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Departmentalized Classroom Environments Versus Traditional Classroom Environments in Second Through Fourth Grades: A Quantitative Analysis

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by

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Dr. Sherry DeVore, Dissertation Chair — Date: Jan. 9, 2017

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

Since No Child Left Behind was introduced, kindergarten through 12th-grade educators have seen a dramatic increase in accountability, rigor of standards, and responsibilities in the classroom (New America Foundation, 2015). In order to meet the increased demands of federal education regulations in second through fourth grades, many administrators are looking for alternative methods to ensure student success (Gewertz, 2014). Departmentalization is one of the alternative methods being used (Jacobs, 2014). Educators believe departmentalization results in many benefits (Chan & Jarman, 2004); however, historical research has contradicted this view (American Association of School Administrators, 1965). With the demands of today's standards for education, the connection, if any, between student success and departmentalization must be determined. This study was designed to determine if there is a statistically significant difference in student success metrics between students in second through fourth grades in traditional classrooms versus students in departmentalized classrooms. In this study, student success metrics included raw scores on norm-referenced tests, percentile scores on norm-referenced tests, and grade-level averages on norm-referenced tests. These student success metrics are used in Arkansas to determine federal and state funding eligibility (New America Foundation, 2015). The statistical tests used in this study yielded inconsistent results as to a statistical difference between traditional classroom environments and departmentalized classroom environments in second through fourth grades. Factors other than classroom environment, such as teacher training, principal leadership, technology, and parent involvement, may have had an effect on student achievement (Buabeng-Andoh, 2012; Sebastian & Allensworth, 2012).

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Chapter One: Introduction

According to Coffee, Cox, Hillman, and Chan (2015), "American Education in the United States is presently at a crossroads with difficulties, challenges, and opportunity" (p. 7). This is partly because in the American education system, student success is defined by high-stakes test scores (New America Foundation, 2015). This has resulted in an increase in accountability for teachers at the elementary level, causing some schools to move toward departmentalizing classrooms (Gewertz, 2014).

The Every Student Succeeds Act (ESSA), the No Child Left Behind (NCLB) Act, Adequate Yearly Progress (AYP), the implementation of the Common Core State Standards (CCSS), and other government-mandated programs have required increased test scores of students (New America Foundation, 2015). These programs require students to perform on grade level, or to make yearly progress toward grade level, in order for the school to receive federal and state funding (New America Foundation, 2015). With the increase in demand for higher performance in terms of test scores, there has been a shift to departmentalization in lower grade levels (Coffee et al., 2015).

Along with these federally mandated programs, educators are facing many other challenges in the classroom (Thompson, 2015). Poverty occurs in the United States at a higher rate than any other civilized country (Biddle, 2014). The transient student population has created learning gaps teachers are expected to fill (Jacobson, 2013). Along with transiency, language barriers are often experienced in the elementary classroom (Collier & Thomas, 2012). One in five students in the American classroom are struggling with dyslexia (Dyslexia Center of Utah, 2016). Parental involvement is necessary for student success, but in many cases parents are not involved in the

educational process (Karbach, Gottschling, Spengler, Hegewald, & Spinath, 2013). Also, safety is an issue due to the elementary school shootings that have taken place (Kingshott & McKenzie, 2013). These factors have all increased the stress level of teachers, and administrators are implementing the departmentalized structure in order to retain teachers in the profession (Gewertz, 2014).

Departmentalization is a process where educational disciplines are divided among a group of teachers (Gewertz, 2014). This can range from two teachers sharing the responsibility of teaching the core subjects to each subject having its own teacher (Gewertz, 2014). Traditional classrooms are self-contained rooms in which one teacher is responsible for the instruction of all core subjects (Chan & Jarman, 2004). While historical research has indicated departmentalizing elementary and intermediate grades results in negative outcomes (American Association of School Administrators [AASA], 1965), the schools using departmentalized classrooms today are demonstrating success with this instructional environment (Gewertz, 2014). Data from this study were used to indicate if there is a statistically significant difference between the type of classroom environment, traditional or departmentalized, and student success.

The background of this study is addressed in Chapter One. The research questions and hypotheses which guided the research are outlined. The methodology and pedagogy relating to the study are reviewed and explained. Also, the process of data collection and analysis are described. The information in this chapter includes the research premise and processes used throughout the study.

Background of the Study

Departmentalization is the educational practice of dividing the duties of teaching different subjects among teachers for the same set of students (Gewertz, 2014). Historically, departmentalization has been implemented in middle and high schools (Strohl, Schmertzin, Schmertzin, & Hsiao, 2014). However, departmentalization has been tried at lower grades levels, but there have been negative results reported (AASA, 1965).

In the 1960s, the AASA (1965) conducted a study on departmentalization in elementary schools which included 400 school districts across the country. At this time many middle school grades were switching to departmentalized classrooms (Clark, Slate, Combs, & Moore, 2014). However, it was found departmentalization for elementary grades had a negative impact on student learning (AASA, 1965). Since this time, the traditional classroom environment, in which all core subjects are taught by one teacher, has been the classroom set-up used by the majority of American elementary schools (Strohl et al., 2014).

In recent years, NCLB and other government mandates have increased requirements for test scores, causing administrators to explore departmentalization as an alternative method for instruction (Gewertz, 2014). The NCLB Act was a federal mandate that regulated government funding for school districts (New America Foundation, 2015). In order for districts to receive national funding, all students had to score at the proficient level or each grade level had to meet AYP (New America Foundation, 2015). Therefore, test scores in each district were the main measure of student success (Berger, 2013).

With the increase in testing and accountability issues, teacher retention became more difficult (Chan & Jarman, 2004). The testing results required to generate federal funding were often categorized by teachers as unachievable (Hughs, 2012). This amplified the stress and workload of teachers who were trying to increase test scores, causing some teachers to leave the profession (Hughs, 2012). With teachers leaving the profession, providing highly qualified teachers for each classroom became increasingly difficult for administrators (Cox, 2016). Teacher retention was one reason administrators began implementing departmentalization in elementary classrooms as a means to reduce stress and keep teachers in the profession (Gewertz, 2014).

To gain further information regarding the trend of departmentalization, it was necessary to determine if there was a statistically significant difference between student test scores in departmentalized classroom environments versus student test scores in traditional classroom environments. While the ESSA was signed in December of 2015, it did not take effect until the 2016-2017 school year (United States Department of Education, 2016). Thus, the mandates from NCLB were used regarding the information in this study (New America Foundation, 2015).

Through educational professional development, the researcher learned that of three school districts in one county of northwest Arkansas, the classroom environments were as follows: School District One had traditional classrooms in second through fourth grades; School District Two had traditional classrooms in second grade and departmentalized classrooms in third and fourth grades; and School District Three had departmentalized classrooms in second through fourth grades. This information was confirmed through conversations with administrators at each of these three districts

(D. Chaney, personal communication, September 14, 2015; L. Geren, personal communication, September 14, 2015; D. Kesner, personal communication, September 14, 2015). These three school districts were similar in size of student population, the number of students who qualified for free and reduced price meals, and the number of limited English speaking students (Arkansas Department of Education, 2016). Therefore, this study was focused on these three schools in northwest Arkansas.

Theoretical Framework

The theoretical framework that guided this study was Jerome Bruner's constructivist theory. This theory was appropriate for this study, because departmentalization is an educational practice that changes the learning environment for students (Gewertz, 2014). The constructivist theory is an instructional approach in which the learning environment created by the teacher is conducive to each student creating his or her own learning (Jonassen & Land, 2012). There are three types of constructivism: social constructivism, sociocultural constructivism, and information processing constructivism (McInerny, 2014).

Social constructivism is a branch of the constructivist theory that focuses on how children learn through relationships (McInerny, 2014). Social constructivism is tied to Lev Vygotsky's work on the social impacts of children (Costly, 2012). Vygotsky's social development theory focuses on how young children are impacted by experiences with others (McLeod, 2014). Through these experiences children learn appropriate responses to social situations and develop language (Costly, 2012).

Sociocultural constructivism is the study of children in larger cultural groups (McInerny, 2014). The goal of instruction through sociocultural constructivism is for

children to learn appropriate behavior and social responses through interaction within groups (Fosnot, 2013). These groups can include church groups, extended family, and peers of the same socioeconomic and cultural background (McInerny, 2014). Children in these groups learn cultural norms and historic responses from others of the same background (DeValenzuela, 2014).

Lawrence Kohlberg's theory of moral development supports the premise of sociocultural constructivism (Gibbs, 2013). Kohlberg determined moral development happens in three stages: pre-conventional morality, conventional morality, and post-conventional morality (McLeod, 2013). The pre-conventional stage of morality mirrors sociocultural constructivism, because this stage of moral development is learned from parents and cultural groups the child interacts with from a young age (McLeod, 2013). Kohlberg found when asking young children to answer questions which required moral reasoning, the children responded in ways that agreed with the moral character of influencing adults including parents, family members, and close community members (Gibbs, 2013).

Information processing constructivism is a theory that emphasizes student ownership of creating learning (Singh & Rajput, 2013). Information processing constructivism is a practice in which students identify and take responsibility for their own learning (McInerny, 2014). To create learning, students must combine knowledge from past experiences, ideas, and new activities (Singh & Rajput, 2013). Educators can accomplish information processing constructivism through student-centered activities and by allowing students to choose activities and explore ideas in a classroom setting (Onyon, 2012).

Student learning environments have been studied by many researchers and theorists (Jonassen & Land, 2012). Dr. Maria Montessori developed a method in which young students create learning by participating in free-choice and free-play activities (American Montessori Society [AMS], 2016). During free-play activities, the teacher influences learning by guiding students with questioning (Isaacs, 2015). In the Montessori environment, students are diverse in age, which provides opportunities for younger students to learn from interaction with older students (AMS, 2016). Also, learning materials must be placed in purposeful areas around the classroom because the Montessori Method emphasizes not only the social environment of students, but also the physical environment of learners (Isaacs, 2015).

Other researchers who studied the learning environment of children include Piaget and Inhelder (2000). Piaget and Inhelder (2000) conducted extensive research on the cognitive development of young children. In the theory of cognitive development, it was shown young children need hands-on activities to learn through an exploratory learning environment (Piaget & Inhelder, 2000). These opportunities for students to create their own learning while socially interacting with other children help students develop both academically and socially (Piaget & Inhelder, 2000). Although there are differences in the beliefs of Piaget and Montessori theorists, both theories contain the constructivist ideal that environmental influences impact student learning and development (Jonassen & Land, 2012).

John Dewey also did extensive work relating to the constructivist theory (Fosnot, 2013). Dewey stated in order for students to create learning, exploration through sensory activities must be present (as cited in Fosnot, 2013). The inquiry-based nature of a

constructivist classroom provides the opportunity for students to actively engage in hands-on activities to create learning (Moon, 2016).

Statement of the Problem

Since NCLB was introduced, kindergarten through 12th-grade educators have seen a dramatic increase in accountability, rigor of standards, and responsibilities in the classroom (New America Foundation, 2015). Districts must accomplish these changes in order to receive federal and state funding (New America Foundation, 2015). However, meeting the increased demands of the federal education regulations in second through fourth grades has become troublesome for many districts, which has caused many administrators to look for alternative instructional methods, such as departmentalization, to ensure student success (Mongeau, 2014).

Also, administrators are facing other issues impacting the educational field (Gewertz, 2014). Many of these factors deal with retaining teachers in the profession (Cox, 2016). Educators have cited stress and workload as reasons for leaving teaching (Hughs, 2012). Along with other factors, one of the main reasons teachers are leaving the profession is testing (Hughs, 2012). Many educators feel the unachievable results on high-stakes testing that determine the success of instructional practices are unfair and unnecessary (Hughs, 2012). Administrators find with teachers leaving the profession, alternative methods of instruction should be implemented to reduce stress and retain highly qualified teachers (Gewertz, 2014).

Departmentalization is one of the alternative methods being used to retain teachers (Jacobs, 2014). Educators have expressed departmentalization of classrooms has many benefits which include specialization of subject areas by teachers, working with

instructional teams, and retention of effective teachers (Chan & Jarman, 2004). However, the negative aspects of departmentalization at an early age include the following: lessening the social connection between students and teachers, integration of subjects resulting in units of study being decreased or not taught, the changing of classrooms being stressful to young children, and teachers losing instructional time due to the amount of time spent transitioning from classroom to classroom (Liu, 2011). While there are both positive and negative impacts of departmentalization, many districts are deeming it appropriate at this time to introduce this classroom environment at a younger age (Gewertz, 2014).

With historical research indicating departmentalization is more appropriate for students in middle school and high school and with negative social and emotional impacts for students being cited, this created an area of research for education (AASA, 1965; Liu, 2011). With the demands of today's standards for education and the introduction of departmentalization in many school districts, a statistically significant impact between departmentalization and student success must be shown using student success metrics (Polesel, Dulfer, & Turnbull, 2012).

Purpose of the Study

The purpose of this study was to compare success of students in departmentalized classrooms with success of students in a traditional classroom environment in grades two through four. Data from standardized tests from 2011-2015 were used. This information was used to determine if there is a statistically significant difference in student success metrics between students in second through fourth grades in traditional classrooms versus students in departmentalized classrooms.

In this study, student success metrics included raw scores on norm-referenced tests, percentile scores on norm-referenced tests, and grade-level averages on norm-referenced tests. These student success metrics were used because these are the metrics used in school districts to determine federal and state funding eligibility (Das et al., 2013). Therefore, these statistics were used to define student success for Arkansas (Das et al., 2013).

With the demands of educational standards, a statistically significant impact between departmentalization and student success must be shown using student success metrics (New America Foundation, 2015). It is hoped school district administrators will use the information from this study to determine the type of learning environment to implement in elementary classrooms. Also, a goal of this study was to determine if a means to retain teachers in the field of education could be used to increase student success on metrics used by the government to fund school districts.

Research questions and hypotheses. The following research questions guided the study:

1. What is the statistically significant difference, if any, between raw test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom setting versus students in a departmentalized classroom setting?

$H1_{0:}$ There is no significant statistical difference between raw test scores on norm-referenced tests of second through fourth grade students taught in traditional classrooms versus students taught in departmentalized classrooms.

$H1_{a:}$ There is a significant statistical difference between raw test scores on norm-referenced tests of second through fourth grade students taught in traditional classrooms versus students taught in departmentalized classrooms.

2. What is the statistically significant difference, if any, between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

$H2_{0:}$ There is no significant statistical difference between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

$H2_{a:}$ There is a significant statistical difference between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

3. What is the statistically significant difference, if any, between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

$H3_{0:}$ There is no significant statistical difference between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

$H3_{a:}$ There is a significant statistical difference between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Adequate yearly progress (AYP). Adequate yearly progress (AYP) is the rate of increase a district moves toward the goal of all students performing on grade level each year (New America Foundation, 2015).

Common Core State Standards (CCSS). The Common Core State Standards (CCSS) are an educational push from the federal government to have a uniform set of standards across all of the United States (Common Core State Standards Initiative [CCSS Initiative], 2015).

Constructivism. Constructivism is an instructional theory focused on how teachers create learning through the type of environment provided to students (Jonassen & Land, 2012).

Core subjects. Core subjects include literacy, math, science, and social studies (Chan & Jarman, 2004).

Departmentalization. Departmentalization is an educational setting in which a teacher is responsible for teaching in his or her area of expertise or specialization (Gewertz, 2014). In this setting, students rotate classrooms to receive instruction in all areas; or in some instances, the teachers rotate to give students instruction (Chan & Jarman, 2004).

Differentiated instruction. Differentiated instruction is an educational trend in which educators teach students in small groups or individually using targeted instruction on each student's academic level (Tobin & Tippett, 2014).

Every Student Succeeds Act (ESSA). The Every Student Succeeds Act (ESSA) is the eighth restructuring of the Elementary and Secondary Education Act of 1965 that uses state test scores as a means to show student growth to determine amounts of federal funds distributed to school districts (United States Department of Education, 2016).

Federal mandates. Federal mandates are federal regulations, such as NCLB and the ESSA, that school districts must adhere to in order to receive federal funding and accreditation (New America Foundation, 2015).

Flexible seating. Flexible seating is an educational environment in which students are not assigned to a specific area or desk in the classroom (Miller, 2015).

Flipped classroom. A flipped classroom is a type of instruction in which the traditional roles of lecture and homework are reversed (DeLozier & Rhodes, 2016).

Free play. Free play is an educational movement in which students are allowed extended periods of unstructured activity to foster social development and learning through natural inquiry (Chudacoff, 2013).

Growth assessment. Growth assessment involves high-stakes assessments given throughout the year designed to show academic growth, rather than a single high-stakes test given at the end of a school year (Hull, 2007).

High-stakes testing. High-stakes testing includes assessments used by a school's administration to make significant decisions about a student, such as graduation, grade-level retention, or grade-level advancement (Polesel et al., 2012).

Holistic learning. Holistic learning is an educational trend in which students learn through authentic life experiences and in which subjects are not taught separately (Kolb, 2014).

Information processing constructivism. Information processing constructivism is a branch of constructivism focused on the application of social and sociocultural learning (McInerny, 2014).

Integration of subjects. Integration of subjects is an educational practice in which subjects and standards are taught together and relate to a central idea or theme (Liu, 2011).

Moral development theory. Moral development theory is the theory of how individuals learn and create a personal moral code of conduct that connects to the sociocultural constructivist branch of constructivism (Gibbs, 2013).

No Child Left Behind (NCLB). No Child Left Behind (NCLB) is the seventh reauthorization of the Elementary and Secondary Education Act of 1965 that used student test scores and student growth as a means of determining the distribution of federal funds (New America Foundation, 2015).

One-to-one classrooms. One-to-one classrooms are those in which every student has a technological device to use for research and educational purposes (Rhor, 2014).

Percentile scores. Percentile scores are scores out of 100 on an assessment that rank students in comparison to other students who participated in the same assessment (Logsdon, 2014).

Project-based learning. Project-based learning is an instructional strategy in which students participate in individual and group inquiry-based projects to foster academic development (Walker, Leary, Hmelo-Siver, & Ertmer, 2015).

Raw test scores. Raw test scores are the number of points a student earns on an assessment (Kowalczyk, 2015).

Response to intervention (RTI). Response to intervention (RTI) is an educational program that includes implementation of instructional interventions for struggling students before failure is recorded (Grosche & Volpe, 2013).

Science, technology, engineering, and mathematics (STEM). Science, technology, engineering, and mathematics (STEM) instruction is a trend in American education in which the integration of science, technology, engineering, and mathematics is emphasized (Ward, 2015).

Social constructivism. Social constructivism is a branch of constructivism focused on student learning during social interaction (Chopra, Thapliyal, & Bisht, 2012).

Sociocultural constructivism. Sociocultural constructivism is a branch of constructivism focused on the relationship between student learning and sociocultural groups, such as family and close community groups (McInerny, 2014).

Specialization. Specialization is the process in which a teacher becomes an expert in an educational area (Chan & Jarman, 2004).

Standardized test. A standardized test is an assessment given to a wide population and administered and scored in a consistent manner (Segool, Carlson, Goforth, Von Der Embse, & Barterian, 2013).

Student success metrics. Student success metrics include raw test scores, national percentile rankings, and grade-level averages on high-stakes testing (Polesel et al, 2012).

Subject integration. Subject integration is the educational practice of combining subjects together to form units of study (Steele & Ashworth, 2013).

Teacher retention. Teacher retention is the study of factors influencing whether or not teachers stay in the profession (Cox, 2016).

Traditional classroom. A traditional classroom is an educational environment in which students receive instruction in all core areas (literacy, math, science, and social studies) from one teacher in one classroom (Chan & Jarman, 2004).

Limitations and Assumptions

The following limitations were identified in this study:

Sample demographics. Two aspects of the sample demographics posed potential limitations for this study. This study was conducted using a sampling of three schools in northwest Arkansas. To make a generalization for all American students, this study would need to be replicated in other parts of the United States (Ercikan & Rath, 2014). Additionally, this study was conducted using the scores of students who participated in mandated testing. Arkansas only requires 95% of students attending school in the districts be tested (Arkansas Department of Education, 2016). Therefore, there is a chance 5% of students in these school districts were not represented in the data.

The following assumptions were accepted:

1. The school districts in the study met all requirements for testing students.
2. The Arkansas Department of Education released all testing information reported from the school districts within the study.
3. All information pertaining to the demographics of the educational environment was obtained through the Arkansas Department of Education public website.

Summary

This study was conducted to determine if student success was impacted by departmentalization of classrooms. Departmentalization is an instructional practice some districts are implementing to meet educational regulation requirements for student learning (Gewertz, 2014). Because departmentalization impacts the student learning environment (Chan & Jarman, 2004), constructivism is the theoretical framework that was applied to this study (Jonassen & Land, 2012).

The student success metrics used included raw test scores, percentile test scores, and grade-level averages. These data were collected from a publically available website. The information gathered in this study was used to determine the positive and negative impacts of departmentalization versus those of the traditional classroom.

In Chapter Two, a review of literature is presented. The theoretical framework and theorists impacting this study are explained. A timeline for the American education system is shared, and the history of departmentalization is discussed. The types of classrooms in education today are discussed, and trends in American education are outlined. Issues facing students and educators in elementary education are overviewed.

Chapter Two: Review of Literature

Student success is the goal of education (New America Foundation, 2015). School districts are evaluated and funded based on high-stakes test scores as the metric of student success (Polesel et al., 2012). According to NCLB, state governments use test scores to fund schools in two ways: all students are required to perform at a proficient level on state tests, or the school districts must meet AYP standards set by the states to show growth toward proficiency (New America Foundation, 2015). With school funding hinged on the success of students on high-stakes testing, administrators are implementing alternative education methods, such as departmentalization, to meet state-mandated regulations (Gewertz, 2014). However, historical research done by the AASA (1965) showed departmentalization of elementary classrooms has negative impacts on young children.

The literature reviewed in Chapter Two reveals the history of American education. Included is a brief summary of the major movements, and the current state of American education is reviewed. The major laws and mandates regarding education are summarized, along with issues in American education. Information regarding educational law is used to illustrate what has led to the implementation of departmentalized classrooms, despite historical research indicating adverse effects on elementary students (AASA, 1965).

Theoretical Framework

Many educational theorists throughout history have emphasized the importance of the educational environment of children (Corno & Anderson, 2016). Jerome Bruner developed the constructivist theory in which he emphasized the importance of each

student creating his or her own learning through environmental opportunities guided by the teacher (Jonassen & Land, 2012). This theory is rooted in the idea students are continually creating learning through experiences and the environment in which they live, learn, and play (Singh & Rajput, 2013).

Educators implement the constructivist theory to deepen the level of understanding for students (Headly & Parris, 2015). The hands-on, exploratory nature of the constructivist model allows for students to gain knowledge through relevant and meaningful activities (Jonassen & Land, 2012). The students are allowed to create their own learning by making decisions, observing others, and participating in conversations (Singh & Rajput, 2013).

The constructivist theory contains three branches which include social constructivism, sociocultural constructivism, and information processing constructivism (McInerny, 2014). Each branch of constructivism is related to different types of environments in which children learn including school, home, community, and social groups (McInerny, 2014). Relative to each of the three types of constructivism, Bruner sought to explain how environment directly impacts student learning (Jonassen & Land, 2012).

The social aspects of the constructivist theory were based on the works of Lev Vygotsky (Costly, 2012). Vygotsky studied the cognitive development of children, specifically social implications related to learning (Costly, 2012). It was found children need times of social interaction to learn problem solving skills, socially acceptable behavior, and language skills (Zain, Rasidi, & Abidin, 2012). The social constructivist

theory allows for times of social interaction during learning activities (Chopra et al., 2012).

Sociocultural constructivism is used to describe the relationship between student learning and sociocultural groups (McInerny, 2014). Children are impacted by groups in their environment including family, church, and others of the same socioeconomic status (McInerny, 2014). These groups impact the way students respond to social situations through learned behavior impacted by sociocultural influences (Fosnot, 2013). Educators can understand how students act or react in educational situations by observing the cultural or socioeconomic groups who have provided cultural norms for students (DeValenzuela, 2014).

Sociocultural constructivism is also supported by Lawrence Kohlberg's theory of moral development (Gibbs, 2013). Kohlberg conducted extensive studies on the development of an individual's moral outlook (McLeod, 2013). The three stages of moral development Kohlberg found include pre-conventional morality, conventional morality, and post-conventional morality (McLeod, 2013). In the pre-conventional stage of morality, Kohlberg found moral choices, decisions, and outlooks are greatly influenced by the sociocultural groups a child is around (Gibbs, 2013). The sociocultural branch of constructivism and the theory of moral development both indicate young children are influenced by and learn from individuals such as parents and community members (McInerny, 2013; McLeod, 2013).

Information processing constructivism is the third branch of the constructivist theory (Singh & Rajput, 2013). Information processing constructivism is the process of combining social and sociocultural learning and applying it to life situations (McInerny,

2014). This creates the opportunity for students to become responsible for learning (Singh & Rajput, 2013). Educators can provide an environment that leads students to use information processing constructivism by creating student-centered, exploratory activities in the classroom (Onyon, 2012). One instructional method based on this theory is the Montessori Method (AMS, 2016).

Dr. Maria Montessori created the Montessori Method in which classrooms are set up for children to have access to all materials and manipulatives (AMS, 2016). Students of varying age are placed together to provide a social learning experience (AMS, 2016). In a Montessori school, children are expected to learn through free-choice and free-play experiences with guidance from the teacher (Isaacs, 2015). Montessori's work is based on creating an environment in which each student creates his or her own learning through social situations and exploratory activities (Isaacs, 2015).

There are five stages of implementation of constructivism in the classroom: engagement, exploration, explanation, elaboration, and evaluation (Singh & Rajput, 2013). These five stages are dependent on the classroom environment (Jonassen & Land, 2012). The educator must facilitate the environment in which students create learning through guided exploration (Singh & Rajput, 2013). This idea is echoed in the work of Jean Piaget (Piaget & Inhelder, 2000).

Piaget and Inhelder's (2000) theory of cognitive development emphasizes the importance of the environment in which students learn. Piaget and Inhelder (2000) stated the learning environment of children should be enriched through visual cues displayed throughout the classroom and through numerous hands-on activities for children to explore and create learning on their own. The ideal classroom environment provides

students with the opportunity to explore and work together in order to learn socially acceptable responses to situations, along with demonstrating academic growth (Piaget & Inhelder, 2000).

John Dewey's work also relates to the constructivist theory (Fosnot, 2013). Dewey (2013) concluded inquiry and exploration through sensory activities creates lasting learning for students. Inquiry-based instruction provides students with the opportunity to use all senses to learn (Dewey, 2013). The inquiry process allows students to think actively, creating a foundation for learning (Moon, 2016).

With the importance of environment emphasized in various theories throughout history, it is important to study the learning environment of students today (Corno & Anderson, 2016). The increase in rigorous standards and accountability through testing mandates has changed the learning environment of students (Plank & Condliffe, 2013). According to NCLB, all students are expected to perform on grade level on high-stakes tests (New America Foundation, 2015). This has increased the amount of time young students spend practicing test skills, rather than on exploratory learning (Dee & Jacob, 2011).

History of American Education

Timeline of American education. American education began with the majority of children taught to read and write in the home (Kaestle, 1983). In colonial towns, policymakers passed laws requiring children to be educated either in the home or a school provided by the town (Gutek, 2013). However, these laws were loosely enforced, and the education of children was mostly left to families and towns to facilitate (Kaestle, 1983).

This resulted in unequal, and sometimes nonexistent, education for American children (Gutek, 2013).

This led to a time of educational reform in which Thomas Jefferson proposed a three-tiered academic system for Virginia in 1779 (Smith, 2012). This educational system contained elementary schools that could be attended for free, regional academies that aided selected boys in need, and attendance at William and Mary college for the top 10 boys in need (Kaestle, 1983). Jefferson's proposal did not receive legislative support (Smith, 2012); however, his ideas aided in the formation of free elementary schools in 1870 (Kaestle, 1983).

One-room school houses became widely used in the 1800s (Church, 2015). In the one-room schoolhouse, one teacher taught all grades at the same time (Zimmerman, 2014). Children moved through curriculum at their own pace and stopped attending school when they felt enough had been learned (Church, 2015). Generally students would stop attending school by eighth grade (Zimmerman, 2014). Often children were absent or left school altogether when needed to work on family farms (Zimmerman, 2014). This type of school system in which students chose when to leave also resulted in unequal education of students across the United States (Kaestle, 1983).

After the Civil War, high schools became more prevalent around the country (Gutek, 2013). In 1896, the Supreme court ruled in *Plessy v. Ferguson* that laws requiring schools to be segregated by race were constitutional as long as the schools were equal (Davis, 2012). However, in 1954 in *Brown v. Board of Education*, the Supreme Court ruled segregating students according to race was unconstitutional (Gates, 2014).

This led to the current American educational system in which schools are integrated and diverse (Gates, 2014).

History of departmentalization. When high school education became common for students in post-Civil War America, the departmentalized classroom structure became more widely used (Gutek, 2013). This type of departmentalization, in which students switch classrooms and teachers for each subject, is the most widely used type of classroom environment for middle schools and high schools today (Strohl et al., 2014). While this type of departmentalization is generally used, there are different types of departmentalization (Gewertz, 2014). Other types of departmentalization include classroom environments in which two teachers divide subjects to be taught and classroom environments in which the teachers change classrooms, rather than the students (Gewertz, 2014).

Throughout the history of American education, there have been periods of time in which administrators experimented with departmentalizing classrooms for students at younger grade levels (Clark et al., 2014). In 1965, the AASA conducted a study of more than 400 school districts to determine the utilization and effectiveness of departmentalization in elementary school grades one through eight. The AASA (1965) concluded only 97 districts participating in the study had attempted to departmentalize at the elementary level, and only 12 of the 97 districts that used departmentalized classrooms stated all grade levels were departmentalized; the remaining 85 school districts using departmentalization only departmentalized classrooms in the upper elementary grades seven and eight (AASA, 1965). Many administrators surveyed in this study shared concerns with departmentalizing classrooms lower than sixth grade due to

academic decline of students caused by the lessening of student and teacher relationships (AASA, 1965).

No Child Left Behind. No Child Left Behind was a restructuring of the Elementary and Secondary Education Act of 1965 (New America Foundation, 2015). This act, and the subsequent restructurings of the act, set standards for American education and accountability procedures for the standards (Ballantine & Spade, 2014). It was used to determine how federal and state funds were distributed to school districts (New America Foundation, 2015). The NCLB Act was used by states to determine student success during this study (Das et al., 2013).

Testing was a key component of NCLB (Ballantine & Spade, 2014). No Child Left Behind required students in grades three through eight to be tested in reading and math annually (New America Foundation, 2015). Students in grades 10 through 12 were tested in reading and math once; further, students in grades three through five, six through eight, and 10 through 12 were tested in science once (New America Foundation, 2015). It was the opinion of many the amount of testing in American schools was hurting education by changing the way educators were teaching students (Berger, 2013). However, the Bill and Melinda Gates Foundation credited NCLB and its testing requirements for backwards-design planning, student remediation, and implementation of research-based instruction strategies (GreatSchools, 2015).

The Current State of American Education

Every Student Succeeds Act (ESSA). The ESSA act is the eighth restructuring of the Elementary and Secondary Education Act of 1965 (United States Department of Education, 2016). Testing is still a main component of the ESSA (Korte, 2015).

Students are still tested in the same grades and areas as required by NCLB: students in grades three through eight are to be tested in reading and math annually; students in grades 10 through 12 are to be tested in reading and math once; and students in grades three through five, six through eight, and 10 through 12 are tested in science once (Kline, 2015). However, the ESSA allows the states some minimal flexibility in when tests are administered throughout the year (Korte, 2015).

The federal government uses information from high-stakes testing results to determine the distribution of funds to school districts (United States Department of Education, 2016). Student growth and student progress on high-stakes state tests are key factors of the ESSA (United States Department of Education, 2016). Even though this is the most recent restructuring of the Elementary and Secondary Act of 1965 (United States Department of Education, 2016), the most recent test scores available, which were used in this study, were analyzed under NCLB regulations (New America Foundation, 2015).

Common Core State Standards. In the 1990s and the early 2000s, American governmental leaders began to notice a decline in American test scores when compared to test scores of other countries, and the number of students who entered college at a level not appropriate for collegiate-level classes was increasing (National Governors Association Center for Best Practices [NGA Center], 2015). One of the biggest issues with American education was each individual state had its own set of academic standards (NGA Center, 2015). If a student moved across state lines during his or her educational career, he or she would often fall behind because of differences in academic expectations (NGA Center, 2015).

Another issue with American education was collegiate readiness (National Conference of State Legislators [NCSL], 2015). It was found when students entered college as freshmen, they were unprepared for the level of educational reading associated with college (NCSL, 2015). Therefore, in 2007, state officials began working on the CCSS in order to create consistency across the country for educational standards and to ensure students were prepared for coursework at the collegiate level (NCSL, 2015). The CCSS were completed in 2009 (NGA Center, 2015).

While the CCSS were a national education effort, the decision to adopt standards was still left to individual states (CCSS Initiative, 2015). After completion of the CCSS, 46 states and the District of Columbia adopted the new standards (NCSL, 2015). Alaska, Nebraska, Texas, and Virginia were the only states to opt out of the CCSS (NCSL, 2015). However, according to the CCSS Initiative website in June of 2016, Oklahoma, Minnesota, Indiana, and South Carolina reversed the decision to adopt the CCSS (CCSS Initiative, 2015). Arkansas had implemented CCSS at the time of this study (CCSS Initiative, 2015).

While not all states have adopted the CCSS, it is evident standards implemented must be rigorous (McClarty, Way, Porter, Beimers, & Miles, 2014). School funding is allocated based on student performance on high-stakes testing used to measure mastery of these rigorous standards (Gewertz, 2014). Therefore, school districts are exploring the use of alternative methods, such as departmentalization, to increase student mastery of standards (Jacobs, 2014).

Classroom Environments

Traditional classrooms. The traditional classroom environment includes one teacher who teaches all core subjects (Chan & Jarman, 2004). This has been the typical elementary classroom environment in the recent American education system (Strohl et al., 2014). Even though some administrators are moving away from the traditional classroom environment, some research has suggested the traditional classroom environment is more appropriate for students at the elementary level (Liu, 2011).

There are many benefits to the traditional classroom environment (Liu, 2011). The traditional classroom environment can help students socially and emotionally (Zhan & Mei, 2013). This type of environment provides the opportunity for students and teachers to create a social connection of trust and increases the comfort level of students with the teacher (Liu, 2011). This is because of the amount of face-to-face time spent between students and teachers in the traditional classroom environment (Zhan & Mei, 2013).

The traditional classroom environment allows for the integration of subjects (Liu, 2011). Integrating subjects through extended units of study is possible, because students are with teachers for the majority of the duration of the school day (Steele & Ashworth, 2013). This allows flexibility in instruction and can lead to moving away from the compartmentalization of subjects (Liu, 2011).

Departmentalized classrooms. Departmentalized classrooms divide the responsibility of teaching core subjects between two or more teachers (Gewertz, 2014). This allows educators to specialize in subject areas (Chan & Jarman, 2004). Also,

administrators site teacher retention and morale as reasons to implement departmentalized classrooms (Chan & Jarman, 2004).

Departmentalizing the classroom setting can have many benefits (Gewertz, 2014). When administrators decide to departmentalize classrooms, the opportunity is presented for educators to specialize in certain academic areas (Chan & Jarman, 2004). Specialization allows for teachers to become experts in specific academic subjects (Gewertz, 2014). Also, departmentalization decreases the amount of time teachers are required to spend lesson planning, because teachers are not responsible for teaching every core subject (Gewertz, 2014). This can decrease the amount of stress and workload for teachers (Hughs, 2012).

There are also many negative aspects associated with departmentalizing the elementary classroom environment (Gewertz, 2014). This educational practice changes the amount of time students spend with teachers, which can limit the comfort level of students with teachers (Liu, 2011). Since each teacher in the departmentalized setting has a limited amount of time with students, departmentalization can decrease the amount of time students are allowed to explore in both academic and social situations (Liu, 2011). The social impacts of learning were emphasized in Bruner's constructivist theory, and departmentalization has changed the social climate of classrooms (McInerny, 2014).

Trends in Education

Integration of subjects. One trend in American education is the integration of subjects together into units of study (Steele & Ashworth, 2013). This is an educational practice in which multiple subjects are taught that all relate back to a central idea or theme (Liu, 2011). Many educators are trying to incorporate the arts and literacy into

units of study (Steele & Ashworth, 2013). Integration of subjects into units of study allows students to work together in groups and create learning through exploration (Steele & Ashworth, 2013).

Integration of subjects into units of study is supported by Montessori's methods of instruction (AMS, 2016). Montessori stated students learn through guided exploration of a manipulative-rich environment (Isaacs, 2015). This type of learning contradicts the idea of subjects being taught separately in distinguished period throughout the day (Kerry, 2015). Integrating subjects together provides students with the opportunity to explore and learn a variety of subjects and standards during a flexible, inquiry-based learning block (Kerry, 2015).

Traditional classrooms provide an environment that can be conducive to integrating subjects into units of study (Strohl et al., 2014). This is because the students spend the majority of the instructional day with the same teacher, which allows the teacher to have more flexibility when planning inquiry-based activities (Liu, 2011). This allows fluidity throughout the instructional day, and multiple subjects and standards can be taught together through the units of study (Kerry, 2015).

Departmentalized classrooms could reduce the amount of integrated units, because time with students is limited and reduced due to transition times (Liu, 2011). Opponents of departmentalization have stated the specialization teachers receive in their subject areas causes the separation of subjects back into specific time blocks designated for each area of study (Liu, 2011). This separation generally results in decreased instructional growth (Gaddam, Gowda, & Vadyanathan, 2016).

Science, technology, engineering, and math (STEM). Another trend in American education is the implementation of STEM instruction (Ward, 2015). This is an educational program that emphasizes the importance of science, technology, engineering, and mathematics through project-based learning (Ward, 2015). This push originated from the need to prepare students to work in science-related fields (Israel, Maynard, & Williamson, 2013).

The STEM program generally uses a constructivist approach to instruction (Ward, 2015). Students are able to combine literacy and math instruction with hands-on activities designed to teach science principles and engineering skills (Ward, 2015). Also, students with disabilities benefit from hands-on experiences provided in a STEM classroom environment (Basham & Marino, 2013).

It is vital for individuals entering the field of education to be trained in math and science (Ward, 2015). Even teachers at the elementary level must have grasp on science and technology integration (Griffen, 2015). The success of a STEM program depends on the training and efficiency of the educator (Griffen, 2015). Also, the excitement of the students participating in a STEM program is influenced by the educator leading the instruction (Hartman, 2015). Student excitement is also a key factor in the success of the STEM program (Hartman, 2015).

Project-based learning. Another trend in American education, which directly links to the constructivist approach to instruction, is project-based learning (Walker et al., 2015). Project-based learning is an inquiry-based mode of instruction in which students complete projects, both individually and in groups, to learn new ideas or to meet

standards (Walker et al., 2015). This type of learning also integrates subjects together (Kerry, 2015).

Project-based learning is greatly influenced by the environment in which students learn (Walker et al., 2015). The instructional environment must provide enough fluidity to allow students time to complete projects (Kerry, 2015). Also, the educator must work to ensure all students are engaged during project-based learning (Boss & Krauss, 2014).

Project-based learning also impacts students socially (Walker et al., 2015). In many instances, project-based learning happens in pairs or groups (Boss & Krauss, 2014). This allows students the opportunity to learn educational standards while improving on social skills (Boss & Krauss, 2014).

The traditional classroom environment can be more conducive for the successful implementation of project-based learning (Strohl et al., 2014). This is due to the amount of time students spend in the same learning space in a traditional classroom (Liu, 2011). Since students spend the majority of the school day in one area, educators have the opportunity to introduce project-based learning with plenty of time allowed for the projects (Boss & Krauss, 2014).

While it is possible to implement project-based learning in a departmentalized classroom environment, it is more difficult (Liu, 2011). This is due to the limited amount of time students spend in each learning area (Liu, 2011). Also, with teachers responsible for just one or two subject areas, it is more difficult to integrate subjects and standards into one project (Chan & Jarman, 2004).

Online education. The number of students participating in online classes has risen in recent years (Picciano, Seaman, & Swan, 2012). In fact, many school districts

are requiring the completion of online credits in order to graduate (Hart, 2015). Online education can happen in two different ways: the student participates in online classes full-time from home, or students participate in online classes for one or more periods a day at a distance learning lab in a public school (Barbour, Archambault, & DiPietro, 2013). This practice has come about from the popularity of technology and the need to offer classes beyond what a school district can afford to offer on-site (Picciano et al., 2012). Also, this practice helps prepare students for the online nature of many collegiate programs and classes (Allen & Seaman, 2013).

When students divide time during the instructional day between face-to-face learning and online education, it is known as blended learning (Staker & Horn, 2012). This type of learning can increase the amount of differentiated instruction, because students can move through the online curriculum at their own pace (Tobin & Tippett, 2014). The individualized nature of online instruction also influences when and how the teacher presents instructional information during the face-to-face portion of the educational day (Staker & Horn, 2012).

In recent years, online education has been on the rise in elementary schools as well (Hart, 2015). The advantages of online instruction for elementary students include increased differentiation, access to instructional choices previously unavailable, and increased options for research (Smith, 2015). However, not all students are successful when participating in online instruction due to differences in developmental stages, maturity level of students, and access to materials outside of the school district (Smith, 2015). While there are challenges that arise when developing a blended classroom for elementary students, it is vital to help students become technologically proficient because

many high-stakes assessments are now being given through online assessment tools (Ogletree, Ogletree, & Allen, 2014).

The type of classroom environment implemented in an elementary classroom could impact the successfulness of a blended learning program (Ogletree et al., 2014). Since a departmentalized classroom environment decreases the amount of time students spend with each teacher, this could limit the amount of time students have to participate in an online program (Smith, 2015). However, in a departmentalized classroom, an online program could be implemented for a single subject being taught (Hart, 2015). The traditional classroom environment could provide the flexibility during the instructional day to implement an online program while meeting the required standards at each grade level (Strohl et al., 2014).

Flipped classrooms. In a flipped classroom, traditional roles of homework and classwork are traded (Ash, 2012). The lecture portion of the class is assigned through videos to be viewed outside of class time (DeLozier & Rhodes, 2016). Students work on projects, activities, and independent work during class time (DeLozier & Rhodes, 2016). This allows students the opportunity to ask questions and seek clarification while teachers are present (Ash, 2012).

While this allows more time for student questioning, some educators have concerns about this type of classroom (Ash, 2012). This type of classroom environment uses a lecture format for instruction, raising the issue of student engagement (Ash, 2012). However, the correct implementation of a flipped classroom allows time for students to engage in individual and group projects, discussions, and research (Educause, 2012). Another issue regarding this type of classroom is the lack of a clear way to ensure

students are watching, or have access, to the videos at home (Horn, 2013). However, some school districts are combating this issue by becoming one-to-one districts, in which each student has a device issued by the district (Lowther, Inan, Strahl, & Ross, 2012).

The flipped classroom could be implemented into the traditional or departmentalized classroom setting (Educause, 2012). Because the flipped classroom reverses the traditional roles of instruction and homework, the amount of time spent in the classroom is less of an issue when implementing a flipped classroom (Ash, 2012). Also, this would give educators in each type of classroom environment the extra time to engage students in projects and inquiry-based learning (DeLozier & Rhodes, 2016).

One-to-one classrooms. One-to-one classrooms are educational settings in which each student has a school-issued device to use for instructional purposes (Lowther et al., 2012). This educational trend has been put into place in order to combat the financial needs of some students in each district (Warschauer, Zheng, Niiya, Cotten, & Farkas, 2014). If the district provides each student with needed devices, this provides uniformity throughout the district for students and for educational programs (Warschauer et al., 2014).

These devices can be different from district to district, or even from grade level to grade level within districts in which multiple grade levels are implementing the one-to-one instructional approach (Zheng, Warschauer, Lin, & Chang, 2016). Devices can include, but are not limited to, laptops, iPads, tablets, Kindles, and Chromebooks (Lowther et al., 2012). Administrators must evaluate the instructional needs of the district and each grade level to determine the correct devices to deploy in the one-to-one instructional situation (Lowther et al., 2012).

One issue that occurs when implementing the one-to-one instructional model is funding the program (Rhor, 2014). It takes a significant amount of money for districts to purchase and deploy devices for each student in the district, building, or specified grade level (Meyer, 2014). Some school districts set aside a certain amount of funding within the budget to cover purchasing the devices (Meyer, 2014). Other options for districts to raise funds to purchase one-to-one devices include the use of district bond money, grants, and lease-purchase agreements with technological companies (Rhor, 2014).

Another issue that occurs when implementing one-to-one devices is providing the upkeep required for the technology (Rhor, 2014). In technology today, systems and devices rapidly become outdated (Rhor, 2014). While districts can use the same devices for multiple years, the districts must eventually replace all of the devices (Meyer, 2014). Also, many districts have had to hire a full-time technology staff to fix devices, work on systems, and help deploy and implement devices (Bennett & Lin, 2016). Like any situation that requires giving supplies to students, districts face having to replace devices that are lost, stolen, or broken (Bennett & Lin, 2016). In some instances, districts require parents to sign contracts requiring parents to pay for lost or broken devices, but this money can often be difficult to collect (Meyer, 2014).

While there are drawbacks financially, many districts consider providing one-to-one devices worth the cost (Rhor, 2014). Allowing each student to work on technological devices keeps instructional practices current with world trends (Meyer, 2014). Also, this provides an opportunity for students in financial need to become technologically literate to prepare for college and the workforce (Warschauer et al., 2014).

Free play. The amount of time children spend in free play activities is at an all-time low, but recently research on the importance of play has been presented (Kemple, Oh, & Porter, 2015). The idea of students learning through free play stemmed from Piaget's work regarding the cognitive development of children (Piaget, 2013). Play fosters the development of language and social context, which has led some schools to increase the amount of time students are allowed to play freely (Weisenburg, Zosh, Hirsh-Pasek, & Golinkoff, 2013). However, many educators are concerned with the loss of instructional time in the classroom due to the increased amount of time spent in free play activities (Johnson, Celik, & Al-Mansour, 2013).

Educators generally agree differentiating instruction is vital to student learning (Tobin & Tippett, 2014). One way educators in early childhood can plan differentiated instruction is through student observation during free play activities (Wood, 2014). During free play, teachers can use student responses to social situations to develop lessons to foster social growth and development (Wood 2014).

Another widely used educational trend is an inquiry-based learning model (Moon, 2016). This type of learning approach is supported through the constructivist theory (Dewey, 2013). Supporters of the free play trend argue free play supports inquiry-based learning (Chudacoff, 2013). This is because, according to supporters, free play in itself is inquiry-based because free play allows students to participate in hands-on activities, is student-led, is exploratory in nature, and is rich in social interaction (Chudacoff, 2013; Moon, 2016).

Free play can occur in multiple classroom settings (Chudacoff, 2013). In a traditional classroom environment the students spend the majority of the school day with

one teacher (Strohl et al., 2014). Therefore, the traditional classroom environment could allow time in the schedule to plan free play activities (Strohl et al., 2014). While free play activities could be scheduled in a departmentalized classroom setting, it would be more difficult because the students spend a reduced amount of time with each teacher (Liu, 2011).

Flexible seating. Educators work to challenge and engage students (Finkelstein, Ferris, Weston, & Winer, 2016). However, traditional desks in a classroom can limit focus and engagement of students, especially for those dealing with sensory and tactile issues (Kuhn & Lewis, 2013). Flexible seating and flexible work spaces can create an environment in which students move more freely, and this can increase engagement (Miller, 2015).

Flexible seating is an educational environment in which students are not assigned to a specific area or desk in the classroom (Haghighi & Jusan, 2013). Seating options such as bean bags, stools, rugs, tables, desks, or the floor allow students to choose (Miller, 2015). The flexible seating choices provide students with the opportunity for more movement while working (Kuhn & Lewis, 2013). Students are able to choose workspaces, creating ownership and increasing engagement (Finkelstein et al., 2016).

Flexible seating can be implemented in traditional or departmentalized classroom environments (Haghighi & Jusan, 2013). Flexible seating requires a significant amount of training and practice at the beginning of implementation to streamline the process throughout the year (Finkelstein et al., 2016). The traditional classroom environment could provide an easier implementation of flexible seating, because the teacher would have one set of students to train regarding flexible seating rules and procedures and

would have extended time with students throughout the duration of the school day (Strohl et al., 2014). The teacher in a departmentalized classroom setting would have to train multiple sets of students on rules and procedures for flexible seating and have a shorter amount of time each day to train students, but the flexible seating process could be successful in this setting as well (Finkelstein et al., 2016).

Leadership and character education. Bullying is an occurrence in the elementary classroom which teachers are working to eliminate through programs such as character education (Freeman, 2014). Character education is a program that involves teaching students one character trait per month through the duration of the school year (Martinez, 2015). These character traits are used to help students develop personal habits needed to become well-rounded citizens (Elias, 2014). Research has indicated students who study the character traits are positively impacted socially and emotionally (Elias, 2014).

Leadership education, such as the Leader in Me program, is another educational trend used to develop students emotionally (Corcoran, Reilly, & Ross, 2014). The Leader in Me program focuses on seven habits of successful individuals: be proactive, begin with the end in mind, put first things first, seek first to understand, then be understood, think win-win, synergize, and sharpen the saw (Covey, 2014). The skills taught through this program are designed to prepare students to be the best people they can be while functioning as adults in society (Corcoran et al., 2014). This program was created to develop students into individuals who have balance in life, but who always finish necessities before other things (Covey, 2014). Research from this program has

indicated positive change in the climate and culture of school districts that implement Leader in Me (Covey, 2014).

Character education is critical in the development of children (Character.org, 2016). Students who are fully immersed in a character education program are more likely to become successful, functioning adults in society (Covey, 2014). However, it takes all members of the school staff, including support staff, to be consistent with leadership vocabulary and expectations for the program to be successful within the school building (Character.org, 2016). Character education can be implemented in traditional and departmentalized classroom environments, because it is embedded into other instruction, rather than being taught in addition to other subjects (Covey, 2014).

Differentiated instruction. One practice educators are using to meet the instructional needs of students is differentiation of instruction (Tobin & Tippett, 2014). Because whole-group instruction did not always yield the same academic results for all students, teachers began implementing differentiated instruction in the classroom (Dixon, Yssel, McConnell, & Hardin, 2014). Differentiated instruction is an educational practice in which educators teach lessons to individuals or small groups of students based on level of academic need (Gregory & Chapman, 2012).

There are different ways to differentiate instruction in an elementary classroom (Dixon et al., 2014). When differentiating content, educators change the information presented to individuals or groups of students to meet the students' instructional levels (Gregory & Chapman, 2012). Another way to differentiate instruction is by changing the presentation of the information; this allows students to learn information through the

learning style, or multiple learning styles, which are most efficient (Gregory & Chapman, 2012).

Differentiation is also utilized during student assessments (Moon, 2016). There are two types of assessments educators use: formative assessments and summative assessments (Tomlinson & Moon, 2014). Differentiated formative assessment is based upon student performance of tasks given during instruction (Gregory & Chapman, 2012). Differentiated summative assessment consists of alternate assessment opportunities for students that can include performance, oral presentation, or other activities using student strengths (Gregory & Chapman, 2012). To fully implement differentiated instruction, educators have to differentiate assessment as well as instructional strategies (Noman & Kaur, 2014).

Holistic learning. Holistic learning, also called experiential learning, is the idea learning should not be compartmentalized (Kolb, 2014). The holistic learning theory states students should learn as they develop through life experiences (Kolb & Kolb, 2012). The environment in a holistic environment is comfortable and purposefully designed for student-centered instruction (Barrett, Davies, Zhang, & Barrett, 2016). The holistic design of lessons blends subjects together in order for students to learn information from different subjects through a variety of activities simultaneously (Entwistle, 2013).

The goal of holistic learning is to create links among all knowledge (Rowan, 2014). Rather than having students memorize information, the focus of holistic learning is to create learning through the connection among all aspects of life (Kolb, 2014). This connection includes cognition, body, and spiritual factors of life (Rowan, 2014). Holistic

learning can be implemented in traditional and departmentalized classrooms by having a teacher who focuses on the learning methods and lives of students in order to integrate information that connects to other aspects of the students' lives (Rowan, 2014).

Growth assessment. For educators to understand change throughout the year in student learning, educators are using growth assessments (Hull, 2007). Growth assessments show student starting points and the improvement or stagnancy of scores throughout an educational year (Hull, 2007). Traditional high-stakes tests are given once a year, and the results are used to determine funding for schools (Stobart & Eggen, 2012). However, growth assessments are used to evaluate students at different points during the year to eliminate skewed results from one time of testing (Stobart & Eggen, 2012). Growth assessments are used to ensure each student moves beyond the starting point of his or her education (Hull, 2007).

Growth assessments are a way to ensure differentiated instruction is taking place in the classroom (Stobart & Eggen, 2012). When students are given assessments at different points throughout the year, teachers can plan instruction based on the level at which each student scores (Hull, 2007). While growth assessments are generally summative assessments at different points in the year, teachers can use formative assessments to show student growth and plan individualized instruction to meet the needs of each student (Stobart & Eggen, 2012).

Growth assessments can be utilized in both traditional and departmentalized classroom settings (Hull, 2007). The type of classroom environment is not a factor in this educational trend, because growth assessments only change the way students are assessed (Stobart & Eggen, 2012). However, the reduced amount of time students spend in a

departmentalized classroom could impact the available time to give students more assessments (Liu, 2011).

Response to intervention (RTI). Response to intervention (RTI) is an educational program in which educators implement instructional strategies and interventions to help students become successful before academic failure ensues (Grosche & Volpe, 2013). This is different from traditional measures for special education, because all students can receive RTI services and students are introduced into the RTI program at the onset of struggle, rather than once a gap in performance and intelligence scores is shown (Buffum & Mattos, 2014). An RTI program focuses on academic performance and behavior intervention (Grosche & Volpe, 2013).

There are generally three levels of intervention in an RTI program (Fuchs, Fuchs, & Compton, 2012). The first level of RTI includes research-based instructional strategies and best educational practices implemented into the regular education classroom by the classroom teacher (Buffum & Mattos, 2014). The second level of RTI includes specifically targeted interventions for the struggling student; these are often provided by the regular classroom teacher (Burns & Gibbons, 2013). The third level of RTI is intensive intervention that focuses on bringing the student up to grade level; these are provided mostly outside of the classroom by trained interventionists (Catts, Nielsen, Bridges, Liu, & Bontempo, 2015).

The main goal of RTI is to help all struggling students become more successful academically (Buffum & Mattos, 2014). However, many districts are using RTI as a step toward placing students in a special education program (Bjorn, Aro, Koponen, Fuchs, & Fuchs, 2016). The RTI process is most successful when educators use the program to

close educational gaps and help struggling students work toward grade-level goals (Burns & Gibbons, 2013).

An RTI approach can be implemented in any type of classroom environment (Buffum & Mattos, 2014). Teachers in traditional and departmentalized classroom environments can utilize the RTI process in order to help struggling students in the classroom (Burns & Gibbons, 2013). While the reduced amount of time students spend in a departmentalized classroom could impact the amount of time teachers spend on intervention, these interventions are generally deemed important enough to reduce time in another area of instruction (Bjorn et al., 2016).

Charter schools. Charter schools were developed in the 1980s to combat the issues of equality and low academic performance (Buras, 2014). Charter schools were categorized in the public education system (Buras, 2014). Many charter schools were developed in inner cities and urban communities due to the state of the public schools in those districts (Fabricant & Fine, 2015).

Charter school funding is often considered a controversial issue (Fabricant & Fine, 2015). Charter schools are considered public, but are generally privately funded (German, 2015). Private companies or individuals are allowed to fund charter schools (Green, Baker, & Oluwole, 2014). However, charter schools also receive tuition determined by the state funding formula from each student's original school district (German, 2015). This often results in charter schools receiving significantly more funding than public school districts within the same areas as the charter schools (Green et al., 2014).

Another controversial issue with charter schools is the selection of students to attend charter schools (Welner, 2013). There are often many requirements to apply for charter schools that can include essays, interviews, entry exams, and explanations of disabilities (Simon, 2013). While charter schools are formed to close the learning gap in communities, these requirements often result in students with limited English, special needs, and low academic achievement being excluded during the selection process (Welner, 2013).

Educational facilities are also a controversial issue in charter schools versus public schools (Fabricant & Fine, 2015). In many cases, charter schools use facilities that belong to a public school district in the same area (Buras, 2014). This can result in overcrowding or a decrease in the amount of time students from public schools can use the school facilities (Buras, 2014). In other cases, the federal government or private businesses provide funding for charter school facilities (Aragon, 2015). This can often result in charter school facilities being significantly more advanced than many of the public school facilities in the same areas (Fabricant & Fine, 2015). With more advanced school facilities, the charter schools receive more applications from students in the area, resulting in a decrease in funding for the public schools in the same area (Fabricant & Fine, 2015).

Teacher retention is also an issue in public schools versus charter schools (Fabricant & Fine, 2015). Results from interviews with teachers in charter schools and public schools show teachers in both types of schools cite having similar leadership and quality of collaboration (Ni, 2012). However, teachers in charter schools cite a lesser

workload and greater influence on school district policy for remaining in the profession (Ni, 2012).

Issues in Elementary Education

Poverty. Research has shown socioeconomic status of students has a direct impact on educational success (Biddle, 2014). Statistical evidence shows the childhood poverty rate in America is greater than any of the other civilized western countries (Biddle, 2014). Students living in poverty are often deprived of basic needs such as food, housing, and health care (Thompson, 2015). These factors, along with less parental involvement, result in a reduced amount of academic achievement (Thompson, 2015).

Everyone in the field of education knows not all students learn the same way (Jenson, 2013). This is no different when dealing with low-income students versus middle-income and high-income students (Jenson, 2013). Unfortunately, research shows students from a lower socioeconomic background have a more difficult time staying engaged and being academically successful (Biddle, 2014). Educators must be cognizant of the background of each student and should work to meet the basic needs of students, as well as academic needs (Thompson, 2015).

Regardless of the type classroom environment, traditional versus departmentalized, poverty is an issue every educator must face (Jenson, 2013). Dealing with poverty could be more difficult for teachers in a departmentalized classroom setting versus teachers in a traditional classroom setting (Liu, 2011). This is because the departmentalized teacher would have an increased number of students to learn background information about and would have less time to form the bond of social trust with each student (Liu, 2011).

While educators are aware of the problems facing education in regard to poverty, it is a difficult issue to combat (Thompson, 2015). This is because students who live in poverty often come to school at a disadvantage in the areas of oral language, background knowledge, and executive functioning skills (Birdsong, 2016). In order to meet the needs of students in poverty, teachers must know the intricacies of each student, help provide for basic life needs, and implement targeted interventions that are research-based and specifically developed to reach students living in poverty (Birdsong, 2016).

Transiency. Transient students are those who move multiple times during educational years (Jacobson, 2013). Students who are in a transient state of life tend to struggle academically (Jacobson, 2013). These students are often introduced to academics taught in a different order, causing gaps in learning (Herbers et al., 2012). Also, there are social issues, such as difficulty making friends, which impact the academic success of transient students (Herbers et al., 2012).

Unfortunately in education today, new students who arrive at various points throughout the year are not always a welcome sight for educators (Dewitt, 2012). This is mainly due to the amount of stress associated with high-stakes testing (Hughs, 2012). When the success of an educator is judged by student results on high-stakes testing, an educator strives to teach with best practices and to ensure the success of all students within the classroom (Dewitt, 2012). However, when students move in at different points during the school year, the teacher is unsure of the educational backgrounds of those students (Jacobson, 2013). While the educator is not responsible for the entirety of the new student's education, the teacher can feel judged based on the results of the student's

high-stakes test scores, and this is the main reason new students are a source of stress for educators (Dewitt, 2012).

While transient students can be stressful for teachers, it is important to welcome new students into the classroom with the same love and care as the students received at the beginning of the year (Dewitt, 2012). In order to engage students in learning, students need to feel the positive impacts of a stable learning environment (Scherrer, 2013). However, transient students are often unable to feel educational stability due to continued movement from school to school (Herbers et al., 2012). Therefore, it is vital for educators to ensure all students feel welcome and have a place in the classroom, regardless of how long the students remain in the school district (Scherrer, 2013).

While the success of transient students is an issue in any classroom environment, transient students instructed in a departmentalized classroom environment could have even more difficulty (Jacobson, 2013). This is because the social relationship between students and teachers in a departmentalized classroom can be negatively impacted by the reduced amount of time students spend with teachers during the duration of the school day (Liu, 2011). Therefore, teachers in departmentalized classroom environments must specifically strive to build strong relationships with students to help ensure the success of all students, including transient students, in the classroom (Liu, 2011).

Language. In America today, one-fifth of students attending public schools do not speak English as a native language (Collier & Thomas, 2012). For students to be academically successful, language must be developed (Hill & Miller, 2013). Students who lack basic conversational language skills are unable to learn the vocabulary necessary to be academically successful (Collier & Thomas, 2012). Students who are

English language learners require specific, targeted intervention in order to learn to speak and learn in English (Hill & Miller, 2013).

In America today, only 52.4% of Hispanic-Americans over the age of 25 have obtained a high school diploma (National Education Association, 2016). This is a drastic difference when compared to Caucasian-Americans over the age of 25, of whom 85.5% have obtained a high school diploma (National Education Association, 2016). This reiterates the issue of educating students who are non-English speaking (Collier & Thomas, 2012).

Many public school districts are trying to combat the issue of non-English speaking students through the employment of specialized teachers (Cerbasi, 2012). These English as a Second Language (ESL) teachers are charged with the instruction of specific students who do not speak English proficiently (Bygate, Swain, & Skehan, 2013). This instruction generally comes in the form of targeted, research-based interventions for language acquisition through small-group instruction that takes place outside of the regular classroom (Cerbasi, 2012). Also, students in an ESL program are given an instruction plan similar to an Individualized Education Plan (IEP) for special education students (Bygate et al., 2013). This provides students with modifications to help ensure educational success (Bygate et al., 2013). Also, ESL teachers meet with regular education classroom teachers to determine success of interventions and modifications in the classroom and to plan further steps to foster language and academic development for ESL students (Cerbasi, 2012).

Teacher retention. Teacher retention is an issue facing American education (Cox, 2016). Educators cite workload, stress, and unachievable expectations as reasons

for leaving the educational field (Hughs, 2012). This stress is generated from the use of high-stakes test results as the main indicator of student success and teacher effectiveness (Hughs, 2012).

Due to the increase in stress and workload in the field of education, many educators are leaving the profession within the first three years after graduation (Fabricant & Fine, 2015). Also, many educators with several years of experience are leaving the profession (Hughs, 2012). This increase in teachers leaving the profession has made employing qualified educators difficult in some places (Cox, 2016). Without qualified teachers, the level of academic success of students is reduced (Cox, 2016).

In order to maintain student success, administrators are looking for ways to combat the issue of teachers leaving the educational profession (Cox, 2016). One way administrators are trying to accomplish this goal is by implementing alternative methods of instruction, such as departmentalization (Gewertz, 2014). In many instances, it has been found educators participating in the departmentalized classroom environment feel a reduction in workload because there are not as many standards to plan for instruction (Chan & Jarman, 2004). Also, the departmentalized classroom environment allows teachers to specialize in a specific subject area, generally the subject area the teacher is most passionate about, resulting in an increase in job satisfaction (Gewertz, 2014).

Regardless of the type of classroom environment being implemented within a school district, the goal of education remains the same: student success (New America Foundation, 2015). Student success is directly linked to the quality of instruction being provided (Cox, 2016). Therefore, administrators must do everything possible to hire and

retain highly qualified and successful teachers to ensure the academic success of students (Hughs, 2012).

Technology. Technology is a major component in educational best practices (Watson & Tinsley, 2013). However, educators are often struggling to fully implement technology into daily instructional practices (Selwyn, 2012). There are several factors that impact the successful implementation of technology in the classroom (Selwyn, 2012).

The budget for technology in schools often prevents students from having access to the most recent technological advances (Watson & Tinsley, 2013). Providing the devices for classrooms and students is difficult for most districts (Warschauer et al., 2014). Unfortunately, once school districts buy devices and equipment, they are generally quickly outdated (Rhor, 2014). Also, many districts are hiring technology employees to deploy devices, fix technological issues, and remain current on best practices for technology in the classroom (Bennett & Lin, 2016). Some districts are able to set aside money in the operating budget to pay for technology implementation and upkeep (Meyer, 2014). In other instances, districts generate funding for technology through grants, lease-purchase agreements with technological companies, or through locally generated bond money (Rhor, 2014).

Another issue with technology integration in school districts is many teachers are not as technologically literate as students (Watson & Tinsley, 2013). Because of this, not all teachers successfully implement technology during instruction (Watson & Tinsley, 2013). Educators must be given access to professional development that provides

training on operating, implementing, and best practices for technology use within the classroom (Bennett & Lin, 2016).

Instructional time is another issue facing the successful implementation of technology in the classroom (Selwyn, 2012). The limited amount of time teachers have for instruction causes many educators to limit the amount of time spent in technology instruction (Selwyn, 2012). This can be especially true in the departmentalized classroom setting (Liu, 2011). Since teachers in a departmentalized classroom setting have a shortened amount of instructional time with students, it can cause hesitation when implementing new technological devices and instructional practices (Liu, 2011). However, it is vital teachers, regardless of classroom environment, implement technology into the classroom to prepare students for the technological nature of society (Bennett & Lin, 2016).

Dyslexia. The English language is often very difficult for students to learn in regard to reading and writing, especially for those students who struggle with an educational limitation (Ellis, 2016). Dyslexia is a learning disorder that impacts letter, sound, and word associations in the brain (Reid, 2016). Language development is also very difficult for individuals struggling with dyslexia (Reid, 2016). This disorder impacts the ability of students at all grade levels to learn to read and write fluently (Ellis, 2016). Dyslexia is outwardly presented by those having the disorder in a variety of ways (Reid, 2016).

Research has shown one in five children suffer from some form of dyslexia (Dyslexia Center of Utah, 2016). Although research indicates this is a prevalent disorder, the diagnosis of the different forms of dyslexia is a fairly new process (Ellis, 2016).

While dyslexia can only be diagnosed through the medical field, the treatment of dyslexia generally happens through research-based educational interventions and therapies (Dyslexia Center of Utah, 2016). Since there are different types of dyslexia, educators are faced with questions on how to determine which struggling students may be suffering from dyslexia, what types of dyslexia students are suffering from, and how to implement research-based educational best practices to help students struggling with dyslexia (Reid, 2016).

Dyslexia is a disorder often difficult to observe and diagnose in the classroom (Blachman, 2013). There are no set screeners or standardized assessments used to diagnose dyslexia, because each individual case is different and because the disorder presents itself outwardly in many ways (Blachman, 2013). Teachers are often expected to see warning signs of dyslexia, but teachers are often undertrained and the signs are difficult to pinpoint (Ellis, 2016).

Teachers are responsible for providing instruction and classroom interventions to help students who struggle with dyslexia (Reid, 2016). Since dyslexia impacts oral language, reading, and writing, educators have to provide students with interventions that are strong in reinforcing phonological awareness skills, letter recognition, and turning oral language into written language (Dyslexia Center of Utah, 2016). While most early childhood classrooms are rich in oral language development and other basic literacy skills, students in higher grade levels also need this type of instruction (Dyslexia Center of Utah, 2016).

Since dyslexia impacts one in every five students, educators in every type of classroom environment are dealing with students who are struggling with dyslexia

(Dyslexia Center of Utah, 2016). Often educators in a traditional classroom environment can spot students with dyslexia more accurately than teachers in a departmentalized setting (Reid, 2016). This is because teachers in a traditional classroom environment spend the majority of the school day with the same set of students (Strohl et al., 2014). This allows teachers to observe struggling students and have time to implement research-based interventions to determine if a struggling student may be suffering from dyslexia (Reid, 2016).

Safety. Unfortunately, in America today there are many safety concerns when dealing with students and teachers in public school systems (Fennelly & Perry, 2014). There are many threats to safety in schools, including school shootings (Kingshott & McKenzie, 2013). Most individuals tend to believe school violence is mainly an issue in the middle and secondary educational settings (Berkowitz & Benbenishty, 2012). However, after the school shooting at Sandy Hook Elementary in which kindergarten and first-grade students were targeted, school violence is being addressed at every educational level from pre-kindergarten through higher education institutions (Fennelly & Perry, 2014).

Educators are charged not only with helping every student meet education requirements, but also with keeping every student safe (Kingshott & McKenzie, 2013). In order to do this, many school districts are employing school resource officers in conjunction with local police departments (Fennelly & Perry, 2014). These school resource officers are required to create a plan of action for each type of possible school threat and then to train administrators, teachers, and staff on safety procedures (Fennelly & Perry, 2014).

While many educators are citing stress as a factor for leaving education, ensuring the safety of all students is another factor that adds to the stress of educators (Hughs, 2012). Along with instructional practices, educators have to incorporate time to practice safety procedures with students into the scheduled school day (Kingshott & McKenzie, 2013). Since departmentalization changes the environment of the educational setting, students who are participating in departmentalized settings are required to learn and train for school safety procedures in multiple classrooms and areas of the school building (Gewertz, 2014).

Parental involvement. Parental involvement in education is directly linked to student success (Karbach et al., 2013). In fact, research has indicated parental involvement may be the most important factor to influence the academic success of children (Karbach et al., 2013). Therefore, it is of utmost importance to get parents and guardians as involved as possible during the educational career of students (Booth & Dunn, 2013).

In order to increase student achievement, educators are charged with creating ways to involve parents and guardians into the educational process (Karbach et al., 2013). The first way to increase parental involvement is to create programs geared toward involving parents such as parent organizations, assemblies to which parents and guardians are invited, and volunteer programs (Booth & Dunn, 2013). The more opportunities parents have to enter the school building, the more involved parents become (Karbach et al., 2013).

Another way educators and districts can increase parental involvement is to create a welcoming environment for parents and guardians entering the school building (Booth

& Dunn, 2013). When parents and guardians feel welcome, it is more likely they will return in the future (Karbach et al., 2013). Providing a welcome environment for parents entering the school building can help parents become more involved in different aspects of the school district, thus increasing the level of student academic success (Karbach et al., 2013).

Positive communication is another way to increase parental involvement within a school district (Booth & Dunn, 2013). Administrators and teachers are responsible for communicating to parents and guardians many aspects of the educational process including activities and important dates, student academic progress, student behavior, and opportunities for parental participation in the educational process (Booth & Dunn, 2013). This can be done through conferences, newsletters, e-mails, and phone calls (Karbach et al., 2013). Providing these positive forms of communication can increase the amount of parent participation in school activities and the educational process (Karbach et al., 2013).

Summary

Education has continuously changed since the colonization of America (Kaestle, 1983). In modern American education, laws are passed and changed in order to compete with the rest of the world (NGA Center, 2015). With changes in standards and research in best practices, many districts are implementing methods beyond traditional elementary classrooms in order to allow teachers to specialize in specific subject areas in hopes student mastery and performance on high-stakes testing will increase (Chan & Jarman, 2004). Also, retaining teachers has become an increasingly difficult task; therefore,

administrators are using departmentalization as a means to lower the stress level and workload of teachers (Hughs, 2012).

Chapter Three includes a review of the problem and purpose of this study. The research questions and hypotheses are revisited. The research design is described, and the population and sample are explained and defined. The process for data collection is analyzed, and the process for data analysis is outlined. Ethical considerations are presented.

Chapter Three: Methodology

Many factors, including NCLB and the implementation of rigorous standards such as the CCSS, have changed the educational system and instructional practices in America (GreatSchools, 2015). In order to receive state and federal funding, students must perform at a proficient level, or the district has to meet AYP goals set by the state (New America Foundation, 2015). With the increase in accountability, districts are trying educational methods, such as departmentalization, that have not been commonly implemented in an elementary setting (Chan & Jarman, 2004). However, historical research has indicated departmentalizing in elementary schools has a negative impact on student learning (AASA, 1965).

This study was used to determine if a statistically significant difference exists between student learning in traditional classroom settings and student learning in departmentalized classrooms. This study was conducted in rural school districts in northwest Arkansas. Student learning from both traditional and departmentalized classrooms was evaluated using raw test scores, percentile test scores, and grade-level averages.

Problem and Purpose Overview

As stated in Chapters One and Two, the implementation of NCLB and the CCSS increased expectations for students (NGA Center, 2015). The purpose of NCLB was to create a learning culture in which all students would be on grade level by 2014 (New America Foundation, 2015). However, this goal was not met by the targeted date (GreatSchools, 2015).

Since districts did not meet expectations for NCLB, alternative methods of instruction have been researched and implemented (Gewertz, 2014). Departmentalization is being implemented in elementary schools across the country (Chan & Jarman, 2004). However, in the 1960s, the federal government funded extensive research on departmentalization and found departmentalizing students of a young age negatively impacted student learning (AASA, 1965).

Many factors are influencing teacher retention (Cox, 2016). Educators are leaving the profession, citing increased workload and stress as the main reasons for leaving (Hughs, 2012). This creates difficulty for districts when trying to hire highly qualified teachers to fill open positions (Cox, 2016). Administrators are beginning to focus on ways to attract and keep teachers in the profession of education (Hughs, 2012). In order to decrease stress and workload, administrators may implement departmentalized classrooms (Gewertz, 2014). This allows teachers to specialize in one or two areas, lessening the amount of standards each teacher is responsible for teaching (Gewertz, 2014).

The purpose of this study was to determine if students in three rural schools in northwest Arkansas were impacted positively or negatively by departmentalization in elementary grades two through four. The premise behind implementing departmentalization in elementary classrooms was explored throughout this study. Using student success metrics including raw test scores, percentile test scores, and grade-level averages, the success of meeting student needs through classroom environment was studied.

Research questions and hypotheses. The following research questions guided the study:

1. What is the statistically significant difference, if any, between raw test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom setting versus students in a departmentalized classroom setting?

$H1_{0:}$ There is no significant statistical difference between raw test scores on norm-referenced tests of second through fourth grade students taught in traditional classrooms versus students taught in departmentalized classrooms.

$H1_{a:}$ There is a significant statistical difference between raw test scores on norm-referenced tests of second through fourth grade students taught in traditional classrooms versus students taught in departmentalized classrooms.

2. What is the statistically significant difference, if any, between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

$H2_{0:}$ There is no significant statistical difference between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

$H2_{a:}$ There is a significant statistical difference between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

3. What is the statistically significant difference, if any, between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

$H3_{0:}$ There is no significant statistical difference between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

$H3_{a:}$ There is a significant statistical difference between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting.

Research Design

Due to the push for data-driven instruction and data desegregation (Gregory & Kuzmich, 2014), this study was quantitative in nature. This study was designed to determine if there was a statistically significant difference in student success metrics between students in second through fourth grades in traditional classrooms versus students in departmentalized classrooms. Student success metrics included raw scores on norm-referenced tests, percentile scores on norm-referenced tests, and grade-level averages on norm-referenced tests.

These student success metrics are used in education to determine federal and state funding eligibility (Das et al., 2013). The focus of the study was in grades two through four. Research was conducted using both traditional classrooms and departmentalized classrooms.

Population and Sample

The population for this study included students from three rural school districts in one county located in northwest Arkansas that are similar in size and student demographics (Arkansas Department of Education, 2016). Secondary data were used to address the research questions in this study. These data, norm-referenced raw test scores,

percentile test scores, and grade-level averages, are accessible to the public through Arkansas's Department of Education website (Arkansas Department of Education, 2016).

Using cluster sampling, the raw test scores, percentile test scores, and grade-level average scores for grades two through four in three school districts were reviewed (Bluman, 2015). This provided information on approximately 1,000 students per year (Arkansas Department of Education, 2016) for the academic years of 2011-2015. In order to compare traditional classroom environments to departmentalized classroom environments, school districts that used each type of environment were included in the study (Arkansas Department of Education, 2016).

Data Collection

The Arkansas Department of Education website was used to collect data using the school district report card section of the website (Arkansas Department of Education, 2016). Data on three school districts comparable in size and demographics were collected. Research was conducted using test results from both traditional and departmentalized classrooms. These data from the Arkansas School Performance Report Cards were entered it into a Microsoft Excel spreadsheet.

Data Analysis

Three sets of quantitative data, raw test scores, percentiles of test scores, and grade-level average test scores, were analyzed. For research question one, the raw test scores were considered the dependent variable and the classroom setting was considered the independent variable. There were two levels within this independent variable, departmentalized and traditional classroom settings. Because the dependent variable was rational in nature, a *t* test was used to analyze data gathered for research question one

(Bluman, 2015). The data were entered into Microsoft Excel and the Data Analysis Tool-Pak was used to perform the analysis. This gave a *p* value for this set of data.

For research question two, the percentile rankings were considered the dependent variable and the classroom setting was considered the independent variable. There were two levels within this independent variable, departmentalized and traditional classroom settings. Because the dependent variable is categorical in nature, a Chi Square test was used to analyze these data (Brase & Brase, 2016). The data were entered into Microsoft Excel and the Data Analysis Tool-Pak was used to perform the analysis. This gave a *p* value for this set of data.

For research question three, the grade-level average test scores were considered the dependent variable and the classroom setting was considered the independent variable. There were two levels within this independent variable, departmentalized classroom setting and traditional classroom setting. Because the dependent variable was rational in nature, a *t* test was used to analyze the data (Bluman, 2015). These data were entered into the Data Analysis Tool-Pak in Microsoft Excel to perform the analysis. This gave a *p* value for this set of data.

Ethical Considerations

There were no primary participants recruited for this study. Only secondary data were used to answer research questions one, two, and three. Because secondary data are data collected by someone unrelated to the current study, the chance for coercion was eliminated (Crossman, 2015; Klitzman, 2013). Also, school districts used in this study will remain anonymous. Moreover, the students whose test scores were used in this study will also remain anonymous. The paper records and electronic records will be kept by

the researcher for three years. The paper records will be kept in a locked filing cabinet in a private residence, and the electronic records will be kept on a personal password-protected computer.

Summary

This study used raw test scores, percentile test scores, and grade-level average test scores. The data sets were used to make a determination regarding whether or not there was a statistically significant difference on high-stakes tests between students in a traditional classroom versus students in a departmentalized classroom in second through fourth grades. This was a necessary study because school districts are turning to departmentalization in order to meet the demands of increased accountability through rigorous standards and to decrease the workload and stress of teachers (Gewertz, 2014; Hughs, 2012).

Many educators cited departmentalization of classrooms has advantages such as teacher specialization in one content area, reduced workload for teachers, and a reduction in stress of teachers (Gewertz, 2014; Hughs, 2012). However, historical research indicated departmentalization has a negative impact on student success and learning at the elementary level (AASA, 1965). This was partly due to reduced level of comfort students had with the teacher, instructional time lost while transitioning to different classrooms, and compartmentalizing the teaching of individual subjects, rather than integrating subjects to create units of study (Liu, 2011). Therefore, it was important to determine if departmentalization of second- through fourth-grade classrooms in three rural schools in northwest Arkansas was beneficial for student learning and increased

student success on high-stakes testing used by states to determine school district funding (Das et al., 2013).

Chapter Four: Analysis of Data

Since the implementation of NCLB, the ESSA, and other government mandates, there is an increased demand for student success on high-stakes testing (United States Department of Education, 2016). The results of these tests are used to determine funding from the federal and state levels for individual school districts (New America Foundation, 2015). In order to keep up with the increased expectations for student success, some school districts are implementing alternative methods of instruction (Gewertz, 2014). One of these experimental forms of instruction is the departmentalization of elementary-level classrooms (Chan & Jarman, 2004).

Problem and Purpose Overview

Departmentalization is an alternative classroom environment in which the responsibility of teaching core subjects is divided between two or more teachers (Gewertz, 2014). This is a method that has been used in middle and high schools for many years, but elementary classrooms have customarily operated within a traditional environment in which all core classes are taught by one teacher (Chan & Jarman, 2004; Strohl et al., 2014). However, with increased accountability regulations and the implementation of rigorous standards, educators are exploring different instructional methods and practices in elementary classrooms (Mongeau, 2014). Educators are beginning to see success in education may come through new ways of thinking and learning (Kereluik, Mishra, Fahnoe, & Terry, 2013).

One way educators are trying to address the increased demands of education is through departmentalizing elementary classrooms (Gewertz, 2014). However, educational research done in 1965 suggested changing the classroom environment of

children at a young age may negatively impact student learning (AASA, 1965). Therefore, research was needed to determine the educational impacts of departmentalizing the classroom environment for elementary-level students.

Population and Sample

This study was conducted using three school districts located in one county of northwest Arkansas. These school districts were similar in size, school classification, poverty rate, and racial background of students (Arkansas Department of Education, 2016). The school districts had a mix of traditional and departmentalized classroom environments; School District One had traditional classroom environments in second through fourth grades, School District Two had a traditional classroom environment in second grade and departmentalized classroom environments in third and fourth grades, and School District Three had departmentalized classroom environments in second through fourth grades (D. Chaney, personal communication, September 14, 2015; L. Geren, personal communication, September 14, 2015; D. Kesner, personal communication, September 14, 2015).

Summary of Data Collection

Three research questions guided this study:

1. What is the statistically significant difference, if any, between raw test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom setting versus students in a departmentalized classroom setting?

2. What is the statistically significant difference, if any, between percentile test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

3. What is the statistically significant difference, if any, between grade-level average test scores on norm-referenced tests of students in second through fourth grades in a traditional classroom versus students in a departmentalized classroom setting?

Using the Arkansas Department of Education website, information regarding high-stakes test scores from each district was obtained using the Arkansas School Performance Report Cards (Arkansas Department of Education, 2016). These quantitative high-stakes test results were available through a publically accessible website and were used to perform the statistical analysis of this study (Arkansas Department of Education, 2016).

Reliability and Validity

This study was conducted using five years of data from the years 2011-2015. This gave information over a period of time in which traditional and departmentalized classroom environments were implemented. The high-stakes tests administered to students were the same across Arkansas (Arkansas Department of Education, 2016). Also, districts were required to test 95% of the student population in each grade level (Arkansas Department of Education, 2016). Therefore, the same percentage of the student population was tested in each grade level from each school district (Arkansas Department of Education, 2016).

Data Analysis

Only quantitative, secondary data were used for this study. These data included raw test scores, percentile rankings of test scores, and grade-level averages of test scores. For research question one, the dependent variable was the raw test scores and the independent variable was the classroom setting. Traditional classroom environment and

departmentalized classroom environment were considered the two levels within the independent variable. The raw test scores were rational in nature; therefore, a *t* test was used to analyze data (Bluman, 2015).

The reports publicized by the Arkansas Department of Education included how many students took the high-stakes test per grade level for each district and the percentage of students scoring within designated categories: below basic, basic, proficient, and advanced (Arkansas Department of Education, 2016). The researcher then used test scoring guides to determine the raw score for each category. The researcher entered the data sets into Microsoft Excel and used the Data Analysis Tool-Pak to perform this analysis. This determined a *p* value.

For research question two, the dependent variable was the percentile rankings and the independent variable was the classroom setting. The two levels within this independent variable were departmentalized and traditional classroom settings. Because the dependent variable is categorical in nature, the researcher used a Chi Square test to analyze the data (Brase & Brase, 2016). The researcher entered the data into Microsoft Excel and used the Data Analysis Tool-Pak to perform this analysis. This provided a *p* value for the data set.

For research question three, the dependent variable was the grade-level average test scores, and the classroom setting was considered the independent variable. The two levels within the independent variable were departmentalized and traditional classroom setting. Because the dependent variable was rational in nature, a *t* test was performed using the Data Analysis Tool-Pak in Microsoft Excel (Bluman, 2015). Grade-level

averages for both math and literacy were entered to perform a *t* test for both subjects. This gave the researcher a *p* value for both subjects.

Findings from research question one. The first research question was analyzed using test results from the Iowa Test of Basic Skills (ITBS) for second grade and the Arkansas Benchmark for third and fourth grades for the years of 2011-2012 (Arkansas Department of Education, 2016). For the years 2012-2015, there were no raw testing data available. For 2015, the ITBS was used for second grade and the Partnership for Assessment of Readiness for College and Careers (PARCC) was used for third and fourth grades (Arkansas Department of Education, 2016).

In 2011, the results from the *t* test conducted for second-grade math and literacy showed a statistically significant difference between the raw test scores from School District One and School District Two, both of which utilized a traditional classroom setting. There was not a statistically significant difference shown in math or literacy between School District One and School District Three, which compared traditional classroom environments to departmentalized classroom environments. Also, there was no statistically significant difference between School District Two and School District Three, which compared traditional classroom settings to departmentalized classroom settings (see Table 1)

Table 1

Second-Grade Raw Test Score Results

Year	Districts Compared	Classrooms	Subject	*p*	SS
2011	One/Two	T/T	Math	0.028	Yes
2011	One/Two	T/T	Literacy	0.018	Yes
2011	One/Three	T/D	Math	0.062	No
2011	One/Three	T/D	Literacy	0.165	No
2011	Two/Three	T/D	Math	0.715	No
2011	Two/Three	T/D	Literacy	0.812	No
2012	Data unavailable				
2013	Data unavailable				
2014	Data unavailable				
2015	Data unavailable				

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

The 2011 results for third-grade math showed there was not a statistically significant difference between District One and District Two, which compared traditional classroom environments to departmentalized classroom environments. Also, there was not a statistically significant difference shown between School District Two and District Three, which showed a comparison of departmentalized classroom environments. However, a statistically significant difference was shown between District One and District Three, which compared traditional classrooms to departmentalized classrooms. For literacy, results comparing District One and District Two showed a statistically significant difference, while results comparing District One and District Three and District Two and District Three showed no statistically significant difference (see Table 2).

Table 2

2011 Third-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.721	No
One/Two	T/D	Literacy	0.027	Yes
One/Three	T/D	Math	0.044	Yes
One/Three	T/D	Literacy	0.742	No
Two/Three	D/D	Math	0.051	No
Two/Three	D/D	Literacy	0.161	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using the 2012 raw score results for math, the data revealed there was a statistically significant difference between District One and District Two, which compared traditional classroom settings to departmentalized classroom settings. There was also a statistically significant difference found between District Two and District Three, which compared two sets of departmentalized classrooms. However, there was no statistically significant difference found between District One and District Three, which compared traditional classroom settings and departmentalized classroom settings. For literacy, there was no statistically significant difference found between any of the school districts in this study (see Table 3).

Table 3

2012 Third-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.035	Yes
One/Two	T/D	Literacy	0.424	No
One/Three	T/D	Math	0.394	No
One/Three	T/D	Literacy	0.129	No
Two/Three	D/D	Math	0.006	Yes
Two/Three	D/D	Literacy	0.340	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using the 2013 raw score results for math, there was no statistically significant difference between Districts One and Two, which compared traditional classroom settings to departmentalized classroom settings. There was also no statistically significant difference found between Districts Two and Three, which compared two sets of departmentalized classrooms. However, there was a statistically significant difference found between Districts One and Three, which compared traditional classroom settings and departmentalized classroom settings. For literacy, there was not a statistically significant difference found between Districts One and Two, which compared traditional classroom settings to departmentalized classroom settings. However, a statistically significant difference was found between Districts One and Three, traditional classroom settings versus departmentalized classroom settings, and Districts Two and Three, both departmentalized classroom settings (see Table 4).

Table 4

2013 Third-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.154	No
One/Two	T/D	Literacy	0.107	No
One/Three	T/D	Math	0.010	Yes
One/Three	T/D	Literacy	0.002	Yes
Two/Three	D/D	Math	0.102	No
Two/Three	D/D	Literacy	0.033	Yes

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

The 2014 raw score results for math showed there was a statistically significant difference between District One and District Two, which compared traditional classroom settings to departmentalized classroom settings. There was no statistically significant difference found between District Two and District Three, which compared two sets of departmentalized classrooms. Also, there was no statistically significant difference found between District One and District Three, which compared traditional classroom environments to departmentalized classroom environments. For literacy, there was no statistically significant difference found between any of the districts in this study (see Table 5).

Table 5

2014 Third-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.006	Yes
One/Two	T/D	Literacy	0.525	No
One/Three	T/D	Math	0.064	No
One/Three	T/D	Literacy	0.860	No
Two/Three	D/D	Math	0.766	No
Two/Three	D/D	Literacy	0.739	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using the 2015 raw test score data for math, it was determined there was no statistically significant difference between District One and District Three, which compared the traditional classroom setting to the departmentalized classroom setting. Also, there was no statistically significant difference found between District Two and District Three, which compared two sets of data from departmentalized classroom settings. However, a statistically significant difference was found between District One and District Two, which compared traditional classroom settings to departmentalized classroom settings.

For literacy, it was found there was a statistically significant difference between District One and District Two, which compared data from traditional classrooms and departmentalized classrooms. Also, a statistically significant difference was found between District One and District Three, which also compared traditional classroom environments to departmentalized classroom environments. However, there was no statistically significant difference found between Districts Two and Three, both of which use departmentalized classroom settings (see Table 6).

Table 6

2015 Third-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.005	Yes
One/Two	T/D	Literacy	0.031	Yes
One/Three	T/D	Math	0.149	No
One/Three	T/D	Literacy	0.028	Yes
Two/Three	D/D	Math	0.614	No
Two/Three	D/D	Literacy	0.462	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using data from fourth-grade raw math scores in 2011, it was found there was no statistically significant difference between District One and District Three, which compared traditional classroom environments to departmentalized classroom environments. Also, there was no statistically significant difference found between District Two and District Three, which compared data from two sets of departmentalized classroom environments. However, a statistically significant difference was found between District One and District Two, which compared traditional classroom environments to departmentalized classroom environments.

For literacy, it was found there was no statistically significant difference between District One and District Three, comparing data from traditional classroom environments to departmentalized classroom environments. Also, there was no statistically significant difference found between District Two and District Three, comparing data from two sets of departmentalized classrooms. However, a statistically significant difference was found between District One and District Two, which also compared data from traditional classroom environments to departmentalized classroom environments (see Table 7).

Table 7

2011 Fourth-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.003	Yes
One/Two	T/D	Literacy	0.013	Yes
One/Three	T/D	Math	0.271	No
One/Three	T/D	Literacy	0.203	No
Two/Three	D/D	Math	0.303	No
Two/Three	D/D	Literacy	0.600	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

The 2012 fourth-grade raw data sets were used to determine whether or not a statistically significant difference occurred between pairs of districts used in this study. It was found no statistically significant difference occurred between any districts using the data sets for math. Also, there was no statistically significant difference found in the fourth-grade literacy scores between any of the districts for 2012 (see Table 8).

Table 8

2012 Fourth-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.055	No
One/Two	T/D	Literacy	0.363	No
One/Three	T/D	Math	0.594	No
One/Three	T/D	Literacy	0.918	No
Two/Three	D/D	Math	0.320	No
Two/Three	D/D	Literacy	0.439	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using the raw test scores for 2013, it was determined there was no statistically significant difference between any combination of the school districts for math or literacy (see Table 9). There was also no statistically significant difference between any combination of school districts for math or literacy in 2014 (see Table 10). Therefore, there was no statistically significant difference found between any of the school districts at the fourth-grade level for three years.

Table 9

2013 Fourth-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.883	No
One/Two	T/D	Literacy	0.542	No
One/Three	T/D	Math	0.557	No
One/Three	T/D	Literacy	0.945	No
Two/Three	D/D	Math	0.434	No
Two/Three	D/D	Literacy	0.712	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Table 10

2014 Fourth-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.545	No
One/Two	T/D	Literacy	0.253	No
One/Three	T/D	Math	0.740	No
One/Three	T/D	Literacy	0.408	No
Two/Three	D/D	Math	0.398	No
Two/Three	D/D	Literacy	0.941	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using raw test scores from 2015, it was found there was no statistically significant difference between any of the school districts for math. For literacy there was no statistically significant difference between District One and District Two, which compared traditional classrooms to departmentalized classrooms. Also, there was no statistically significant difference found between District One and District Three, which also compared traditional classroom environments to departmentalized classroom environments. However, a statistically significant difference was found between District Two and District Three, which compared two sets of data from departmentalized classroom environments (see Table 11).

Table 11

2015 Fourth-Grade Raw Test Score Results

Districts Compared	Classrooms	Subject	*p*	SS
One/Two	T/D	Math	0.235	No
One/Two	T/D	Literacy	0.254	No
One/Three	T/D	Math	0.144	No
One/Three	T/D	Literacy	0.150	No
Two/Three	D/D	Math	0.511	No
Two/Three	D/D	Literacy	0.006	Yes

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Findings from research question two. The second research question was analyzed using percentile rankings from results of the IOWA for second grade and the Arkansas Benchmark for third and fourth grades for the years of 2011-2014 (Arkansas Department of Education, 2016). For 2015, the ITBS was used for second grade and the PARCC test was used for third and fourth grades (Arkansas Department of Education,

2016). The score reports published by the Arkansas Department of Education gave a percentile ranking for each grade level for math, reading, and language (Arkansas Department of Education, 2016). However, there was no percentile ranking information given for grades three and four for 2015 (Arkansas Department of Education, 2016). The percentile ranking for each subject and grade level was used to perform a Chi Square test to determine a *p* value (Brase & Brase, 2016).

Using percentile rankings from 2011, it was found there was a statistically significant difference in math, reading, and language for second grade. There was a statistically significant difference in math and reading for third grade, but a statistically significant difference was not found in language. For fourth grade there was a statistically significant difference in math, but no statistically significant difference was found in reading or language (see Table 12).

Table 12

Difference in Percentile Rankings for 2011

Grade Level	Subject	*p*	Statistically Significant
Second	Math	0.011	Yes
Second	Reading	0.010	Yes
Second	Language	0.019	Yes
Third	Math	0.001	Yes
Third	Reading	0.043	Yes
Third	Language	0.190	No
Fourth	Math	0.0004	Yes
Fourth	Reading	0.139	No
Fourth	Language	0.127	No

Using percentile rankings from 2012, the researcher determined there was a statistically significant difference in math, reading, and language for second grade. For third grade there was a statistically significant difference in math and reading; however, a statistically significant difference did not occur in language. For fourth grade there was a statistically significant difference in reading and language, but no statistically significant difference was shown in math (see Table 13).

Table 13

Difference in Percentile Rankings for 2012

Grade level	Subject	*p*	Statistically Significant
Second	Math	0.026	Yes
Second	Reading	0.017	Yes
Second	Language	0.023	Yes
Third	Math	0.0003	Yes
Third	Reading	0.020	Yes
Third	Language	0.235	No
Fourth	Math	5.786	No
Fourth	Reading	0.049	Yes
Fourth	Language	0.033	Yes

Using percentile rankings from 2013, it was found there was no statistically significant difference in math for second grade, but there was a statistically significant difference in reading and language for second grade. For third grade, there was no statistically significant difference found in any subject area. In fourth grade, there was a statistically significant difference in math; however, a statistically significant difference was not shown in reading and language (see Table 14).

Table 14

Difference in Percentile Rankings for 2013

Grade level	Subject	*p*	Statistically Significant
Second	Math	0.110	No
Second	Reading	0.026	Yes
Second	Language	0.009	Yes
Third	Math	0.538	No
Third	Reading	0.423	No
Third	Language	0.133	No
Fourth	Math	0.0002	Yes
Fourth	Reading	0.167	No
Fourth	Language	0.065	No

Using the percentile rankings from 2014, it was found there was a statistically significant difference in reading for second grade; however, there was no statistically significant difference found in math or language. In grade four, there were no statistically significant differences found in reading, math, or language. Also, there were no statistically significant differences found in fifth grade for reading, math, or language (see Table 15).

Table 15

Difference in Percentile Rankings for 2014

Grade level	Subject	*p*	Statistically significant
Second	Math	0.144	No
Second	Reading	0.031	Yes
Second	Language	0.103	No
Third	Math	0.343	No
Third	Reading	0.712	No
Third	Language	0.844	No
Fourth	Math	0.411	No
Fourth	Reading	0.364	No
Fourth	Language	0.664	No

Using percentile ranking information from 2015, there was no statistically significant difference in math, reading, or language (see Table 16). The students took the PARRC examination for the first time in 2015 (Arkansas Department of Education, 2016). The PARRC is a high-stakes test that is computer-based; therefore, this was the first time students in grades three, four, and five were given an online assessment (Arkansas Department of Education, 2016). Percentile data from the PARCC test for third and fourth grades were not provided (Arkansas Department of Education, 2016).

Table 16

Difference in Percentile Rankings for 2015

Grade level	Subject	*p*	Statistically significant
Second	Math	0.607	No
Second	Reading	0.748	No
Second	Language	0.067	No
Third grade data unavailable			
Fourth grade data unavailable			

Findings from research question three. The third research question was analyzed using grade-level averages published by the Arkansas Department of Education (Arkansas Department of Education, 2016). The grade-level averages were given in the form of an average scaled score for each subject area in each specified grade (Arkansas Department of Education, 2016). A *t* test was performed using combined grade-level averages for math and literacy at each grade level.

Using grade-level averages for 2011, there was no statistically significant difference between any of the school districts at the second-grade level. In third grade, it was found a statistically significant difference was not shown in math or literacy. The same result was found in fourth grade math and literacy (see Table 17).

Table 17

2011 Results from Grade-Level Averages

Grade	Districts Compared	Classrooms	*p*	SS
Second	One/Two	T/T	0.428	No
Second	One/Three	T/D	0.401	No
Second	Two/Three	T/D	0.848	No
Third	One/Two	T/D	0.094	No
Third	One/Three	T/D	0.309	No
Third	Two/Three	D/D	0.892	No
Fourth	One/Two	T/D	0.300	No
Fourth	One/Three	T/D	0.442	No
Fourth	Two/Three	D/D	0.577	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using grade-level averages for math and literacy in 2012, it was found a statistically significant difference occurred in second grade between District One and District Two, which compared data from two sets of traditional classroom environments. Also, there was a statistically significant difference shown between District One and District Three, which compared data sets from traditional classroom environments versus departmentalized classroom environments. However, a statistically significant difference was not shown between District Two and District Three, which compared traditional classroom environments to departmentalized classroom environments. For third grade, a statistically significant difference was not shown between any of the districts in this study for math and literacy. Also, in fourth grade, there were no statistically significant differences shown between any of the districts in this study when analyzing math and literacy scores (see Table 18).

Table 18

2012 Results from Grade-Level Averages

Grade	Districts Compared	Classrooms	*p*	SS
Second	One/Two	T/T	0.0007	Yes
Second	One/Three	T/D	0.010	Yes
Second	Two/Three	T/D	0.543	No
Third	One/Two	T/D	0.822	No
Third	One/Three	T/D	0.710	No
Third	Two/Three	D/D	0.417	No
Fourth	One/Two	T/D	0.916	No
Fourth	One/Three	T/D	0.828	No
Fourth	Two/Three	D/D	0.886	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using 2013 grade-level averages from math and literacy for second grade, there was a statistically significant difference between District One and District Two, which compared two sets of data from traditional classroom environments. There was no statistically significant difference found between District One and District Three, which compared data sets from traditional classroom environments versus data sets from departmentalized classroom environments. Additionally, there was no statistically significant difference shown between District Two and District Three, which also compared data from traditional classroom environments versus data from departmentalized classroom environments. There was no statistically significant difference found between any of the districts in grades three and four (see Table 19).

Table 19

2013 Results from Grade-Level Averages

Grade	Districts Compared	Classrooms	*p*	SS
Second	One/Two	T/T	0.001	Yes
Second	One/Three	T/D	0.106	No
Second	Two/Three	T/D	0.653	No
Third	One/Two	T/D	0.318	No
Third	One/Three	T/D	0.116	No
Third	Two/Three	D/D	0.107	No
Fourth	One/Two	T/D	0.921	No
Fourth	One/Three	T/D	0.391	No
Fourth	Two/Three	D/D	0.322	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Using 2014 grade-level averages from math and literacy, it was found in second grade there was no statistically significant difference between District One and District Two, which compared data from two sets of traditional classroom environments. Also, there was no statistically significant difference found between District Two and District Three, which compared data from traditional classroom environments to departmentalized classroom environments. However, a statistically significant difference was found between District One and District Three, which compared traditional classroom environments to departmentalized classroom environments. There was no statistically significant difference found between any of the districts in grades three and four (see Table 20). Also, no significant differences were found at any grade level for the districts in 2015 (see Table 21).

Table 20

2014 Results from Grade-Level Averages

Grade	Districts Compared	Classrooms	*p*	SS
Second	One/Two	T/T	0.559	No
Second	One/Three	T/D	0.001	Yes
Second	Two/Three	T/D	0.420	No
Third	One/Two	T/D	0.340	No
Third	One/Three	T/D	0.359	No
Third	Two/Three	D/D	0.887	No
Fourth	One/Two	T/D	0.940	No
Fourth	One/Three	T/D	0.946	No
Fourth	Two/Three	D/D	0.995	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Table 21

2015 Results from Grade-Level Averages

Grade	Districts Compared	Classrooms	*p*	SS
Second	One/Two	T/T	0.244	No
Second	One/Three	T/D	0.381	No
Second	Two/Three	T/D	0.950	No
Third	One/Two	T/D	0.294	No
Third	One/Three	T/D	0.296	No
Third	Two/Three	D/D	0.806	No
Fourth	One/Two	T/D	0.312	No
Fourth	One/Three	T/D	0.970	No
Fourth	Two/Three	D/D	0.837	No

Note. SS = Statistically significant, T = Traditional, D = Departmentalized.

Summary

The purpose of this study was to determine how the type of classroom environment, traditional or departmentalized, impacted student success on high-stakes

testing. Through information published by the Arkansas Department of Education, the researcher compared the test results of school districts implementing traditional and departmentalized classroom settings in grades two through four (Arkansas Department of Education, 2016). Data regarding raw test scores, percentile test scores, and grade-level averages were obtained for three school districts located in one county of northwest Arkansas for the years of 2011-2015 (Arkansas Department of Education, 2016).

Chapter Five: Summary and Conclusions

The purpose of this study was to determine what statistically significant differences, if any, occurred between districts that used a traditional classroom environment in second through fourth grades compared to districts that used departmentalized classroom environments. The study used student success metrics including raw scores, percentile ranks, and grade-level averages to determine success. This study was necessary because some school districts are beginning to implement departmentalization at younger grades in order to maintain student success while meeting the increased rigor of standards, higher accountability, and increasing teacher retention (Gewertz, 2014). However, historical research has suggested departmentalizing classrooms of younger students negatively impacts student learning (AASA, 1965). Therefore, research had to be conducted to determine the impacts of classroom environments on students today.

There were three school districts used in this study. The three school districts were all rural and located in one county of northwest Arkansas (Arkansas Department of Education, 2016). These three districts were all similar in demographics such as size, poverty rate, and district classification (Arkansas Department of Education, 2016). The three school districts had both traditional and departmentalized classroom environments (Arkansas Department of Education, 2016).

Arkansas requires school districts to test 95% of students, which implicated the research was conducted on the same percentage of students from each district in this study (Arkansas Department of Education, 2016). These districts varied in type of classroom environment utilized. District One had traditional classrooms in second

through fourth grades, School District Two had traditional classrooms in second grade and departmentalized classrooms in third and fourth grades, and School District Three had departmentalized classrooms in second through fourth grades. This information was confirmed through conversations with administrators at each of these three districts during professional development meetings (D. Chaney, personal communication, September 14, 2015; L. Geren, personal communication, September 14, 2015; D. Kesner, personal communication, September 14, 2015). This provided classrooms consisting of each type of classroom environment targeted for this study.

This study was quantitative in nature, and secondary data were used to answer all research questions (Bluman, 2015). The Arkansas Department of Education website was used to collect all data required for this study (Arkansas Department of Education, 2016). Once data were collected from the Arkansas Department of Education website, these data were entered into Microsoft Excel, and the Data Analysis Tool-Pak was used to run the aforementioned tests to determine *p* values for each research of the three research questions (Bluman, 2015).

Findings

The first research question was analyzed using test results from the Iowa Test of Basic Skills (ITBS) for second grade in 2011 (Arkansas Department of Education, 2016). The Arkansas Benchmark was used for third and fourth grades for 2011-2014 (Arkansas Department of Education, 2016). For 2015, the Partnership for Assessment of Readiness for College and Careers (PARCC) was used for third and fourth grades (Arkansas Department of Education, 2016).

For second grade, the researcher was only able to conduct the statistical tests for 2011, because data were unavailable for 2012-2015 (Arkansas Department of Education, 2016). The results showed there was a statistically significant difference between District One and District Two, comparing districts which both utilized the traditional classroom environment. However, a statistically significant difference was not found between the districts using traditional classroom environments compared to the district using departmentalized classroom environments.

For third grade, the statistical tests resulted in mixed results. When comparing District One and District Two, traditional classroom environment versus departmentalized classroom environment, a statistically significant difference was shown in math during the years 2012, 2014, and 2015. There was a statistically significant difference shown in literacy in 2011 and 2015. When comparing District One and District Three, traditional classroom environment versus departmentalized classroom environment, a statistically significant difference was shown in math in 2011 and 2013. There was a statistically significant difference in literacy in 2013 and 2015. When comparing District Two and District Three, both utilizing departmentalized classroom environments, a statistically significant difference was shown in math in 2012 and in literacy in 2013.

For fourth grade, the statistical test yielded the least diversified results. In 2011, there was a statistically significant difference between District One and District Two in both literacy and math. In 2015, a statistically significant difference was shown between District Two and District Three in literacy. Since each grade level in the study yielded

mixed results regarding both traditional and departmentalized classroom settings, $H1_a$ was not supported for research question one.

The second research question was analyzed using percentile rankings from results of the IOWA for second grade and the Arkansas Benchmark for third and fourth grades for the years of 2011-2014 (Arkansas Department of Education, 2016). For 2015, the ITBS was used for second grade and the PARCC test was used for third and fourth grades (Arkansas Department of Education, 2016).

The second-grade results showed the largest number of statistically significant differences. There were statistically significant differences in math, reading, and language in 2011 and 2012. There were statistically significant differences in reading and language in 2013, and there was a statistically significant difference in reading in 2014. However, there were no statistically significant differences in 2015. For third grade, there were only two years that showed statistically significant differences: 2011 and 2012 in both math and reading. For fourth grade, there were statistically significant differences in reading and language in 2011. There were statistically significant differences in math in 2012 and 2013 and for reading and language in 2011. Therefore, $H2_a$ was not supported for research question two.

The third research question was analyzed using grade-level averages published by the Arkansas Department of Education (Arkansas Department of Education, 2016). The statistical tests yielded mixed results for this question as well. For second grade, there was a statistically significant difference between District One and District Two, both of which utilized traditional classroom environments, in 2011 and 2013. There was a statistically significant difference shown between District One and District Three,

traditional classroom environment versus departmentalized classroom environment, in 2011 and 2014. There were no statistically significant differences shown between Districts Two and Three, traditional classroom environment versus departmentalized classroom environment. For third and fourth grades, there were no statistically significant differences shown between any of the districts. Therefore, $H3_a$ was not supported for research question three.

Conclusions

While the alternative hypothesis for each research question was not supported, the tests performed using these data generated several trends (Shadish & Sullivan, 2013). The first trend the data showed was the most frequent amount of statistically significant results occurred in the years 2011 and 2012. During these years, School Districts One and Two showed statistically significant differences at each grade level on portions of the statistical tests. However, when comparing second-grade scores, these data that showed statistically significant differences were from the same type of classroom: traditional. Therefore, these results indicated factors beyond classroom environment type impacted the high-stakes test results.

The second trend shown through the data regarded second graders. There seemed to be more statistically significant differences in second grade than either third or fourth grade. This held true in instances comparing traditional classes to traditional classes, as well as comparing traditional classes to departmentalized classrooms. The second-grade results showed less statistically significant differences in 2014 and 2015, but there still were instances in which the results were statistically significant. This could indicate the

type of classroom environment has a greater impact on second-grade students than on third- and fourth-grade students.

The third trend discovered using these data dealt with subject area. During the years 2011-2015, there were 14 instances of statistically significant differences shown in the subject of math. There were 16 instances of statistically significant differences shown in the subject of literacy. The occurrence of test data that yielded statistically significant results were similar regarding both literacy and math. Therefore, the type of classroom environment utilized showed little impact on student success in regard to the subject area being tested.

The fourth trend generated by these data results dealt with the grade-level averages of third and fourth grades. From 2011-2015, there were no statistically significant differences between the grade-level averages when comparing any of the districts. This implied third- and fourth-grade students performed at the same overall level regardless of the classroom environment the district implemented. This could indicate third- and fourth-grade students are better equipped to handle the pressure of high-stakes testing than second graders in either traditional or departmentalized classroom environments.

Although trends could be determined throughout the results, these data did not allow the researcher to make overarching conclusions on traditional classroom environments versus departmentalized classroom environments in second through fourth grades. Also, due to the fact there were inconsistent results from each research question, the researcher is led to believe factors other than classroom environment influenced the results of high-stakes testing (Giannakos, 2013). These factors may include training of

teachers, principal leadership, perceptions of classroom environment from teachers, implementation of technology, student engagement, classroom management, parental involvement, or many other educational trends and issues (Buabeng-Andoh, 2012; Sebastian & Allensworth, 2012). In fact, many researchers suggested incorporating all of these factors into a classroom influences student learning (Alderman, 2013).

Implications for Practice

The statistical tests performed in this study yielded inconsistent results. However, in recent years, especially in third and fourth grades, the results indicated no statistically significant differences between traditional classroom environments and departmentalized classroom environments. Therefore, administrators looking for alternative instructional methods to meet accountability demands need to examine teachers in the classrooms rather than just classroom environments (Gewertz, 2014).

In order to retain qualified teachers, morale and motivation are important factors (Chan & Jarman, 2004). Since the results indicated factors outside classroom environment are impacting test scores, it is important for administrators to determine which type of classroom environment will boost the morale of teachers (Giannakos, 2013). This is a decision that should be made by individual districts, as the needs and wants of teachers differ from district to district (Wyatt, 2015).

Recommendations for Future Research

This study was conducted using secondary quantitative data only. Departmentalization at the elementary level could be approached using qualitative data. This research could be done through surveys and interviews. Research could be done through the recruitment of primary participants such as administrators, teachers, parents,

and students. Administrators could be surveyed regarding information regarding the process and decision to departmentalize a school building. Teachers could be interviewed for information regarding buy-in to departmentalization, successfulness of departmentalization in regard to instructional practices, and the impact departmentalization has on factors influencing teacher retention such as workload and stress. Guardians of students could be surveyed regarding success of departmentalization from the parent perspective. Students could be questioned regarding social implications, stress level when departmentalizing, relationships with teachers when dealing with more than one teacher, and effectiveness of classroom instruction. These different perspectives could introduce social and emotional aspects regarding departmentalization of elementary-level classrooms.

This study was limited to one county in northwest Arkansas. In order to make generalizations for American education, a wider study must be conducted. Data from across the country should be reviewed. Also, all three districts in this study were rural school districts. Therefore, data from inner-city, urban, and suburban schools must be used to make educational generalizations.

The research was only conducted in relation to second through fourth grades. For future research, more grade levels could be incorporated into the study. Many school districts are utilizing departmentalization in kindergarten through 12th grades (Gewertz, 2014). Therefore, research, both quantitative and qualitative, could be conducted starting with students at the kindergarten level.

Summary

Departmentalization of classrooms has historically begun in the middle school grades (Strohl et al., 2014). However, since the implementation of NCLB, the demands for education are increasing (New America Foundation, 2015). This remains true with the approval of the ESSA (United States Department of Education, 2016).

In order to meet the increase in rigorous standards and stricter accountability policies, school districts are using alternative education methods such as departmentalization to increase student success (Gewertz, 2014). However, historical research has indicated departmentalization of elementary classrooms negatively impacts academic success of students (AASA, 1965). This study was designed to determine if there was a statistically significant difference between student high-stakes test scores in second through fourth grades in districts using traditional classrooms versus districts using departmentalized classrooms when comparing raw test scores, percentile test scores, and grade-level averages.

Chapter One provided the background of the study. Since the American education system is currently defined by the success of students on high-stakes tests, administrators are implementing alternative methods of instruction, such as departmentalizing classrooms, to increase test scores (Gewertz, 2014; New America Foundation, 2015). The theoretical framework, Jerome Bruner's constructivist theory, was defined (McInerny, 2014). The statement of the problem and purpose of the study were outlined. The research questions and hypotheses were introduced. Also, a definition was given for key terms used in this study. In addition, the assumptions and limitations were presented.

Chapter Two provided the review of literature for this study. The theoretical framework was defined. Jerome Bruner's constructivist theory was the overarching framework for this study (McInerny, 2014). Bruner attempted to explain the connection between environmental influences and student learning through the constructivist theory (as cited in Singh & Rajput, 2013). There are three types of constructivism: social constructivism, sociocultural constructivism, and information processing constructivism (McInerny, 2014). Also, the works of other theorists related to constructivism were outlined. A history of American education and a history of departmentalization were discussed. Types of elementary classrooms were explained, and the current state of American education was introduced. An overview of current educational practices was presented, and issues impacting education were explained.

Chapter Three outlined the methodology for this study. Since administrators are implementing departmentalization as a means to increase student success, an area for research was created regarding the success of students on high-stakes testing (Gewertz, 2014). The population and sample were from three rural school districts located in the same county of northwest Arkansas. Secondary data collection and data analysis were explained. The researcher used pre-existing data to run the statistical tests of this study.

In Chapter Four, the results of the statistical tests were presented. The study was conducted using publically available results from high-stakes tests of students in three districts located in one county of northwest Arkansas. Students in second through fourth grades for each district were used in the study. The sample included classrooms utilizing both traditional and departmentalized classroom environments. The statistical tests

yielded mixed results when comparing success metrics of students in traditional classrooms versus students in departmentalized classrooms.

The findings and conclusions were discussed in Chapter Five. Also, implications for educational practice were presented based on the quantitative statistical results of this study. Recommendations for future research were presented, including recommendations for qualitative research and repetition of this study in different areas of the United States in order to make educational generalizations.

Appendix A

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	April 29, 2016
TO:	Staci Ray
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	[894082-1] Departmentalized Classrooms versus Traditional Classrooms in Second through Fourth Grades: A Quantitative Analysis
IRB REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	April 29, 2016
EXPIRATION DATE:	
REVIEW TYPE:	Administrative Review

Thank you for your submission of Revised Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Administrative Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of .

Please note that all research records must be retained for a minimum of three years.

If you have any questions, please contact Sherrie Wisdom at (636) 949-4478 or swisdom@lindenwood.edu. Please include your study title and reference number in all correspondence with this office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

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Vita

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Mrs. Ray taught seven years at the Berryville School District in Berryville, Arkansas. She is currently teaching in the Branson School District. Mrs. Ray holds dual certifications for teaching and administration in Missouri and Arkansas.

Mrs. Ray has a passion for the instruction of elementary students. She and her husband, Drew, attend church at First Baptist Church in Branson, Missouri. Together they enjoy farming, animals, and travel.