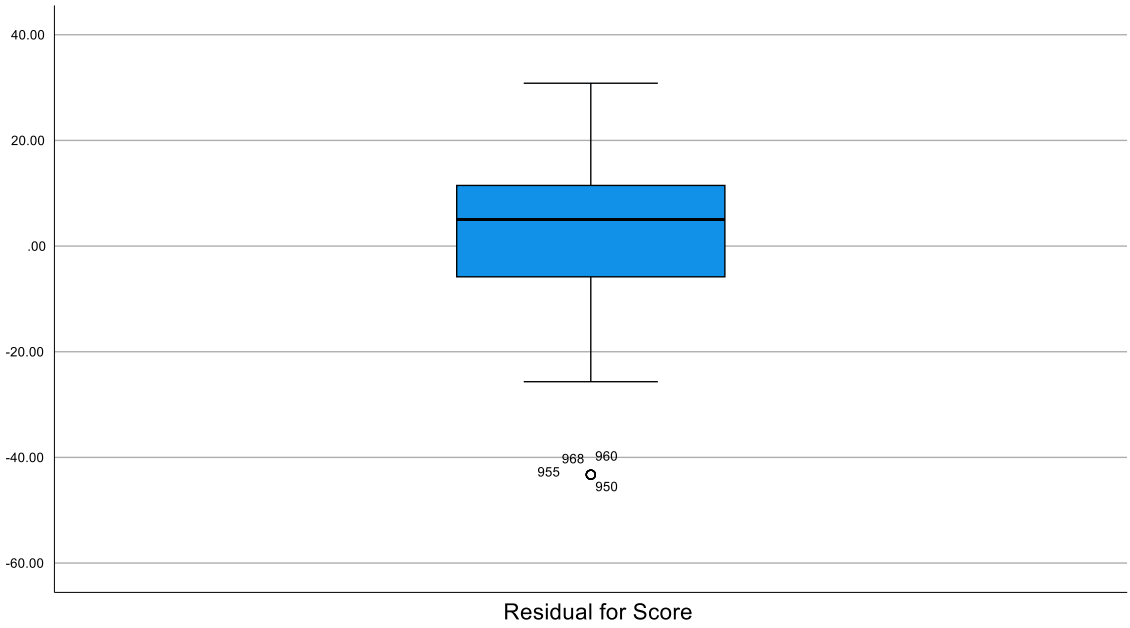
APPENDICES

Appendix A

2017-2018 Boxplot of Outliers for Districts With No Training Provided

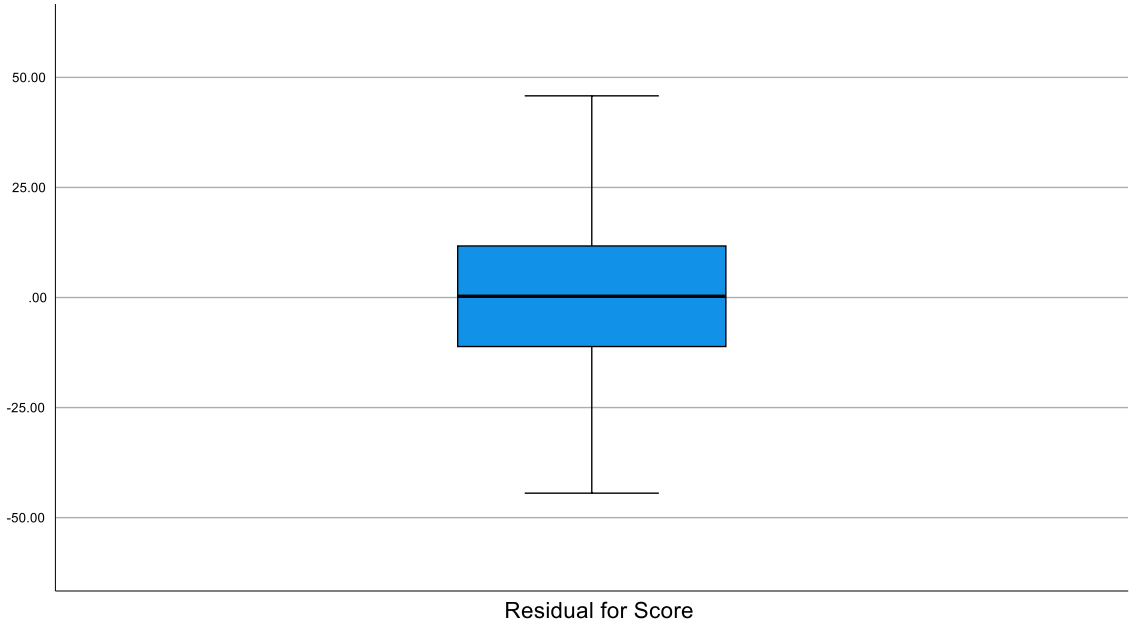
Third-Grade Students



Appendix B

2017-2018 Boxplot of Outliers for Districts With No Training Provided

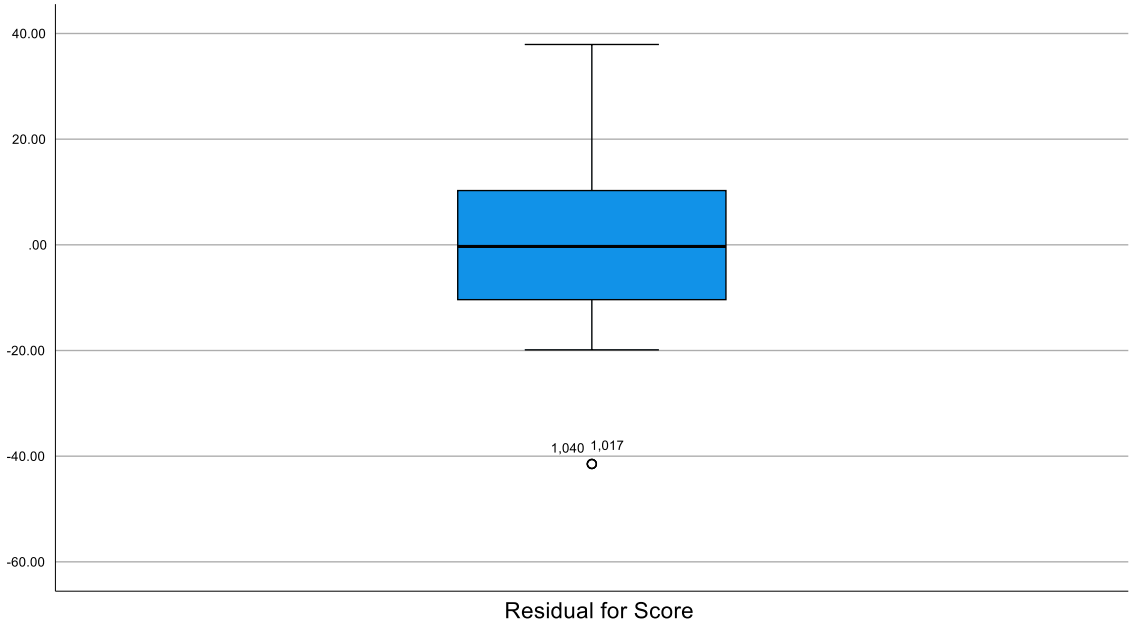
Fourth-Grade Students



Appendix C

2017-2018 Boxplot of Outliers for Districts With No Training Provided

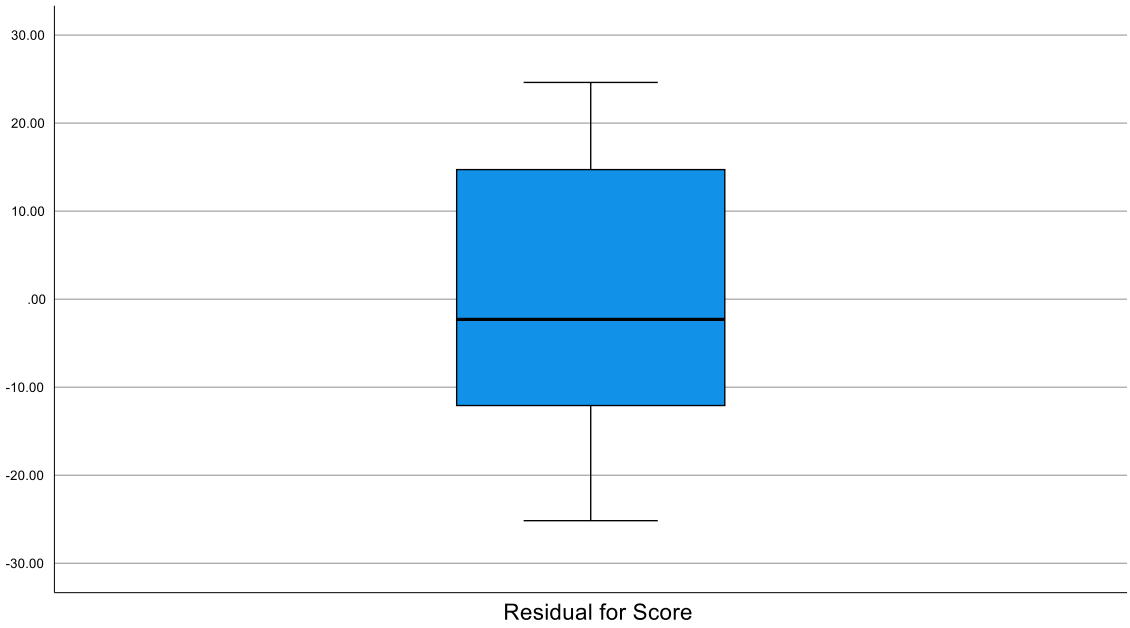
Fifth-Grade Students



Appendix D

2017-2018 Boxplot of Outliers for Districts That Provided Training

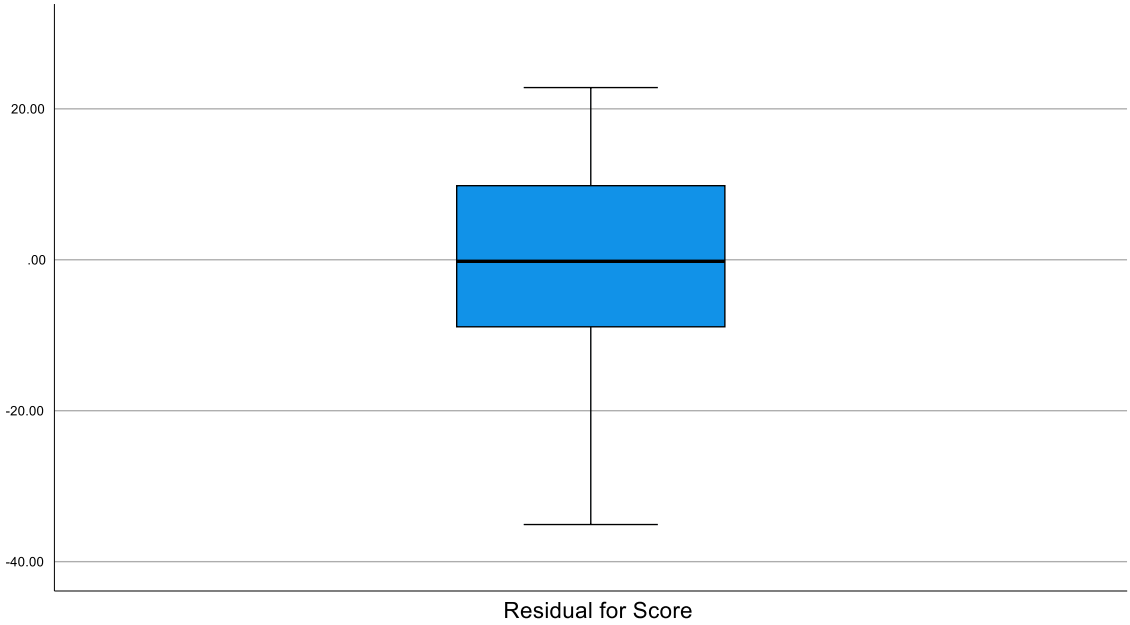
Third-Grade Students



Appendix E

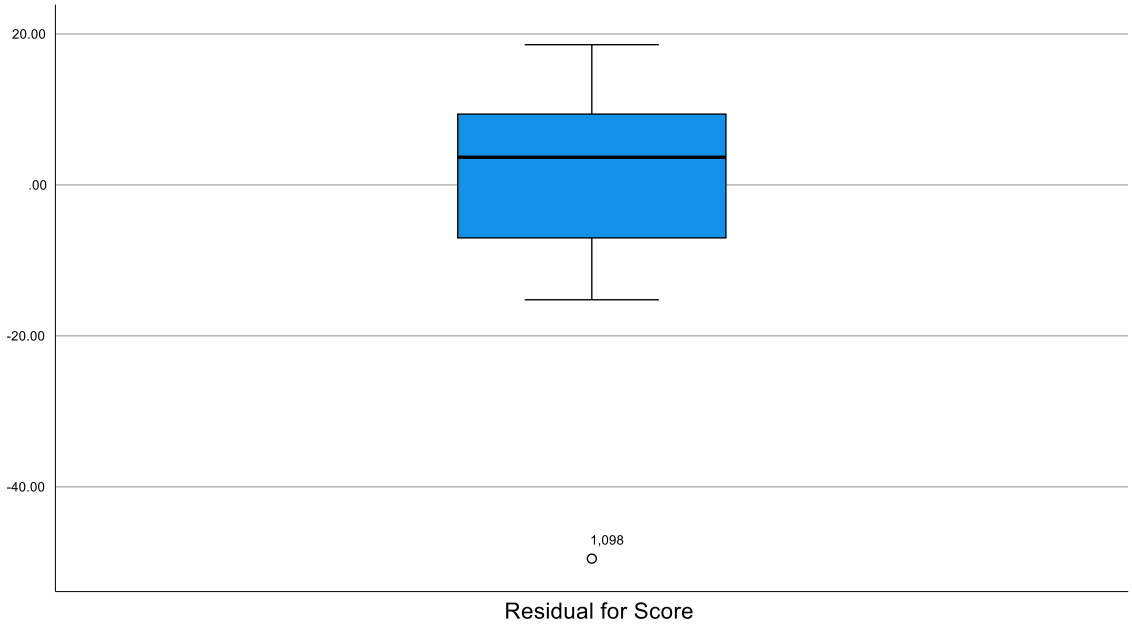
2017-2018 Boxplot of Outliers for Districts That Provided Training

Fourth-Grade Students



Appendix F

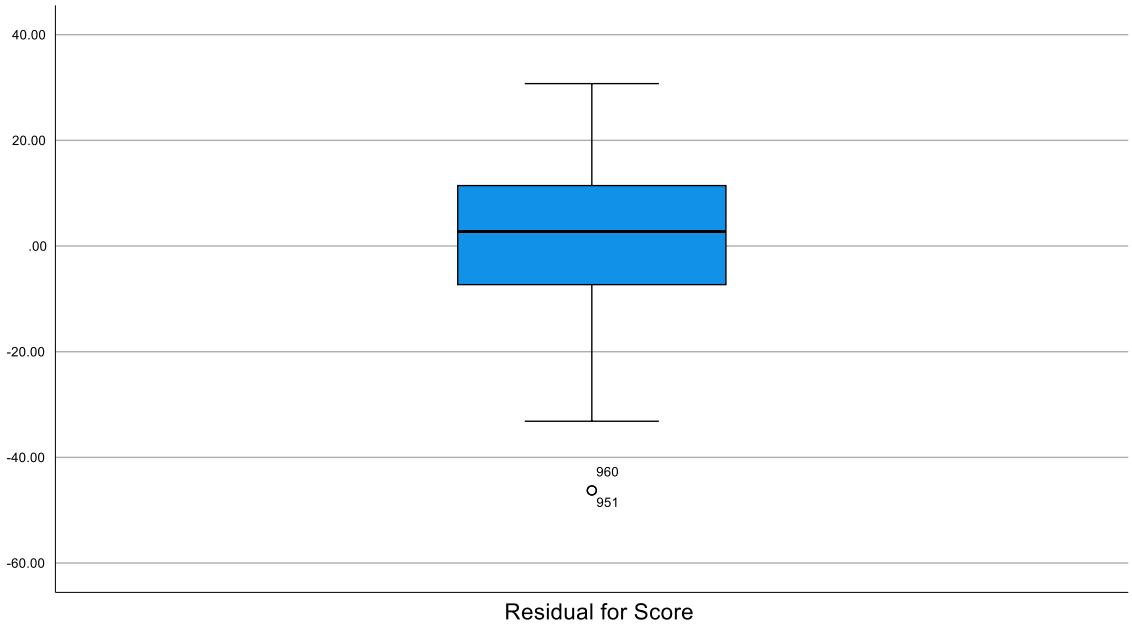
2017-2018 Boxplot of Outliers for Districts That Provided Training Fifth-Grade Students



Appendix G

2018-2019 Boxplot of Outliers for Districts With No Training Provided

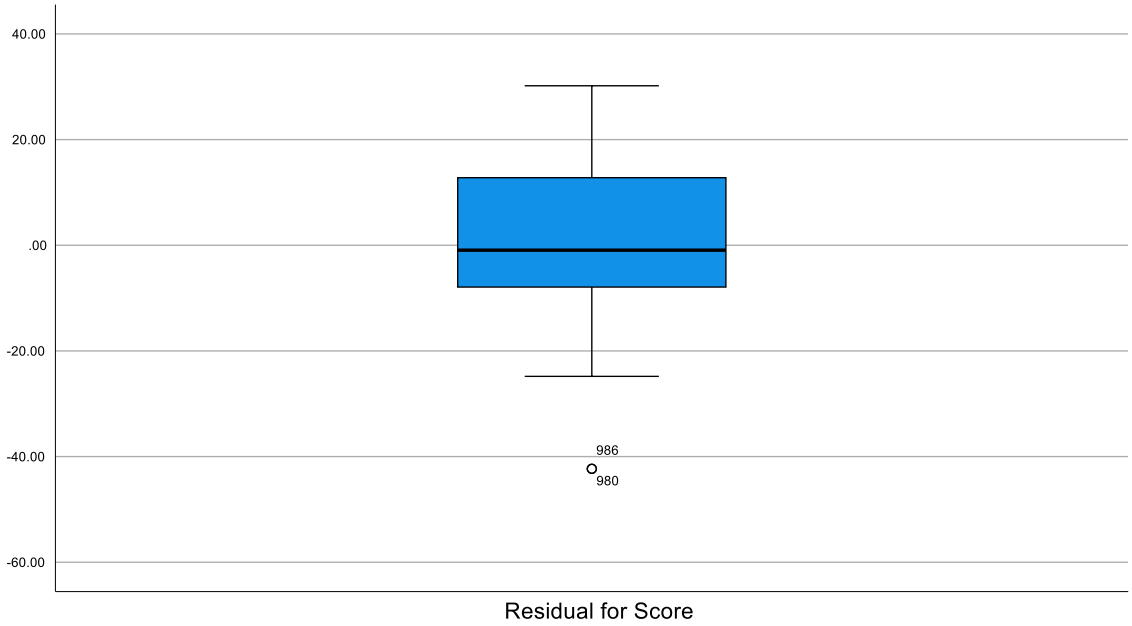
Third-Grade Students



Appendix H

2018-2019 Boxplot of Outliers for Districts With No Training Provided

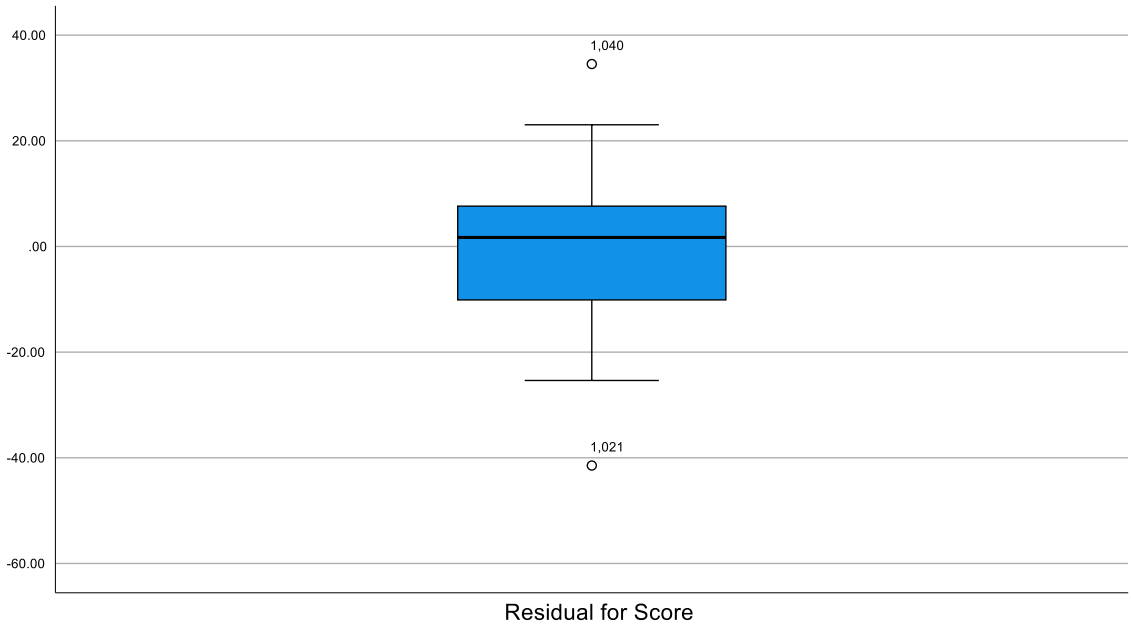
Fourth-Grade Students



Appendix I

2018-2019 Boxplot of Outliers for Districts With No Training Provided

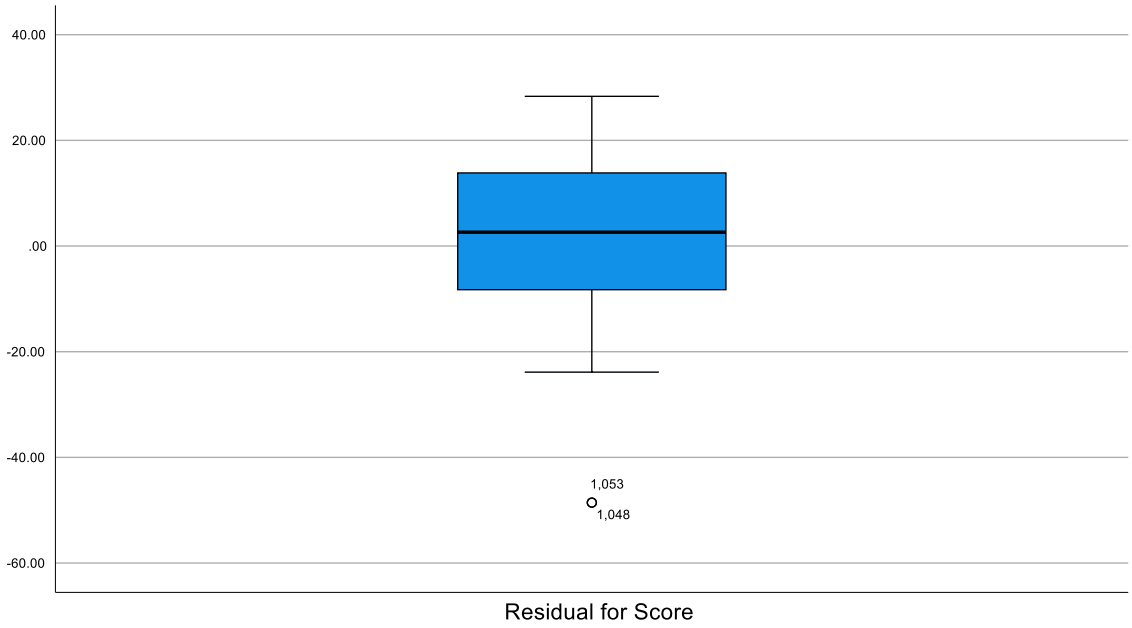
Fifth-Grade Students



Appendix J

2018-2019 Boxplot of Outliers for Districts That Provided Training

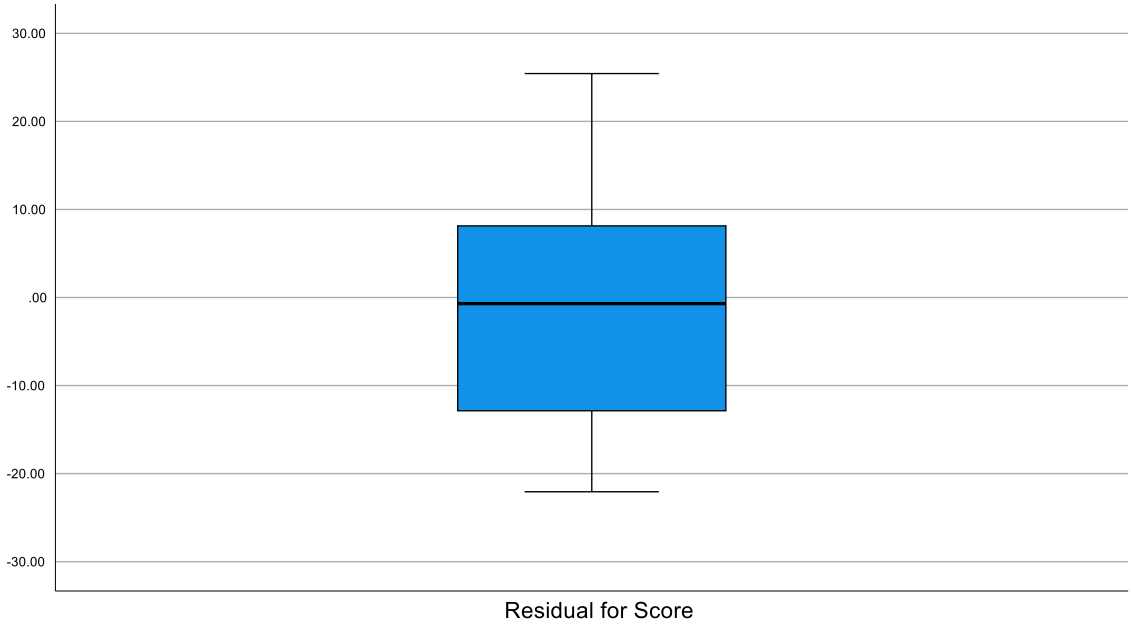
Third-Grade Students



Appendix K

2018-2019 Boxplot of Outliers for Districts That Provided Training

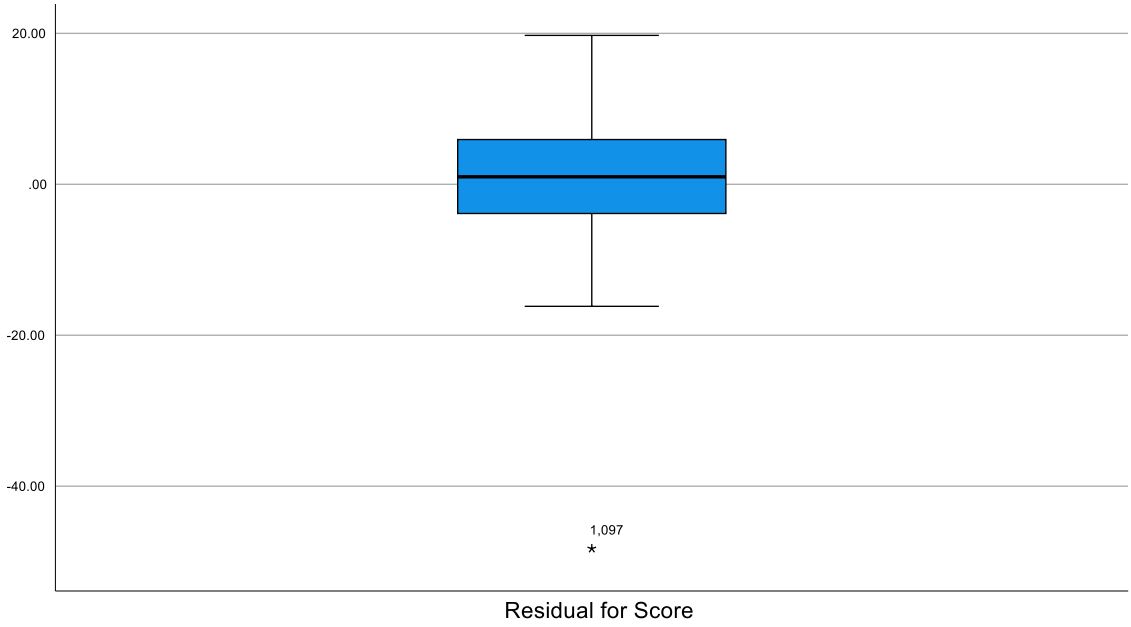
Fourth-Grade Students



Appendix L

2018-2019 Boxplot of Outliers for Districts That Provided Training

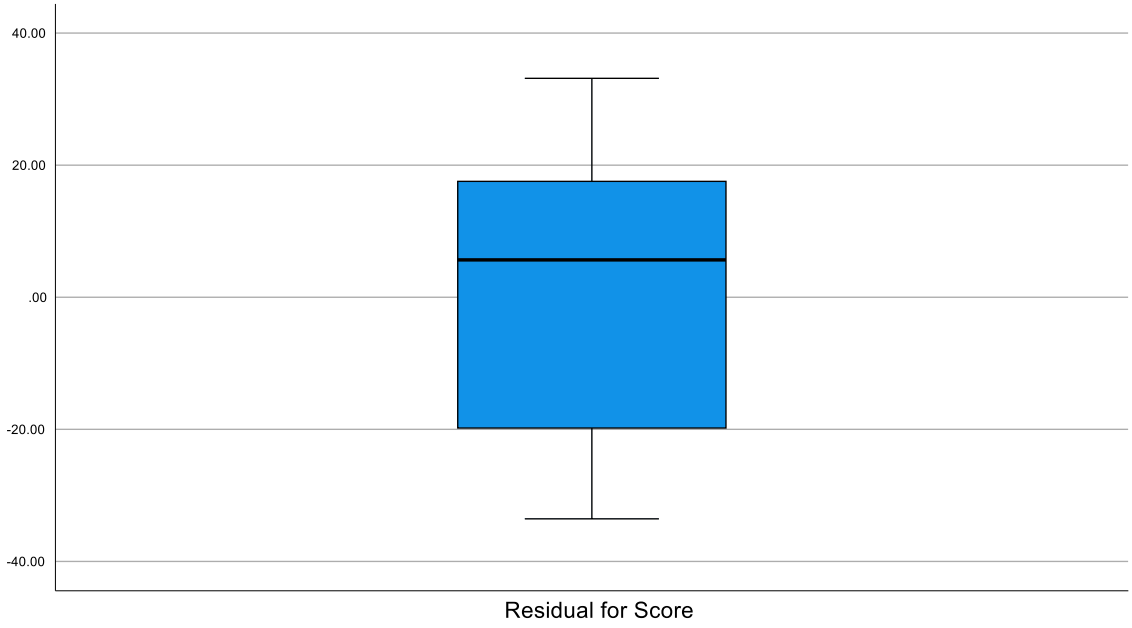
Fifth-Grade Students



Appendix M

2020-2021 Boxplot of Outliers for Districts With No Training Provided

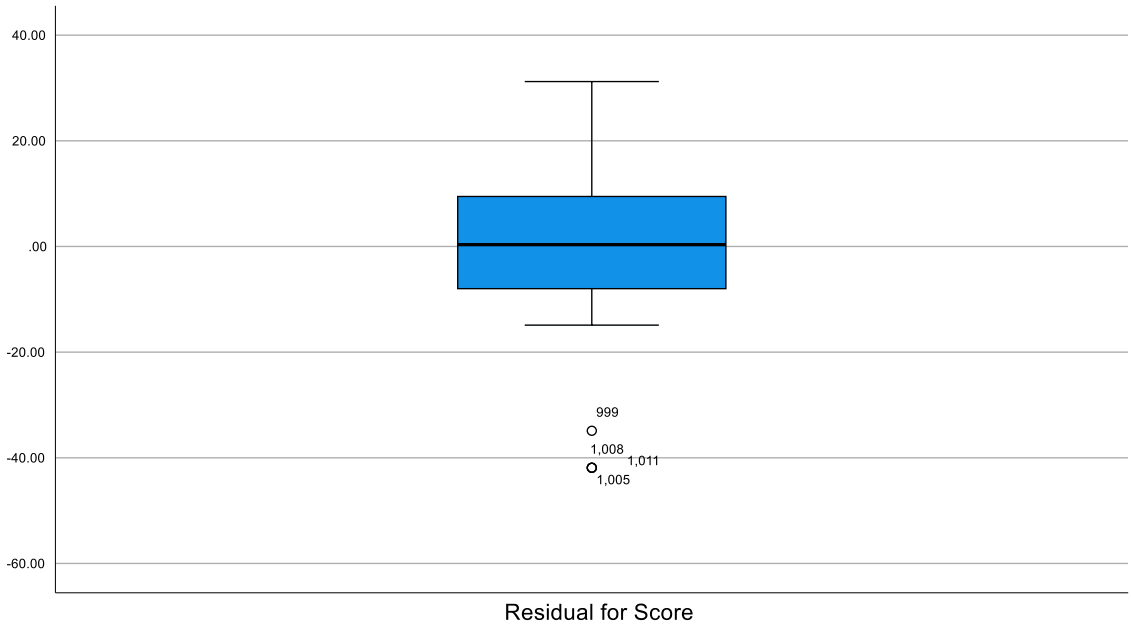
Third-Grade Students



Appendix N

2020-2021 Boxplot of Outliers for Districts With No Training Provided

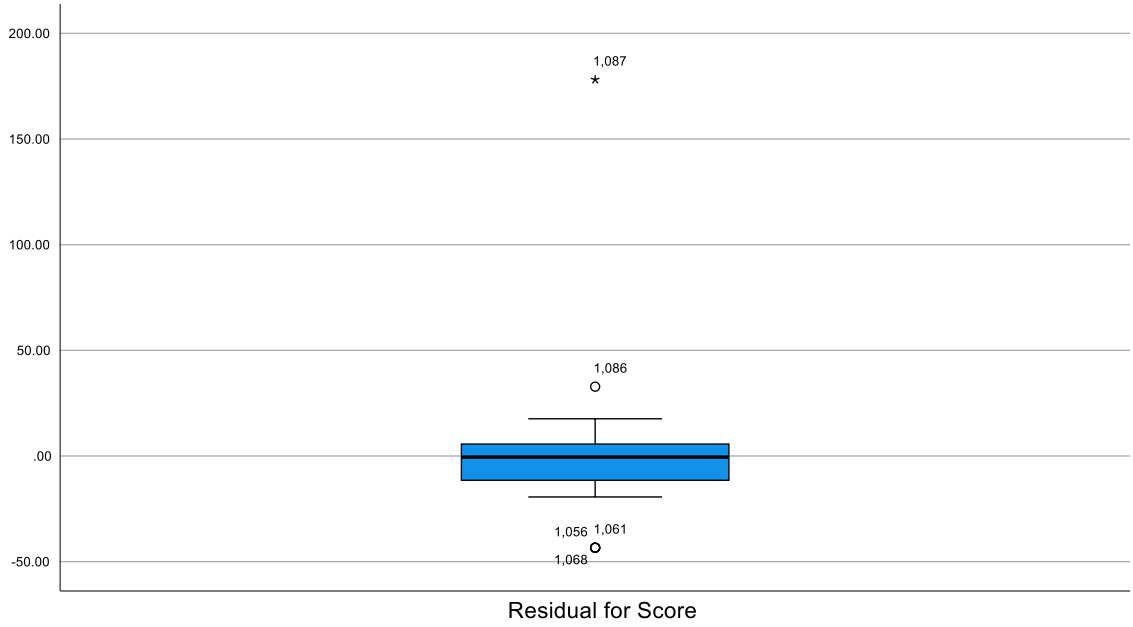
Fourth-Grade Students



Appendix O

2020-2021 Boxplot of Outliers for Districts With No Training Provided

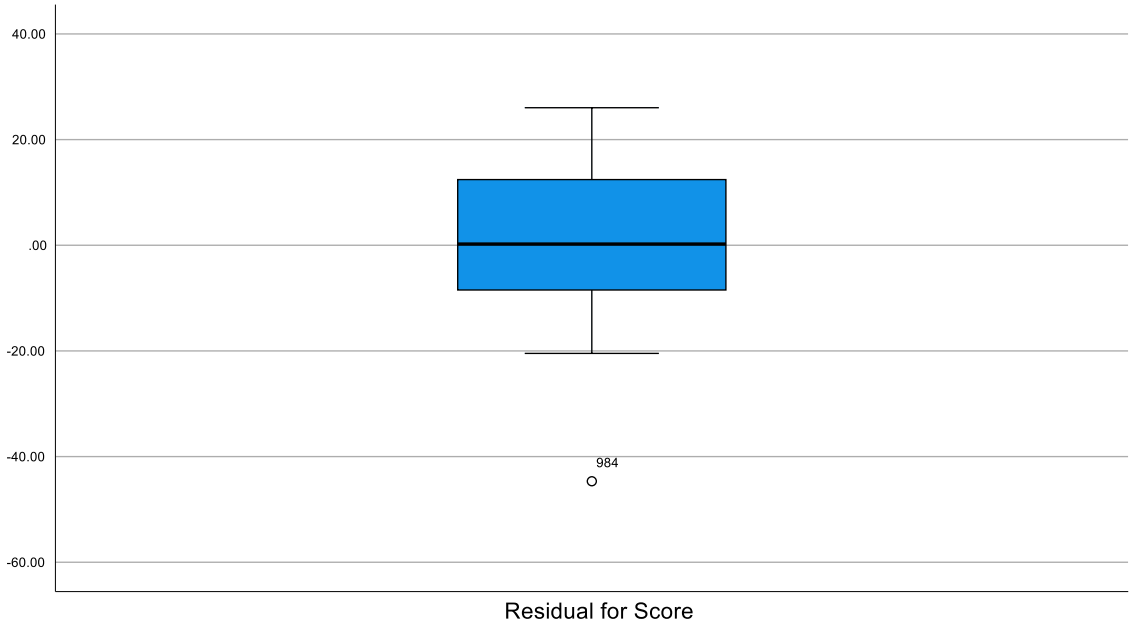
Fifth-Grade Students



Appendix P

2020-2021 Boxplot of Outliers for Districts That Provided Training

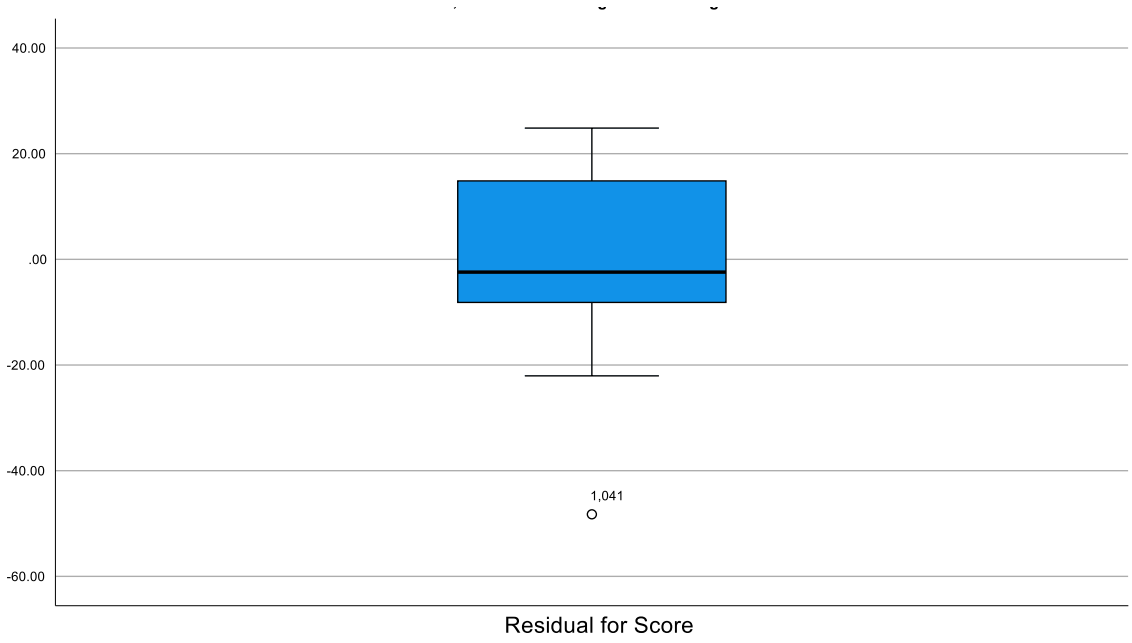
Third-Grade Students



Appendix Q

2020-2021 Boxplot of Outliers for Districts That Provided Training

Fourth-Grade Students



Appendix R

2020-2021 Boxplot of Outliers for Districts That Provided Training

Fifth-Grade Students