THE EFFECT OF DEPARTMENTALIZATION ON ENGLISH LANGUAGE ARTS ACHIEVEMENT IN GRADES 4 THROUGH 6

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THE EFFECT OF DEPARTMENTALIZATION ON ENGLISH LANGUAGE ARTS ACHIEVEMENT IN GRADES FOUR THROUGH SIX

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THE EFFECT OF DEPARTMENTALIZATION ON ENGLISH LANGUAGE ARTS ACHIEVEMENT IN GRADES 4 THROUGH 6

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ABSTRACT

Student achievement is a priority and at the forefront of multiple discussions taking place in schools everywhere. Educators have the choice of two organizational structures for delivering instruction; the self-contained model and the departmentalized model. Schools from across the state of Missouri were included in this research. Once the sample of schools had been identified, their standardized assessment results for the spring of 2016 and the spring of 2017 were collected. Statistical analysis was performed using the SPSS program. Data was analyzed using an independent sample two-tailed *t* test. The researcher did not find a statistically significant difference within any grade level. The purpose of this causal comparative designed quantitative study was to determine if students who attend departmentalized elementary schools have higher academic gains in English Language Arts (ELA) on the Missouri Assessment Program (MAP) than students who attend elementary schools using the traditional self-contained model in grades four through six. The literature review included a history of learning along with previous influences on educational research and current practices. A section about how people learn included the three key learning principles (preconceptions, conceptual framework and metacognition) essential to increasing student performance as well as specific information regarding the design of learning environments (learner centered, knowledge centered, assessment centered and community centered) which should be considered when deciding how to structure a classroom if high student achievement is the goal. Structures for classroom organization including the self-contained model and the departmentalized model were discussed. English language arts expectations, literacy achievement and assessments were examined as well.

CHAPTER ONE

INTRODUCTION

In the words of Neslon Madela, “Education is the most powerful weapon you can use to change the world” (Strauss, 2013, p. 1). A good education has the potential to play a significant role in a person’s life and can produce positive and lasting effects on children. The face behind that ‘good education’ is the teacher and remains one of the key factors in the success of our children (Marzano, 2010). Avul Pakir Jainulabdeen Abdul Kalam stated, “Teaching is a very noble profession that shapes the character, caliber and future of an individual. If the people remember me as a good teacher, that will be the biggest honor for me” ("Top 10 A. P. J. Abdul Kalam Quotes", n.d.). No Child Left Behind (NCLB) required teachers to be highly qualified in all subjects they were responsible for teaching (U. S. Department of Education, 2009). No Child Left Behind exposed achievement gaps among underserved students and their peers which began important conversations about education improvement. The focus on accountability was a critical piece in ensuring quality education for all children. It also revealed the challenges involved in the effective implementation of this goal. People from across the county (parents, educators and elected officials) understood there was the need for a strong, updated law to strengthen our education system and economy (Ed.gov, 2018).

The Every Student Succeeds Act (ESSA) replaced NCLB when it was signed into law on December 10, 2015. The ESSA act is the eighth restructuring of the Elementary and Secondary Education Act of 1965 (Ed.gov, 2018). The ESSA took full effect during the 2017-18 school year (Klein, 2018). There are multiple provisions helping to ensure the success of students and schools. One provision is the requirement of all students in

America being prepared to succeed in college and in their chosen career. According to the ESSA, this expectation will be accomplished by teaching students to high academic standards (Ed.gov, 2018). Testing is still a main component of the ESSA (Korte, 2015). The ESSA ensures annual statewide testing assessments measuring students' progress toward those high standards and ensures the data from the testing is shared with educators, families, students and the community (Ed.gov, 2018).

Traditional classrooms are self-contained rooms where one teacher is responsible for the instruction of all the core subjects for the whole year (Chan & Jarman, 2004; Chang et al., 2008; Dropsey, 2004; Gerretson, Bosnick, & Schofield, 2008; Hood, 2010; McGrath & Rust, 2002; Moore, 2008; Reys & Fennell, 2003). According to Strohl (2014), the self-contained model is the typical elementary classroom model one sees in the current American education system. A departmentalized classroom is comprised of a team of teachers working as subject-area specialists, which is more common in the middle and secondary school levels (DelViscio & Muffs, 2007). According to Gerretson et al. (2008), "When teachers understood their content well, they created better ways of allowing students access to the content in order to increase student achievement.

The researcher conducted a causal comparative study to determine if a significant difference exists in English Language Arts achievement for fourth through sixth grade students who received instruction in a departmentalized setting as opposed to those who were taught in a traditional self-contained setting.

The researcher gathered data from elementary schools across the state of Missouri. The researcher used the Missouri Department of Elementary and Secondary Education database to generate a list of schools containing fourth, fifth and/or sixth grade

settings throughout the state. The researcher divided the state into nine regions using Missouri's Regional Professional Development Centers as a guide (Missouri Department of Elementary & Secondary Education. (n.d.-b). The nine regions include: Southeast, Heart of Missouri, Kansas City, Northeast, Northwest, South Central, Southwest, St. Louis and Central. Elementary schools throughout the state were organized alphabetically and assigned a number within each region then placed into an Excel document. The researcher utilized the online tool "Research Randomizer" found at https://www.randomizer.org/ to randomly identify 25 schools in each region which was the sample used for this study. The researcher chose 25 because it is understood some of the schools selected in the sample may not be eligible for participation due to not using the same organizational structure for both the 2015-16 and 2016-17 school years. The researcher only used data from these two years in the study due to the changes in content and formatting of the MAP test after the 2014-15 school year. The goal was to have at least 20 schools from each region as part of the sample. The researcher conducted a phone survey to determine if the elementary schools included in the sample were practicing departmentalization or a self-contained approach to educating their students. Schools included in the sample were required to utilize their chosen organizational structure for the 2015-16 and 2016-17 school years. The phone survey also determined which grades were departmentalized and how long that particular elementary school had practiced departmentalization. Once the information was gathered from the sample, any grade levels and/or schools identified as not having the same organizational structure for the 2015-16 and 2016-17 school years were not included in this study as it would have changed the dependent variable and data quality/consistency was an important aspect to

ensuring this study was accurate. Those identified who utilized the same structure for the 2015-16 and 2016-17 school years were included in the sample of schools studied and had their standardized assessment results for the spring of 2016 and the spring of 2017 collected.

This research may help guide districts to make informed decisions in the development and implementation of a successful departmentalized schedule in an elementary school setting.

Problem Statement

Departmentalization in elementary schools may positively affect fourth, fifth and sixth grade student achievement in English Language Arts as measured by the Missouri Assessment Program (MAP). Departmentalization allows schools to divide the duties and responsibilities of teaching core subjects which enables teachers to specialize and focus on learning content and instructional strategies for one content area (Chan & Jarman, 2004; Gerretson et al., 2008). Using the traditional self-contained structure in elementary schools requires one teacher to be responsible for all core content areas for one group of students for the entire school year (Chan & Jarman, 2004; Chang, Munoz, Koshewa, 2008; Delviscio & Muffs, 2007, Gewertz, 2014; Hood, 2010). When districts make decisions about which organizational structure to implement at the elementary level, the process should include educators seeking research-based evidence to determine which practice makes a difference in student achievement. Bransford's work includes the three key principles essential to any school with a focus on understanding learning design and environments to improve student performance. The organizational structure chosen by elementary school leaders needs to create a high probability for ensuring high levels of

student learning. Research shows when the three principles (preconceptions, conceptual framework and metacognition) are part of the curriculum and infused into purposeful teaching, student achievement improves (Bransford et al., 2000). As educators consider how to structure classrooms, these principles must be considered to ensure high levels of student achievement. When seeking research-based evidence on the effectiveness of different organizational structures, there is a limited amount of evidence and it often denotes contradictory information (Chang et al., 2008; Dropsey, 2004; Hood, 2010; McGrath & Rust, 2002; Reys & Fennell, 2003). This study was intended to determine if there is a difference in fourth, fifth and sixth grade ELA achievement when students learn in a classroom using the departmentalized model versus students who learn in a classroom using the traditional, self-contained model.

Purpose of the Study

The purpose of this quantitative, causal comparative study was to determine if a relationship exists between classroom structures in an elementary school setting in Missouri and student achievement in English Language Arts as measured by the Missouri Assessment Program (MAP). How a classroom structure may affect the learning taking place in a classroom was the main premise of this study. Four perspectives on learning environments are important when deciding the design and structure of the environment: the degree to which they are student centered, knowledge centered, assessment centered and community centered (Bransford et al., 2000). A systems approach is needed to design an effective learning environment (Brown & Campione, 1996). According to the cognitive research from *How People Learn* the environments that best promote learning have four focuses and are reliant on one another to have a positive impact on student

achievement. These include a focus on learners, well-organized knowledge, ongoing assessment for understanding and community support and challenge. The most effective learning environments contain all four of these perspectives (Bransford et al., 2000). As educators consider how to structure classrooms, these four perspectives along with the three principles of learning which include preconceptions, conceptual framework and metacognition, should be considered. These principles provide educators guidance in making decisions about how to best structure and design the learning environments to fit the needs of their students and teachers (Bransford et al., 2000). The researcher was attempting to determine if students who attend departmentalized elementary schools will have higher academic gains in English Language Arts (ELA) than students who attend elementary schools using the traditional self-contained model in grades four through six. This causal comparative study used data from elementary schools across Missouri who practice departmentalization. The researcher compared the data from departmentalized elementary schools to elementary schools who use a traditional approach in fourth through sixth grades.

Research Questions.

1. What is the difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
2. What is the difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a

departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

3. What is the difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypotheses.

1. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
2. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
3. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

Significance of the Study

According to Chang (2008), there have been many studies focusing on departmentalization in middle schools and junior high; however limited research has been conducted on this model in the upper elementary. Although there is little evidence to

support ELA achievement in a departmentalized elementary setting, many districts have changed the structure of their elementary classrooms from self-contained instruction to departmentalized instruction (Hood, 2010).

One can find a multitude of advantages and disadvantages to using the departmentalization model in an elementary setting. There has been some research regarding the effects of mathematics achievement in departmentalized elementary schools, however it is not known if elementary departmentalization leads to higher achievement in ELA. A determination needs to be made about departmentalization of a classroom resulting in higher ELA proficiency than traditional self-contained classrooms.

Theoretical/Conceptual Framework

The theoretical framework of this study was based upon the works of Vygotsky (1978). The social constructivist theory was chosen to support the importance of the setting and social interactions in the process of cognitive development. Vygotsky's theory had three major themes: social interaction, the more knowledgeable other and the zone of proximal development. Vygotsky (1978) believed community plays a central role in the process of "making meaning". Vygotsky also believed culture and language played a big role in the development of students' thinking and the ways teachers and peers assist learning in the development of new ideas and skills (McCleod, 2018). His concept of the zone of proximal development (ZPD) suggested the distance between a student's ability to perform a task under adult guidance or with peer collaboration and the student's ability to solve the problem independently is the zone where learning takes place (Schunk, 1996; Culatta, 2011). Vygotsky's theory promotes learning as a social, collaborative activity and departmentalization provides opportunities for students to interact with many

different teachers who can provide a variety of quality learning opportunities (Gerretson et al., 2008).

Vgotsky's work was a precursor to the important findings from research conducted by the National Academy of Sciences about learning. In the seminal work, *How People Learn*, the emphasis on cognitive learning approach was expanded (Bransford et al., 2000). Through their work, the authors identified three principles of learning. These principles are the foundation for ensuring student learning is at the highest level and must be considered when determining any effective organizational structure.

The first principle is "preconceptions". Henriques (2002) noted children bring their own ideas with them which determines how they perceive the world. These ideas are developed through daily learning activities that happen before the start of formal education (Allen, 2014; Bradley, 1996). Learners use prior knowledge to construct meaning from new learning. If there is a connection between what the learners already know and the new knowledge being presented, new meaning is constructed, connections are made and learning takes place (Schulman, 1999). A child's prior knowledge can either help or hinder their learning. If a student's prior knowledge is accurate and activated at the appropriate time, it provides a strong foundation for building new knowledge; however, when knowledge is inaccurate it can interfere with the new learning ("Learning Principles", 2016).

The second principle is theoretical or conceptual framework. Bransford (2000) found "in order to develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a

conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application". A conceptual framework is an organization of ideas that are placed within a logical or sequential order to help the learner make connections, access prior knowledge and bring meaning to the concept being taught (Woodard and Hinchliffe, 2002). Organizing information into a conceptual framework allows the student to apply what was learned in a new situation which in turn, transfers the knowledge quicker (Bransford et al., 2000).

The third principle is metacognition. A metacognitive approach to instruction enables students to become self-directed learners and take control of their learning (Wilen & Phillips, 1995). When metacognition is the focus, students learn to monitor and adjust their own learning (Bransford et al., 2000). Students who develop the skill of metacognitive learning, gain habits that improve their performance and their effectiveness as a learner ("Learning Principles", 2016). As explained by Bransford (2000), developing metacognitive strategies and teaching those strategies in a classroom should be incorporated into the curriculum across every subject and level as it can enhance student achievement and develop students into independent learners.

The principles from *How People Learn* are associated with the organizational structure because the setting in an elementary school is an important piece to the learning process (Bransford et al., 2000). According to Bransford (2000), the environment supplies information for learning and provides structure to the information. Learning is promoted by a child's environment. The National Research Council (2000) found the four characteristics one should consider when determining if a structure is providing opportunities for promoting the three principles of learning. They include: learner-

centered environments, knowledge-centered environments, assessment-centered environments and community-centered environments. These four perspectives should be considered when designing the most effective structure for delivering instruction in the elementary setting.

The goal of this causal comparative study was to determine if the English Language Arts proficiency increases in elementary schools who practice departmentalization in grades fourth through sixth as compared to elementary schools who practice the traditional, self-contained approach to elementary school in the same grades.

Definition of Terms

The following terms are used throughout the dissertation and are defined below:

No Child Left Behind (NCLB): An act signed by President George W. Bush in 2001, which sought to close the achievement gap permanently between the economically disadvantaged, minority students, and their peers by the end of the 2013-2014 school year. It also gave parents more flexibility in choosing which schools their children will attend. Additionally, it promoted an increased focus on reading and math (Grasta, 2008).

Every Student Succeeds Act (ESSA): The Every Student Succeeds Act was signed by President Obama on December 10, 2015. The Obama administration created a law that focused on the clear goal of fully preparing all students for success in college and careers and required teachers to hold students to high academic standards (Ed.gov, 2018).

Departmentalized Instruction: Instruction in which one or more teachers teach one or two subjects to two or more groups of students throughout the school day (Canady & Rettig, 2008; Chang et al., 2008; Nelson, 2014; Yearwood, 2011).

Self-Contained Instruction: Instruction in which one teacher teaches all core subject areas to one set of students for the majority of the school day (Chang et al., 2008; Hood, 2010; Nelson, 2014; Yearwood, 2011).

English Language Arts: The subjects (such as reading, spelling, literature, and composition) that aim at developing the student's comprehension and capacity for use of written and oral language (Language arts. (n.d.). Retrieved September 15, 2018, from https://www.merriam-webster.com/dictionary/language arts).

Department of Elementary and Secondary Education (DESE): The administrative arm of the State Board of Education. A service agency that works with educators, legislators, government agencies, community leaders and citizens to maintain a strong public education system and assure all citizens have access to high-quality public education ("Guide to Government - Missouri Department of Elementary and Secondary Education", n.d.).

Missouri Assessment Program (MAP): An annual set of mandatory standardized assessments taken by students in the U.S. state of Missouri for English language arts, mathematics and science in grades 3-8; and English language arts, mathematics, science and social studies in high school that tests students' progress toward mastery of the Missouri Show-Me Standards (Nicastro, 2014).

Learning Environment: The diverse physical location, contexts, and cultures in which students learn (Bates, n.d.).

Outstanding Schools Act: A law signed in 1993 to increase Missouri's financial investment in education and set into motion a series of reforms. The law established new statewide performance standards for students, new curriculum frameworks, a statewide assessment for school, and accountability for results (Nicastro, 2014).

Show-Me Standards: Standards designed to provide a solid foundation by setting high expectations for learning and instruction which school districts use when building a curriculum that will help all students reach their maximum potential (Nicastro, 2014; "Show-Me Standards", n.d.).

Missouri Learning Standards: A framework and content expectations for each subject and grade level that provides guidelines for Missouri teachers to ensure students are on track and equipped with the knowledge and skills needed to be college and career ready (Nicastro, 2014).

Limitations

The following limitations were identified in this study:

- The researcher collected data from DESE's database and had no control over any of the scores.
- The researcher only collected and analyzed two years of data due to changes in the format of the MAP test.

Delimitations

The following delimitations were identified in this study:

- The researcher only used public school districts in Missouri for the study.
- The researcher chose to examine the administration of the MAP test in grades four through six in Communication Arts.

- The researcher chose Vygotsky's social constructivist theory with a focus on the zone of proximal development (ZPD) as well as the three principles of learning from cognitive research by the National Academy of Sciences as reported in *How People Learn* as the theoretical framework of this study.
- The researcher chose a causal comparative study, allowing the comparison of two types of classroom settings.

Assumptions

- The researcher assumes the person who is spoken to about the organizational structure of the building is knowledgeable and can provide accurate information including the organizational structure being used, the grades included in the structure and how long the structure has been implemented.
- The researcher assumes the data for the DESE database is accurate and complete.
- The researcher understands the results do not generalize to all grades K-12.
- The researcher assumed schools reported data honestly and accurately.

Design Controls

This causal comparative study began by identifying elementary schools across the state of Missouri housing fourth through sixth grades who use the departmentalization approach to learning. After elementary schools were identified as traditional or departmentalized, the researcher made phone calls to the departmentalized schools to determine if the school followed a departmentalized model for both the 2015-16 and 2016-17 school years along with which grades participate in the model. The researcher used data from DESE's website to determine MAP scores from each elementary identified for the sample. Once the scores were collected, they were thoroughly examined

to determine the overall student achievement from each grade level in English language arts based upon organizational structure.

Summary

Missouri schools are currently faced with higher expectations and the requirement of all students being prepared to succeed in college and their chosen career. This study is designed to determine if students who attend departmentalized elementary schools will have higher academic gains in English Language Arts (ELA) on the Missouri Assessment Program (MAP) than students who attend elementary schools using the traditional self-contained model in grades four through six. This research may help guide districts to make informed decisions in the development and implementation of a successful departmentalized schedule in the elementary school setting.

Chapter two of this paper will review the literature surrounding the history of learning including, multiple theorists and their contributions to education, a deep look into how people learn including the three learning principles (preconceptions, conceptual framework and metacognition) and the design of learning environments which should be considered when deciding how to structure a classroom if the goal is high levels of student achievement. Classroom organization structures will be discussed in depth. English language arts expectations in Missouri are examined along with literacy achievement and assessment.

Chapter Three will describe the methodology for collecting and analyzing the data of this study. Chapter Four will provide a presentation of the findings. Chapter Five will provide a summary of this project including conclusions and recommendations for school districts in regard to classroom organization and student achievement.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

In the past, departmentalization has been solely implemented at the middle and high school levels (Strohl, Schmertzing, Schmertzing, & Hsiao, 2014). Departmentalization involves dividing an organization into different departments, which perform tasks according to the departments' specializations in the organization (Grimsley, 2016). Departmentalization in elementary schools is the educational practice of dividing the duties of teaching different subjects among teachers for the same set of students (Gewertz, 2014). According to Gerretson et al. (2008), "When teachers understand their content well, they create better ways of allowing students to access the content in order to increase student achievement. In districts across the country there has been a noticeable increase in elementary schools who have adopted some sort of departmentalization (Hood, 2010). Education consultant Steve Peha claims he has noticed a difference in the number of classrooms who departmentalize in the elementary setting. He stated,

> "When I began working with schools 15 years ago, presenting assessments and test prep to all grade levels, roughly 5 percent of the elementary schools where I worked departmentalized instruction. Now, it's more of a normal thing and the percentage is closer to 20 percent" (Hood, 2010, p. 13-14).

Chapter Two will provide an overview of the literature related to the topic of using departmentalization as a structure for delivering instruction in the elementary classroom. This chapter will provide an overview of the history of learning to present the reader with background knowledge on the previous influences of educational research on

current educational practice. A section about how people learn including the three key principles essential to increasing student performance is included. Structures for classroom organization including the self-contained model and the departmentalized model is discussed in the literature review. English Language Arts expectations in Missouri are examined along with literacy achievement and assessment. Finally, the last part of this chapter summarizes the review of literature.

History of Learning

There are numerous theorists throughout history who have directly influenced education and learning. These scholars, religious leaders, philosophers, physicians and educators helped shape the instruction and learning taking place in today's classrooms. The basic ideas of a well-rounded, humanistic approach to education can be traced back to ancient Greece and its philosophers, Socrates (469-399 BC), Plato (427-347 BC), and Aristotle (384-322 BC) (Feeney, Moravcik, Nolte, & Christensen, 2010). Aristotle was a believer in inquiry methods while Socrates and Plato were both supporters of strategies calling for discourse and reflection as tools for developing thinking and learning (Darling-Hammond, Austin, Orcutt & Rosso, 2001).

The Middle Ages

The Middle Ages (500-1450) lasted about 1000 years. During this time, books were scarce and literacy was uncommon (Feeney et al., 2010). Research by Neman (2008) found most educational institutes of Romans stopped offering services at the end of the Roman era. Fighting skills were more important than education. Rulers and politicians gained power through wars or inheritance while education played little to no role in their success. The church became suspicious of Greek, Roman and Germanic

culture and closed down all pagan schools. Influence of the church allowed for monks, priests, and bishops to take over the responsibilities of teaching which led to a religious focus in education. According to Feeney (2010), children who were chosen to be educated were considered to be the future of the monastery and their education was considered an important part of the community's activities. The monks included singing, laughing, and play in the daily life at the monastery. The psychology of young children was understood and appreciated by their educators. This gave way to abandonment of corporal punishment which in turn fostered the idea for a 'love of learning'.

The Renaissance and the Reformation

During the Renaissance and Reformation (1300-1600), cities grew into centers for trade and the arts. More attention began to move from the church to individuals with the arts and literature finding more value (Feeney et al., 2010). With the printing press being invented in 1445, lives of people all over the world changed ("Renaissance -- Printing and Thinking", 2017). This meant knowledge was no longer monopolized by the church and education was valued once again. In 1517, Martin Luther, a former monk, challenged the authority of the Pope and sparked the Protestant Reformation (Zucker, S., & Harris, B., 2015). Luther believed in universal education. He believed the school's role was to educate and develop the intellectual, religious, physical, emotional and social qualities of children. An extensive school system was developed in Germany in response to Luther's ideas, but his goal of educating everyone did not become reality until the 19th century in America (Feeney et al., 2010).

Early America Education

An organized public education system did not exist in the United States until the mid-19th century (1600's Education, 2018). Colonial Massachusetts made the education of young people the responsibility of the public and the road to compulsory education in America began by the passing of Massachusetts Act of 1642 (Matzat, n.d.). This law required every household to be responsible for the education of all their children and dependents (servants). Everyone had to be taught to read, and if a parent failed, their child could be removed from their home (Blakemore, 2017). Shortly after, the Law of 1647 was born. This law required towns of 50 families to hire a school master who would teach children in the town to read and write. Towns with 100 families or more were required to hire a grammar schoolmaster. The schoolmaster's purpose was to prepare children to attend Harvard Law (Matzat, n.d.). As education continued to become a priority, Dame Schools were established. According to Matzat (n.d.), these schools were set up in the homes of women in the community. These women taught children the alphabet, read from the New Testament, and were given household chores (Das, 2011). The quality of education the children received varied greatly. Some teachers provided a good education, while others were more of a babysitter (It was during this time that religious concerns and the need to learn to read in order to read the bible, paved the way for modern education (Matzat, n.d.).

John Locke

John Locke (1632-1704) was a philosopher and political theorist who had an influential impact on the Enlightenment period. According to an article titled "The Educationalists" (Umich.edu) Locke believed children are born as blank slates (tabula

rasa), ready to absorb whatever is given to them. It is during the formative years that all of the child's experiences form and shape a child's personality nature. While others believe a child's nature is something he is born with, Locke taught the nature is determined by experiences. According to Feeney (2010), Locke's belief in "nurture" over "nature" led him to emphasize the importance of early education and training. He believed infants should be free from swaddling, young children should explore their world without restraint, and gentle forms of discipline should be used. Locke believed that education should structure experiences for students (Olson & Hergenhahn, 1976). He emphasized respectful, loving relationships and felt the best way for children to learn these behaviors is to be inspired by adults and replicate them. Locke's ideas paved the way for the role education takes in the shaping of human potential (Cleverley & Phillips, 1986).

Jean Jacques Rousseau

Jean Jacques Rousseau (1712-1778) was a French philosopher, writer and social theorist. He believed children were born with inherent goodness that was spoiled by civilization and disagreed with Locke's idea that one should always reason with children. Rousseau believed education should begin at birth and continue well into adulthood. He believed children learned best by experiencing and exploring their environments. He envisioned children learning through their own natural, undirected play, free of adult interference and guidance (Feeney et al., 2010). The child-centered philosophies of Dewey, Montessori and Piaget follow Rousseau with similar views (Darling-Hammond et al., 2001) and was a stepping stone to later research (Feeney et al., 2010).

Joseph Lancaster

Joseph Lancaster (1778-1838) led a movement to establish schools using a monitorial system, meaning he employed older students to teach the younger students. The older students used tough discipline, a lot of drill and recitation, and many rewards along with punishments ("Joseph Lancaster", 2010). This method of teaching allowed a small number of adult masters to educate large numbers of students at low cost (Rolland, 2011). Although Lancaster's methods are still discovered and used today, it was replaced with the "modern" system of grouping students by age and lecturing as a means of learning (Rolland, 2011).

B.F. Skinner

B.F.Skinner (1904-1990) also known as the father of modern behaviorism, was responsible for the development of programmed learning (McLeod, 2018, a). According to Darling-Hammond et al., (2001), programmed learning was based on Skinner's stimulus response research that provided positive reinforcement for "correct" responses from research on rats and pigeons. This programmed learning focused on reinforcement to students, highlighted rewards over punishment, moved students by small steps and allowed students to progress at their own speed (Darling-Hammond et al., 2001). In schools today, this is widely used for class and student management rather than to help with learning content (McLeod, 2018, a).

Jean Piaget

Jean Piaget (1896-1980) was an influential theorist in the field of developmental psychology and the study of human intelligence ("Jean Piaget", 2016). He was the first to state that learning is a developmental cognitive process. He recognized that students

create knowledge based upon their own experiences and this knowledge is related to their biological, physical and mental stages of development (Darling-Hammond et al., 2001). He identified stages of mental development and called them “schema”. This is also known as “Piaget’s Stages of Cognitive Development” ("Jean Piaget", 2016). The first stage is the sensorimotor stage. Sensorimotor involves learning through motor actions and is seen in children 0-2 years old. The second stage is the preoperational stage. The preoperational stage takes places when children are 3-7 years old. They are self-oriented at this age and develop intelligence by using their own mental imagery and language. The third stage is the concrete operational stage and is the stage when children ages 8-11 develop cognitively through logic that is based upon concrete evidence. Their thought process is logical and systematic which makes it easier for them to find answers to simple problems. The final stage is formal operational. This stage involves 12-15 year-olds who are forming the ability to reason and think logically and abstractly. Children at this age are self-motivated and learn from reading and trying new ideas (Muskingum.edu, 2016). Piaget’s theory was to focus on the process as the result. Rather than having one correct answer, the focus should be on the steps it takes to reach the answer (Murphy, 2018). The teacher should respect the individual interests, abilities and limits of each student. Piaget encouraged independent, hands-on learning and opportunities for discovery (Murphy, 2018).

John Dewey

John Dewey (1859-1952) was a strong proponent for progressive educational reform and believed that education should be based upon the principal of learning through doing (Biography.com, 2014). Dewey believed curriculum should be relevant to

students' lives. He wanted schools to be places where children would grow physically, intellectually and socially and be challenged to think independently. He wanted classrooms to allow children to investigate the world around them and be engaged in topics they were curious about. Dewey emphasized freedom in play and involvement in the social life of the classroom rather than highly structured activities. One important instructional approach, still used today, was to have children work on collaborative projects related to their own interests (Feeney et al., 2010).

Jerome Bruner

Jerome Bruner (1915-2016) was an American psychologist and educator who developed theories on perception, learning, memory and other aspects of cognition in young children. These theories had a strong influence on the American education system and helped launch the field of cognitive psychology ("Jerome Butler", 2018). The Process of Education (1960) was a book that began the curriculum-reform movement. As mentioned on InstructionalDesign.org, Bruner understood that learning is a process in which learners construct new ideas based upon their own knowledge. Learners select and process information, constructs hypotheses and make decisions based upon a cognitive structure. This structure provided meaning to experiences which allows individuals to think deeper and "go beyond the information given" (2018). According to Bruner, all children have a natural curiosity to learn; however when the content is too difficult they become bored. Teachers must present schoolwork to challenge students, but not overwhelm them. Bruner believed scaffolding could be used to facilitate learning. The spiral curriculum approach consisting of curriculum being organized in a spiral so

students continually build upon what they know is credited to Bruner (Bransford et al., 2000; “Jerome Butler”, 2018).

Lev Vygotsky

According to McLeod (2018, b), Lev Vygotsky’s (1896-1934) work has become the foundation of theory in cognitive development. Vygotsky’s Social Development Theory stresses the importance of social interaction in the development of cognition, (Vygotsky, 1978), as he believed strongly that community plays a central role in the process of "making meaning." Vygotsky believed culture and language played a big role in developing students’ thinking and the ways teachers and peers assist learners in the development of new ideas and skills (McLeod, 2018, b). Vygotsky’s concept of the zone of proximal development (ZPD) suggested students learn best when content is just beyond their range of existing experience with assistance from the teacher or a peer to connect what they know or can achieve independently to what they know or can achieve with assistance and encouragement from a partner (Schunk, 1996). So according to Vygotsky, for a curriculum to be appropriate developmentally, the teacher needs to plan activities allowing students to do not only what they are capable of doing on their own, but also what they can learn with the help of others (Karpov & Haywood, 1998). Vygotsky’s theory does not mean anything can be taught to any child. Only instruction and activities falling within the zone of proximal development ZPD) should be taught (Slaven, 2006). A modern approach to Vygotsky’s theories is “reciprocal teaching”, “scaffolding” and collaborative learning (McLeod, 2018, b).

People are created to be learners. How learning takes place is the basic question in the Cognitive Learning Theory (Illeris, 2007). The Cognitive Learning Theory has been

used to explain mental processes as they are influenced by both intrinsic and extrinsic factors, which eventually lead to learning (Sincero, 2011). Learning and the history of educating people is directly tied to a variety of theorists and although there are many different approaches to learning, there are three basic types of learning theorists: behaviorist, cognitive constructivist and social constructivist ("Overview of Learning Theories: GSI Teaching & Resource Center", 2018). The father of modern behaviorism was B.F. Skinner. He was responsible for the development of programmed learning (McLeod, 2018, a). Jean Piaget was a cognitive constructivist. Piaget's theory was focused on the process of learning. The focus was on the steps it takes to reach an answer (Murphy, 2018). Vygotsky was a social constructivist. His theory stresses the importance of social interaction in the development of cognition (Vygotsky, 1978). Vygotsky's concept of the zone of proximal development (ZPD) is the difference between what a learner can do independently and what a learner can do with help (Culatta, 2011). Contemporary educational strategies of Vygotsky's theory include "reciprocal teaching", "scaffolding" and collaborative learning (McLeod, 2018, b). According to The National Academy of Sciences, the goal of education is to help students develop the tools and learning strategies needed to gain the knowledge that allows people to think productively (Bransford et al., 2000). The three key principles from *How People Learn* included within these learning strategies are preconceptions, conceptual framework, and metacognition (Bransford et al., 2000).

How People Learn

Research conducted by the Committee on Behavioral and Social Sciences and Education of the National Research Council (NRC) has provided numerous findings

around how students and adults best acquire knowledge and skills. The original, 2-year study conducted by the Committee on Developments in the Science of Learning produced the first volume of *How People Learn*. Right after publication, a second NRC committee, the Committee on Learning Research and Educational Practices, was formed. This committee's goal was to explore how to link the findings of research on learning to actual classroom practice. Within two months of the first volume being published, a new report was released. *How People Learn: Bridging Research and Practice,* was published in June of 1999. It expanded on the findings, conclusion and research agenda in the original study, with the goal being to assess the scientific knowledge base on learning and how to apply the knowledge to education. These committees uncovered key information around the cognitive approach to how people learn most effectively. In order to have a good understanding of how we learn, one must include good comprehension of the learning processes, learning environments, teaching, and sociocultural processes (Bransford et al., 2000). Bransford's work includes three key principles essential to any school design or practice with a focus on understanding learning design and environments to improve student performance. These principles provide educators guidance in making decisions about how to best structure educational design and learning environments to fit the needs of their students and teachers (Bransford et al., 2000*). How People Learn* is the seminal work of Bransford, Brown and Cocking (2000). A revised edition is in the works and will be released soon.

Principle 1—Preconceptions

Piaget was the first to put forward the notion that learning is a developmental process and knowledge is created based upon experiences (Darling-Hammond, 2001)

which suggests people construct new knowledge and understandings based upon what they already know and believe (Bransford et al., 2000). Children bring their own ideas with them which determines how they perceive the world (Henriques, 2002). These ideas are developed daily through learning activities experienced by children even before the beginning of their formal education (Allen, 2014; Bradley, 1996). The range of prior knowledge, skills, beliefs and concepts children bring with them when entering the world of education influences what they notice about their environment and how they interpret it (Bransford et al., 2000). The different ideas children have based upon their previous experiences will lead to preconceptions; some will be correct and some will be incorrect (Kambouri, 2015). According to Nussbaum (1989), if children receive the appropriate guidance, their preconceptions can be molded into new ones; however if children do not receive guidance there is a high probability their initial preconceptions will be developed into alternative ideas or misconceptions (Johnston 2005; Kambouri, Briggs, and Cassidy 2011). Hattie and Marzano agree that getting students actively engaged in content requires educators to link new information with prior knowledge and continuously monitor their developing ideas (Killian, 2015). If students' initial ideas are ignored, the way they understand and interpret the learning can be much different than what was initially planned; therefore, teachers need to build on the students' ideas in ways that help them achieve a deeper understanding (Bransford et al., 2000). Educators can accomplish this by working closely with the preexisting knowledge the students bring with them, creating learning and conditions in which the students' thinking and ideas can be recognized, and using frequent formative assessments in order to provide prompt feedback (Bransford et al., 2000).

Principle 2--Conceptual or Theoretical Framework

The definition of conceptual framework is "a theoretical structure of assumptions, principles, and rules that hold together the ideas comprising a broad concept" (BusinessDictionary.com, 2018). Miles and Huberman (1994) defined a conceptual framework as a visual or written product, one that "explains, either graphically or in narrative form, the main things to be studied and the relationships among them". Woodard and Hinchliffe (2002) explained a conceptual framework as an organization of ideas placed within a logical or sequential order to help the learner make connections, access prior knowledge and bring meaning to the concept being taught. Woodard and Hinchliffe (2002) also refer to a theoretical framework as a powerful lens helping to make sense of everyday experiences and observations. According to Ravitch & Riggan (2017), the three essential elements of a conceptual framework include personal interest, topical research, and theoretical framework. A key discovery in research has found organizing information into a conceptual framework allows the learner to "transfer" and apply what was learned by making connections and using prior knowledge. This helps students learn the information more quickly (Bransford et al., 2000). Research on cognition has shown successful learning involves linking new knowledge to what is already known. How these links are made differ depending on the subject area and vary among students with different talents, interests and abilities (Paris and Ayers, 1994). Organizing information into a conceptual framework allows the student to apply what was learned in a new situation which in turn, transfers the knowledge quicker (Bransford et al., 2000). The transfer of learning is being able to take skills, knowledge and/or attitudes from one learning situation and apply it to another learning situation (Perkins &

Salomon, 1992). As explained by Ferlazzo (2017), the transfer of learning is a process and requires application. It's not just about memorizing. The goal is to understand. Marzano found helping students practice and apply their knowledge deepens their understanding of the subject matter (Williams, 2012). A student with a conceptual understanding can use their prior knowledge to make connections, helping them remember relevant information (Bransford et al., 2000). In order to ensure students have a firm foundation, teaching in depth and providing many examples is a necessity (Bransford et al., 2000). Educators must also use assessments to test deep knowledge and conceptual understanding of a subject (Bransford et al., 2000).

Principle 3—Metacognition

The teaching of metacognition skills needs to be integrated into the curriculum in multiple subjects (Bransford et al., 2000). Metacognition refers to the control people have over their own thinking and learning activities (Flavell, 1979). A metacognitive approach to learning enables students to become self-directed and take control of their learning by setting goals and monitoring their own progress (Bransford et al., 2000, Wilen & Phillips, 1995). Goal setting allows students to choose where they want to go and what they want to achieve while in school (Sasson, n.d.). Students who monitor their own progress are empowered, driven, and understand what they need to know in order to enhance their learning (Marzano, 2010). Classrooms full of engaged students are created when teachers work to develop self-regulated learners who set goals, work with strategies to reach those goals, and monitor and adjust depending on their strengths and needs (Moss & Brookhart, 2009). Metacognitive strategies facilitate independent learning. Some metacognitive strategies include asking questions, fostering self-reflection, encouraging self-

questioning, providing access to mentors, solving problems with a team, thinking aloud and providing opportunities to make errors (Malamed, 2013). As said by Bransford (2000), integration of metacognitive instruction can enhance student achievement and allows students to learn independently. Simply put, students learn best when they are actively engaged in their own learning (Moss & Brookhart, 2009).

Learning is about making connections (Gutierrez, 2013). The science of learning highlights the importance of educators rethinking what is taught, how it is taught and how it is assessed in order to improve children's abilities to become active learners who are better prepared and seek to understand (Bransford et al., 2000). Although there is no universal best teaching practice, educators' teaching strategies need to be purposeful and the focus should be on how people learn (Bransford et al., 2000). Research shows when the three principles (preconceptions, conceptual framework and metacognition) are part of the curriculum and infused into purposeful teaching, student achievement improves (Bransford et al., 2000). As educators consider how to structure classrooms, these principles must be considered to ensure high levels of student achievement.

Structures for Classroom Organization

American education was initially comprised of an organizational structure consisting of "one-room" schools where the highest level of education was eighth-grade (Gutek, 1992). Early elementary schools were based in rural communities and were built around agriculture (Gutek,1992). When the industrial revolution took over, the small farming communities gave way to the development of cities. It was in those cities where high schools were created (Baker, 2018). According to Gutek (1992), high schools have been departmentalized since the early part of the twentieth century due to the required

specialized areas of study. The eight-year elementary (grades 1-8) and four-year high school (grades 9-12) provided a large number of students with basic skills and vocational training during most of the nineteenth century (Manning, 2000). Junior high schools developed at the beginning of the twentieth century to better serve the needs of the students (Manning, 2000). Educators soon realized the importance of subject matter departmentalization in seventh and eighth grades and soon after junior high schools began using the departmentalization model (Spring, 2001). Steinmetz (1932) reported departmentalization is recognized in theory and in practice as an essential feature in the achievements and functions of the junior high school. Even with the "departmental school" becoming more common, the primary educational structure in early American education was still the one-room school (Mydland, 2011). The graded school system was organized by J.D. Philbrick, the principal of Boston's Quincy Grammar School, in 1848 and included grouping students by grade levels with one teacher per grade who taught all subjects to the students within that grade (Otto & Sanders, 1964). This graded school system was the start of the trend toward self-contained instruction (Otto & Sanders, 1964). McPartland (1987) found instruction in a traditional, self-contained environment benefited student-teacher relationships, but lacked high quality instruction while instruction from a departmentalized classroom environment improved the quality of instruction but lacked student-teacher relationships. An overview of both the self-contained classroom structure and the departmentalized classroom structure will be provided in the next section

The Self-Contained Classroom

A self-contained setting has one teacher being responsible for all core content areas for one specific group of students for the entire school year (Chan & Jarman, 2004; Chang, Munoz, Koshewa, 2008; Contreras, 2009; Delviscio & Muffs, 2007; Gerretson et al., 2008; Gewertz, 2014; Hood, 2010; McGrath & Rust, 2002). In recent years, the American education system has used this traditional model in many elementary classrooms (Strohl et al., 2014). The traditional self-contained classroom at the elementary level requires teachers to serve as generalists instead of content specialists, to be experts in every subject that is a part of the curriculum (Anderson, 1962; Gerretson et al., 2008; Strol, Schmertzing, Schmertzing, & Hsiao, 2014) and are unrealistically expected to teach all of those subjects with the same level of depth and rigor (Chan & Jarman, 2004). The advantages and disadvantages of each organizational structure will be shared in the next sections.

Advantages of the Traditional Self-Contained Classroom

Some research has suggested the self-contained classroom is more appropriate for elementary students and there are many benefits to the traditional classroom environment (Liu, 2011). McPartland (1987) found traditional classroom structures positively impact student teacher relationships. The traditional self-contained classroom model can help students socially and emotionally (Zhan& Mei, 2013) and allows teachers to have more opportunity to learn their students' strengths, weaknesses, interests and personality traits (Lui, 2011; McGrath & Rust, 2002; Strohl et al., 2014). This kind of safe environment allows the opportunity for students and teachers to bond and form a relationship which encourages trust and increases the comfort level of the students with the teacher (Lui,

2011). Teachers whose classroom is self-contained have more time and opportunity to determine preconceptions, build background knowledge and work on making deep connections. Learning and understanding by using preexisting knowledge is one of the three key principles essential to any school who is striving to improve student performance (Bransford et al., 2000). Using this prior knowledge and connections made while organizing information into a conceptual framework enables the students to transfer and apply what was learned (principle two) and helps students learn information more quickly (Bransford et al., 2000; Ferlazzo, 2017). The self-contained classroom model allows more time to ensure students are setting goals and taking control of their own learning. According to Bransford (2000), this metacognition approach is the third principle schools are using to improve student performance and needs to be integrated into the curriculum in multiple subjects. Teachers must have a deep understanding of content knowledge in order to ensure these three principles are taught effectively (Bransford et al., 2000). King and Newman (2000) stated, "Since teachers have the most direct, sustained contact with students and considerable control over what is taught and the climate for learning, improving teachers' knowledge, skills and dispositions through professional development is a critical step in improving student achievement". Research on cognition has shown successful learning involves linking new knowledge to what is already known. How these links are made differ depending on the subject area and different talents, interests and abilities (Paris & Ayers, 1994). Learning with understanding involves more than connecting new concepts and processing existing knowledge; it also involves conceptual change and the creation of integrated knowledge structures (National Research Council, 2002). Robert Marzano (2007) found that helping

students apply their knowledge deepens their understanding. He found that teaching students how to think deductively and giving them guided practice helped them generalize their learning (Marzano, 2007). Zhan & Mei (2013) recognized the importance of face-to-face time spent between teachers and student when they are in the traditional classroom setting. When time allows this to happen in such an environment, teachers are more likely to teach the whole child (Gerretson et al., 2008) and adapt lessons to the students' different learning styles (McGrath & Rust, 2002).

Harris (1996) argued the self-contained organizational model allows more time for instruction and wastes less time with transitions. The traditional self-contained classroom environment enables teachers to integrate subjects (Liu, 2011). Integrating subjects is possible because the students are with the teachers for most of the school day (Steele & Ashworth, 2013), which ensures enough flexibility in planning and instruction to allow integration (Liu, 2011). Learning with understanding involves more than connecting new concepts and processes to existing knowledge; it also involves conceptual change and the creation of integrated knowledge structures (National Research Council, 2002). Research on cognition has shown successful learning involves linking new knowledge to what is already known (Paris & Ayers, 1994). Linking new knowledge to what is already known and applying it to another learning situation is transfer of learning (Perkins & Solomon, 1992). Transfer is affected by the degree people learn with understanding rather than just memorizing sets of facts (Bransford et al., 2000).

Disadvantages of the Traditional Self-Contained Classroom

Unfortunately, past research has shown the self-contained classroom model is lacking in many of the elements associated with an efficient classroom structure, including the teachers' ability to teach every subject equally (Brown, 2010; Chan & Jarman, 2004; Klassen & Chui; 2010; Strohl et al., 2014), excessive workloads (Strohl et al., 2014), and increased job-related stress (Klassen & Chui, 2010; Strohl et al., 2014). Teachers in self-contained classrooms are forced to teach subjects they do not enjoy nor feel comfortable teaching (Chan & Jarman, 2004). When teachers don't enjoy the curriculum or feel comfortable with the content they are teaching, having strong content knowledge is more challenging, in turn making the task of accomplishing the three principles of learning much more difficult (Bransford et al., 2000).

Barth (2006) considers a traditional classroom model as teaching in isolation. He claimed the teachers are all playing, just not together. They exist in isolation, which allows them to avoid conflict, but they sacrifice growth due to the lack of collaboration (Barth, 2006). Collaborating means purposefully building interpersonal relationships and working towards healthy interdependence, which happens when teachers are comfortable giving and receiving help (Davis, 2018). When teachers come together to share information, resources and ideas learning becomes more accessible and effective for students. Collaborative opportunities increase the quality of feedback given to students (Barron, 1991) and effective teachers see the importance of assessment and feedback opportunities as they continually attempt to learn about students' thinking and understanding and incorporate this into current learning goals and tasks (Bransford et al., 2000). Giving feedback is a common strategy reinforced by both Hattie and Marzano.

Marzano (2007) highlighted that students need to be given feedback while there is still time to improve. Although John Hattie (2009) agreed, he went on to say novice or struggling students need immediate feedback. He also discovered different types of students need distinct types of feedback (Hattie, 2009).

Collaborative opportunities are minimal with a self-contained classroom structure due to the creation of "silos" (Hood, 2010) between classroom teachers. These silos exist for the benefit of themselves or to the benefit of whoever controls it (Borthwick, 2018) and can impede the power of collaboration. Highly collaborative practices in schools are associated with strong student outcomes and high achievement (Anrig, 2015), therefore collaboration is at the forefront for many districts looking to increase student achievement. In the report *How the World's Most Improved School Systems Keep Getting Better*, 20 different countries experienced consistent improvement, while the one commonality was the use of teamwork and collaboration to identify and respond to problems (Mourshed, M., Chijioke, C., & Barber, M., 2010). When using the self-contained classroom model there is only one teacher who monitors and assesses the students. That same teacher is responsible for making instructional decisions for each child based upon only his or her observations and assessments which is an example of the self-contained classroom adding an excessive workload (Strohl et al., 2014) and increased job-related stress (Klassen & Chiu, 2010; Strohl et al., 2014) to many teachers in the profession. Patterson (2008) found collaboration to be highly important for professional networking and has a positive impact on learning opportunities for children.

In order to meet all of the needs in a self-contained classroom, the teacher is expected to reach all learning styles, ability levels and interests of the students (Levy, Pasquale, & Marco, 2008). According to Wise (2012), in the self-contained classroom the focus is on teaching students as a group, rather than learning being about each student. Schools have promised, but generally failed to provide, "individualized instruction" (Wise, 2012). While there are both positive and negative connotations when it comes to the traditional self-contained classroom model where one teacher teaches all subjects throughout the day, it has remained the dominating model for elementary schools in America (Liu, 2001). However, the idea of departmentalizing at the elementary school level is still intriguing to some administrators (Gewertz, 2014).

The Departmentalized Classroom

Teachers at the elementary school level are expected to deliver rigorous instruction in as many as five core subjects (reading, language arts, mathematics, science, and social studies). The possibility of someone being effective in all subject areas is highly unlikely (Valli & Buese, 2007). Teaching one or two content areas is part of a growing trend called platooning or departmentalization (Hood, 2010). According to Gewertz (2014), there are multiple types of departmentalization including classrooms where two teachers divide the subjects being taught. There are others where the teachers change classrooms, rather than the students (Gewertz, 2014). Some say departmentalization can result in many benefits for teachers and kids if it's well planned and executed (Mulvahill, 2016).

Advantages of the Departmentalized Classroom

Departmentalized classrooms divide the duties and responsibilities of teaching core subjects between two or more teachers. Teachers teach in their area of specialization and students move from one class to another for instruction. Departmentalization allows for students to have more than one teacher for each subject or group of subjects taught (Chan & Jarman, 2004; Chang et al., 2008; Contreras, 2009; Delviscio & Muffs, 2007; Gewertz, 2014; Hood, 2010; McGrath & Rust, 2002). This allows educators the opportunity to specialize in subject areas (Chan & Jarman, 2004). Dividing instruction according to subject area while students rotate to different rooms headed by different teachers for different subjects is not a new approach. Middle schools and high schools have been departmentalized for ages (Hood, 2010). Teachers who departmentalize focus on learning content and instructional strategies for one or two subjects (Chang et al, 2008; Gerretson et al., 2008; Strohl et al., 2014). Teachers are able to maintain their workloads to a more manageable level, which reduces stress and increases job satisfaction (Strohl et al., 2014). King and Newman (2000) stated, "Since teachers have the most direct, sustained contact with students and considerable control over what is taught and the climate for learning, improving teachers' knowledge, skills and dispositions through professional development is a critical step in improving student achievement. Teachers must have a deep understanding of content knowledge to ensure the three principles of learning are utilized and incorporated into daily lessons (Bransford et al., 2000).

Although there are both positive and negative impacts of departmentalization, a classroom setting using departmentalization as an organization structure can have

numerous benefits (Gewertz, 2014). Many districts are leaning toward this approach and want to introduce it at a younger age (Gewertz, 2014). If departmentalization is designed in an organized, instructionally driven way that includes students' social development, high quality learning opportunities can be developed for students (Braddock, Wu, & McPartland, 1988; Chan & Jarman, 2004; Delviscio & Muffs, 2007). When administrators decide to departmentalize classrooms, teachers are able to specialize in certain academic areas (Chan & Jarman, 2004). An advantage of teacher specialization is allowing teachers to teach where they feel most comfortable and most competent (Chan & Jarman, 2004; Mulvahill, 2016). Teachers who are able to focus on their favorite parts of the curriculum tend to be more enthusiastic about the content and are likely to be more invested, which will show in their teaching (Mulvahill, 2016; Strohl et al., 2014). Specialization allows teachers to become experts in specific academic subjects (Gewertz, 2014). Since teachers are not required to teach every core subject when departmentalized, it decreases the amount of time teachers spend working on lesson plans (Gewertz, 2014, Mulvahill, 2016). Less time spent on lesson planning can decrease the workload and amount of stress for teachers, which can indirectly impact job satisfaction by increasing efficacy; ultimately improving student achievement (Hughs, 2012; Mulvahill, 2016; Perrachione, Rosser, & Peterson, 2008; Ryan and Deci, 2002; Timms, Graham, Cottrell, 2007; Wilkins, 2009). In short, departmentalization is a cost-neutral way of upgrading instruction. The number of teachers stays the same, their responsibilities just change. Teachers become more effective and the budget isn't impacted (Mulvahill, 2016). The public recognizes the importance of well-prepared teachers. In a 1998 survey by Haselkorn and Harris it was reported that "roughly nine out of ten Americans believe the

best way to improve student achievement is to ensure a qualified teacher is in every classroom." According to Bransford (2000), teachers have a critical role in assisting learners to engage their understanding, building on learners' prior knowledge, correcting misconceptions and engaging with learners during the learning process. Departmentalization not only provides the opportunity for a teacher to be specialized in one content area (Mulvahill, 2016), but it also allows for teachers to have the capacity to effectively teach the three principles of learning.

The departmentalization model emphasizes the importance of curriculum (McGrath & Rust, 2002). Since it is rare for any teacher to be proficient in more than one or two areas of the curriculum, departmentalized teaching allows teachers to focus their efforts and concentrate on one or two subjects at a deeper level (Brown, 2012; Chan & Jarman 2004, Gerretson et al, 2008; Klassen & Chiu, 2010; Mulvahill, 2016). When teachers are given the chance to concentrate professional development on certain subject areas, they understand their content which builds confidence. In turn they become more competent teachers who create better ways of teaching students to master the content, thus increasing student achievement (Gerretson et al., 2008; Varma, 2008). Grade level instructional teams can work together to collaborate and coordinate content, share in the communication with parents and students and manage parent teacher conferences (Mulvahill, 2016; Coffey, 2008). Teammates provide mutual support for one another and share many responsibilities such as writing the newsletter, updating the website and/or attending district meetings (Mulvahill, 2016). All teachers work together to provide instruction to students and everyone is accountable for student performance. These teachers work collaboratively to make decisions about how instruction will occur

(Murawaski, 2012). When using the departmentalization approach to education, teams provide mutual support for one another and teachers take equal ownership of the students (Mulvahill, 2016). According to Patterson (2008), collaboration and professional networking is highly important and has a positive impact on learning opportunities for children. Students have reported they liked the different perspectives collaboration brought and they benefit from different teachers through collaboration (Patterson, 2008). Being exposed to a variety of different viewpoints as a result of collaboration has been proven to benefit students' learning and students prefer team-taught courses involving true collaboration which may result in collaborative teaching (Patterson, 2008).

The Departmentalization model is an alternative method being used to reduce stress and retain teachers (Chan & Jarman, 2004; Gewertz, 2014; Jacobs, 2014). Teachers are pushed to maximize their lessons in the time allotted (Hood, 2010). Professional development can be developed and targeted to subject areas. Teachers have the opportunity to become experts in the subject they teach. Some teachers prefer the departmentalized structure in an elementary setting because it is more like a partnership. Each child has a team of teachers working for his or her success (Hood, 2010). When grade levels departmentalize, teachers take equal ownership of students and have opportunities to bond with more students than just their homeroom; the motto "everybody's kids are everybody's kids" becomes a reality (Mulvahill, 2016).

Along with teacher benefits, there are numerous student benefits to departmentalization as well. Students are exposed to different teaching styles (Chan & Jarman, 2004). Every child responds differently to teaching techniques and approaches, so a greater variety of teaching styles increases the chances that there will be at least one

method a student will positively respond to (Chan & Jarman, 2004). Departmentalization breaks the monotony for students; students have more opportunity to be challenged academically by different teachers; students develop interpersonal skills by being exposed to different teaching styles and it prepares kids for the transition to middle and high school (Mulvahill, 2016).

Disadvantages of the Departmentalized Classroom

While there are many advantages to departmentalization, there are also many negative aspects associated with departmentalizing in the elementary environment (Gewertz, 2014). Some negative aspects of departmentalization at an early age include: the social connection and relationship building piece between students and teachers, units of study are seldom taught because subjects can't easily be integrated, rotating classrooms can be stressful for some young children and may cause the teacher to lose instructional time due to time spent transitioning (Liu, 2001). Mulvahill (2016) concluded there were many arguments about departmentalizing not being developmentally appropriate for elementary students due to the unstable and insecure work environment, and the inability for relationship building. Departmentalization changes the amount of time students spend with teachers, which can limit the comfort level of students with teachers (Liu, 2011).

Woods (2018) suggests there is a lot of time and planning involved in communication, procedures, schedules, and conferences; organization with some students is a challenge with multiple teachers involved each day; student teacher relationships suffer; there is less of a community feel in the classroom; there must be a high level of trust among colleagues because depending on each other and sticking to schedules is

important; and debriefing time to touch base about shared students' needs to be built into the day. The trust and collaboration time to touch base about shared students is crucial to student success, yet hard to conceptualize in the day to day goings on of a classroom teacher. Highly collaborative practices in schools are associated with strong student outcomes and high achievement (Anrig, 2015), therefore making time for collaboration is a priority in order to increase student achievement.

Teachers' philosophies and teaching styles should be similar or they should be able to respect different philosophies and teaching styles; therefore pairing teachers requires some attention (Gerretson et al., 2008). A 'good' team teaching partnership can energize a person, while an ineffective partnership can become a burden (Stewart & Perry, 2005). Stewart and Perry (2005) claimed, if the team teachers "have a shared understanding of roles in planning and in the classroom, they will be capable of making a stronger commitment to the partnership and the potential for effective team teaching will be increased. When elementary teachers departmentalize, they are responsible for many more students and they share the increased responsibility with other teachers (Chang, Munoz, & Koshewa, 2008). When sharing the responsibility of teaching students with others, teachers may lose their sense of ownerships toward student success (Chang, et al., 2008) which can be attributed to the increased number of teachers per child (Epstein & Dauber, 1991).

Challengers of the departmentalized model believe teachers interact with more children than in the self-contained structure so teachers are unable to know the students at the level needed to develop a connection and form relationships with all of the students (Anderson, 1962; Chang, et al., 2008). Students in departmentalized classrooms have to

learn the expectations, rules, classroom management and teaching styles of multiple teachers, which can be confusing to students (Lui, 2011; Gerretson, et al., 2008).

The Design of Learning Environments

As reported by Bransford (2000), the environment supplies information for learning and provides structure to the information. Learning is promoted and regulated by a child's biology and their environment. There are four attributes to be considered when determining if a structure is providing opportunities for promoting the three principles of learning. The National Research Council (2000), states the following four philosophies should be included in the design of learning environments:

Learner Centered: takes into consideration the learning styles, attitudes and unique characteristics of users; recognizes the prior knowledge and skills that users bring to the learning environment (Bransford et al., 2000). In a learner centered classroom students are the focus of education, while teachers are facilitators. Students are responsible for their own learning and frequently engage in activities which allow them to reflect on their learning. Instruction is data driven so assessments are used to determine what the students need (Doyle, 2008; Hughes, 2018; Johassen & Land, 2012). Teachers in a learner centered classroom pay attention to the knowledge, skills, attitudes, and beliefs learners bring to the educational setting (Bransford et al., 2000). The learner centered approach to the classroom environment very easily lends itself to a metacognitive approach to instruction because the students have control over their own thinking and learning activities (Flavell, 1979).

Teachers in departmentalized classrooms may have more content knowledge expertise (Chan & Jarman, 2004; Mulvahill, 2016), which may allow them to be

equipped to facilitate a learning centered approach (Bransford et al., 2000). However, due to the large number of students in which the teacher is responsible (Chang, et al., 2008), this structure may be less conducive in creating a more learning-centered approach (Bransford et al., 2000). Self-contained classroom teachers may have more opportunity to build relationships and make connections with students (Liu, 2010), which may lend the teacher the time and opportunity to take learning styles into consideration while recognizing any prior knowledge the learner is bringing to the classroom by using a learner-centered approach (Bransford et al., 2000). On the other hand, teachers who have self-contained classrooms are expected to be a jack of all trades and equally strong in all curriculum areas which may make a learning centered approach challenging due to having to plan for so many subjects (Chan & Jarman, 2004).

Knowledge Centered: provides opportunity for hands-on, interactive learning that leads to students learning with understanding. The goal is mastery learning and "transfer" that can be applied in other content areas (Bransford et al., 2000). A knowledge centered environment focuses on helping students learn information with a deep understanding so it can be used in new situations and contexts. Teachers who believe in knowledge centered classrooms, practice problem-solving which leads to deep learning (Clint, 2018). Teaching in depth and providing many examples is a necessity in the assurance of students having a firm foundation (Bransford et al., 2000). The goal of mastery learning and "transfer" of learning is a process requiring application with the ultimate goal being a deep understanding (Ferlazzo, 2017). This conceptual understanding of content is one of the three principles of learning (Bransford et al., 2000).

Teachers in self-contained classrooms generally have more flexibility in their schedules (Liu, 2011; McGrath & Rust, 2002), which may allow extra time for mastery learning and a more knowledge centered environment (Bransford et al., 2000). However, self-contained classroom teachers may be stretched thin and find it difficult to teach at the depth and rigor required to have a knowledge-centered learning environment (Chan & Jarman, 2004). The overall amount of planning in a departmentalized setting is less because lessons are repeated for multiple groups of children (Craig, 2018). This may give the classroom teacher more time to go deeper in his/her lesson planning, in turn, creating a more knowledge-centered environment (Craig, 2018). Nevertheless, teachers in a departmentalized setting have a large number of students and more responsibility (Chang & Munoz, 2008), which may be less favorable when gearing more towards a learner-centered approach.

Assessment Centered: monitors progress and allows for feedback along the way (Bransford et al., 2000). In order for a learning environment to be effective, it must be assessment centered which focuses on the importance of feedback to learning. Feedback allows students the opportunity to revise their work (Clint, 2018). Feedback is an essential part of education and training. It helps learners maximize their potential, raise awareness of strengths and areas needing improvement, and identifies actions needed to improve ("What is feedback? — E-Learning Modules", 2012). According to Hattie (2007), feedback is information provided by a teacher, peer, book, parent, self or experience regarding aspects of one's understanding. A teacher or parent can provide corrective information, a peer can provide a different outlook, a book can clarify ideas, a parent can provide encouragement, and a learner can look up the answer to evaluate the

correctness of a response (Hattie & Timperley, 2007). Effective teachers provide opportunities for feedback which should be a continuous part of instruction and they also help students build self-assessment skills (Bransford et al., 2000).

One approach to providing feedback is through formative assessments. The goal of a formative assessment is to monitor student learning in order to provide ongoing feedback that can be used to improve instruction which will improve learning ("Formative vs Summative Assessment - Eberly Center - Carnegie Mellon University", 2016). Watanabe-Crockett (2017) reported formative assessment strategies are ungraded assessments used to provide valuable information to teachers and students about what students understand and what they don't understand in order to improve instruction and enhance student performance. A formative assessment is an assessment *for* learning and is utilized to support learning during the learning process (Dodge, 2009). Formative assessments are great tools for teachers to help them determine if further instruction is necessary after completing a lesson (Watanabe-Crockett, 2017). Assessments should reflect both the quality of the students' thinking as well as the content they have learned (Bransford et al., 2000). Effective teachers are continuously trying to learn about students' thinking and understanding and will strive to help them make a connection, so current learning is relevant (Bransford et al., 2000). Most formative assessments should only take a few minutes (Dougherty, 2013) and if they are used consistently neither teachers nor students will be surprised by their final grade (Watanabe-Crockett, 2017).

Formative assessments also include students who assess themselves. Students who assess their own work as well as their peers' work, help everyone learn more effectively (Vye, Goldman, Voss, Hmelo & Williams, 1997). Self-assessment is an

important part of the metacognitive approach to learning and one of the key principles to consider when focusing on increasing student achievement (Bransford et al., 2000). The departmentalization model gives teachers limited time to assess students' performances and provide feedback due to time constraints of the schedule (Mulvahill, 2016), thus hindering the ability to provide an assessment-centered environment. However teachers in a departmentalized classroom may have the opportunity for collaboration with other teachers sharing common planning which allows for discussion and comparisons of shared students and may promote teaching self-assessment skills among students (Bransford et al., 2000) which encourages an assessment-centered learning environment. With the self-contained classroom model having one teacher who teaches all core subjects (Chan & Jarman, 2004), assessments and checking for understanding can be spread throughout the day which promotes the assessment-centered environment.

Community Centered: promotes a sense of community through shared goals and values (Bransford et al., 2000). A community centered learning environment is an instructional setting utilizing the outside community and resources to facilitate student learning (Kountz, 2013). A classroom promoting a community centered environment provides a stimulating, supportive and safe setting in which students are encouraged to challenge themselves, have the freedom to make mistakes and become lifelong learners along the way (Bransford et al., 2000). There are several aspects to a community centered environment, including the classroom community, the school, and the connection in which students, teachers, and administrators feel connected to the larger community of homes, businesses and state (Bransford et al., 2000).

Departmentalization may decrease the amount of stress and workload for teachers (Hughs, 2012). Sharing students with other teachers in a departmentalized approach to classroom environment may take away the feeling of a classroom community because students are not just "your kids" anymore which may hinder the community centered approach (Mulvahill, 2016). Self-contained teachers may have more parental contact (Epstein & Dauber, 1991) which may result in increased parental involvement and more connections to home promoting the community-centered environment (Bransford et al., 2000), still the self-contained classroom teachers may be teaching in isolation and missing out on collaboration with others (Barth, 2006) resulting in a community-centered environment approach being very challenging.

The four attributes to be considered when determining if a structure is providing opportunities for promoting the three principles of learning include: learner-centered environments where learners use current knowledge to make connections and construct new knowledge (Bransford et al., 2000); knowledge-centered environments where the focus is on helping students learn information with a deep understanding so it can be used in new situations and contexts (Clint, 2018); assessment-centered environments where teachers continuously provide opportunities for feedback, give students the opportunity to revise work, and help students build self-assessment skills (Bransford et al., 2000); and community centered environments where the teacher provides a stimulating, supportive and safe setting encouraging students to challenge themselves and have the freedom to make mistakes in order to become lifelong learners (Bransford et al., 2000). The four perspectives on learning environments need to be aligned in ways that support one another. This is important to ensure the three learning principles are promoted and

student achievement is improved (Bransford et al., 2000). The four attributes must be considered when designing the most effective structure for delivering instruction.

English Language Arts

Educators have a choice of two organizational structures for delivering instruction, which includes the self-contained model and the departmentalized model (Chan & Jarman, 2004; Contreras, 2009; Delviscio & Muffs, 2007; Gerretson et al., 2008; Gewertz, 2014; Hood, 2010). English Language Arts (ELA) is one of the core subjects required by the Department of Elementary and Secondary Education (DESE) to be assessed in elementary classrooms ("Missouri Learning Standards", 2018). In this section the researcher outlines the current ELA expectations and the possible impact the classroom organizational structure may have on students' ELA performance.

The Importance of English Language Arts

English and language arts are two of the most basic and widely taught subjects in the United States ("Teaching English and Language Arts", 2018). English and language arts are separated into five basic categories: reading, writing, speaking, listening and viewing ("National Council of Teachers of English", 2014). According to teach.com, language arts in elementary school focuses on basic reading, writing and linguistic/communication skills along with silent sustained reading, cursive writing, syntax, thematic writing and vocabulary. Through these major focal points in elementary lessons, children are expected to develop reading and writing skills at a very early age. Beyond the foundational skills, ELA is about applying and enriching literacy tools in all contexts (Goldman et al., 2016; Pearson, Moje, & Greenleaf, 2010). These tools include basic reading skills, comprehension and writing. The tools also extend to other literacy

skills areas such as reasoning, exposition, narration and augmentation (Goldman et al., 2016). English language arts is important for many reasons and includes the following: (1) Language arts is necessary to meet academic standards. Students are expected to speak, write and communicate what they learn and this carries over into all content. (2) Language arts is essential in professional areas of study. Nearly every professional is required to be proficient in English language arts in order to be a success in their field. (3) Language arts is crucial for life beyond school. Students will carry life skills with them after graduation ("Why Is English Language Arts So Important?", 2018). As reported by Maloney (2017), literature is life and the most essential human skill is how to receive and transmit information to others. Literacy is not just the ability to read and write, one should also consider a person's capacity to apply the skills to effectively connect, interpret and discern our daily life (Koch, n.d.). Literacy is reading and listening when receiving information and writing and speaking when transmitting information (Maloney, 2017). Literacy is crucial part of education. According to begintoread.com (2018), two out of three students who cannot read proficiently by the end of fourth grade end up in jail or on welfare. Dell'Antonia (2012) confirmed children who aren't reading proficiently by fourth grade are four times more likely to drop out of high school and according to the National Assessment of Educational Progress (2017), only 34% of America's fourth graders read at grade level. These statistics confirm the importance of reading and the effect literacy has on the lives of all children.

Literacy Achievement

Learning and achievement is about making connections (Gutierrez, 2013). Although there is no universal best teaching practice, educators' teaching strategies need

to be purposeful and the focus should be on how people learn (Bransford et al., 2000). Research shows when the three principles of learning (preconceptions, conceptual framework, metacognition) and the four learning environments (learner-centered, knowledge-centered, assessment-centered, community-centered) are considered when designing organizational structures learning is promoted; and when these principles and learning environments are infused into purposeful planning and teaching, student achievement improves (Bransford et al., 2000). Literacy achievement is important to examine because it is another critical factor in school success (Adams, Snowling, Hennessy & Kind, 1999).

Literacy Advance (2018) defines literacy as:

> The ability to read, write, speak and listen, and use numeracy and technology, at a level that enable people to express and understand ideas and opinions, to make decisions and solve problems, to achieve their goals, and to participate fully in their community and in wider society.

Preparing students to read and write fluently has been a responsibility of the public school system in the United States for a very long time (Ravitch, 2000). Literacy skills being developed at an early age increases the likelihood of success in school (Snow, 2002). Hattie (2009), suggested schools focus on improvements in reading and literacy skills to prepare students for adulthood and the work force. Research tells us around fourth grade students make the critical transition between "learning to read and reading to learn" (Chall, 2000). A challenge of literacy instruction lies in knowing the effective literacy skills needed to facilitate success in adolescent students (Ippolito, Steele

& Samson, 2018). According to Hattie (2009), if students do not develop sufficient reading skills by the middle of elementary school, a handicap is created in other curricula.

The National Council of Teachers of English (NCTE) separates English language arts into five basic categories: reading, writing, speaking, listening and viewing. In elementary school, a typical language arts curriculum focuses on basic reading (literacy and informational reading), writing and speaking/listening (Clandfield, n.d.). Missouri's curriculum framework provides standards to guide teachers in the development of a coherent English language arts curriculum from Pre-Kindergarten to graduation. The four strands in Missouri's framework include: reading, writing, language and speaking/listening (Missouri Department of Elementary & Secondary Education. (n.d.-a). These four strands are actually interdependent disciplines and a thorough English language arts curriculum integrates concepts and skills from all four strands. A reading and literature curriculum should encourage students to apply their language skills to challenging materials (Stotsky, 2013). Promoting cumulative learning and a comprehensive sequence of reading, research and writing assignments ensures students broaden and deepen their base of knowledge (Stotsky, 2013). Students who are able to broaden and deepen their knowledge base stimulate intellectual growth and improve their critical thinking skills (Stotsky, 2013).

Experts have debated the best way to teach reading instruction for years (Hervey, 2017). There is a lot of support for the five pillars of good reading instruction: phonemic awareness, phonics, fluency, vocabulary and comprehension; teaching all of these is very important ("Balanced Literacy Instruction: A Truce For The Reading War?", n.d.). Literacy teaching can only be described as effective when it positively impacts student

learning (Hervey, 2017). Hattie (2006) found there is little attention paid to how to build a common perception of progress across the curriculum. Literacy achievement is important to examine because it is a critical factor in school success in all subjects as well as life outside of school (Adams et al., 1999). Literacy is the foundation for success in school and life, therefore helping students become independent readers and writers is a goal for schools across the nation (Bitter, O'Day, Gubbins & Socias, 2009)**.**

Federal Legislation Impacting English Language Arts Assessments

The No Child Left Behind Act (NCLB) was initiated in 2001 with the goal of closing the achievement gap in the areas of reading and mathematics. Student background, home life or academic abilities were not considered when looking at the overall achievement of students (Lee, Lui, Amo, & Wang, 2013). The No Child Left Behind Act required teachers to be highly qualified in all subjects they were responsible for teaching (NCLB, 2001). NCLB exposed achievement gaps among underserved students and led to the start of important conversations about education improvement. The focus on accountability was a critical piece as ensuring quality education for all children is important. People from across the county (parents, educators and elected officials) understood there was the need for a strong, updated law to strengthen our education system and economy (Ed.gov, 2018).

The Every Student Succeeds Act (ESSA) replaced NCLB when it was signed into law on December, 10, 2015. The ESSA act is the eighth restructuring of the Elementary and Secondary Education Act of 1965 (Ed.gov, 2018). The ESSA took full effect during the 2017-18 school year (Klein, 2018). There are multiple provisions helping to ensure the success of students and schools. One provision is the requirement of all students in

America being prepared to succeed in college and in their chosen career. According to the ESSA, this expectation will be accomplished by teaching students and holding them to high academic standards (Ed.gov, 2018).

Missouri Learning Standards and Assessments

The Missouri Learning Standards and associated assessments are a result of both federal and state legislation passed to ensure schools set high expectations for learning and instruction while encouraging the development of a challenging curricula to ensure students are graduating high school able to lead a productive and successful life as they continue their education and enter the work force (Nicastro, 2014).

In Missouri, the Department of Secondary and Elementary Education (DESE), expects teachers to provide instruction based on the Missouri Learning Standards (MLS) which is the latest guide used in Missouri to

> "ensure students learn basic and higher-order skills, including problem solving and critical thinking. The standards are relevant to the real world and reflect the knowledge and skills students need to achieve their goals. The MLS give school administrators, teachers, parents and students a much-needed road map for learning expectations in each grade and course. They are the key to Missouri becoming one of the top 10 states for education by 2020".

All students are expected to learn the same information and skills for all content areas as it pertains to their grade (DESE, 2018). The Missouri Learning Standards (MLS) are not a statewide mandated curriculum, but they do provide a framework along with content expectations for each subject and grade level. The MLS provide a guideline for teachers to ensure their students are on track and equipped with the knowledge and skills

needed to be college and career ready. The MLS do not tell teachers how to teach, but they do establish what students need to learn. Each district designs their own curriculum and each teacher decides the best way to help students master the standards included in the curriculum (Nicastro, 2014; "Show-Me Standards", n.d.).

Missouri's curriculum framework provides standards to guide teachers in the development of a coherent English language arts curriculum from Pre-Kindergarten to graduation. The four strands in Missouri's framework include: reading, writing, language and speaking/listening (Missouri Department of Elementary & Secondary Education. (n.d.-a). These four strands are interdependent, and a thorough English language arts curriculum will integrate concepts and skills from all four strands.

The organizational structure of a classroom may have an impact on how the four ELA strands are used together in the creation of lesson plans and district curriculum. Teachers in a departmentalized setting plan fewer subjects than self-contained teachers (Perrachione, et al., 2008; Timms, Graham, & Cottrell, 2007). The specialization allows teachers to focus on standards and teach strategies in depth rather than spreading their time over a wide range of subjects (Lowery, 2002).

Teachers in a traditional self-contained classroom are required to be generalists and experts in every subject that is part of the curriculum they are responsible for teaching (Brown, 2012; Chan & Jarman, 2004; Gerretson et al., 2008). It is this "Jack-of-all-trades" approach (Chan & Jarman, 2004) effecting the classroom structure's efficiency and the ability for the teacher to teach every subject equally (Brown, 2012; Chan & Jarman, 2004; Gerretson, et al., 2008), excessive workload (Strohl et al., 2014) and increased job-related stress (Klassen & Chiu, 2010).

Departmentalization allows teachers to become experts, specialize in subject areas (Chan & Jarman, 2004), and provide an opportunity for many teachers' perspectives to be considered regarding students' needs. Intentional, effective collaboration is a potential positive outcome for this structure. Collaborative approaches when it comes to student test score data may improve the effectiveness of data-informed school improvement (Silliman, 2017). Collaboration allows teachers to develop a more accurate picture of their students, allowing them to better meet students' needs (Cousins, Ross, & Maynes (1994). Highly collaborative practices in schools are associated with strong student outcomes and high achievement (Anrig, 2015); however depending on the organizational structure of a school or classroom, collaboration may be a challenge. Without collaboration and time to discuss student's needs, learning may suffer and the identification of students with ELA struggles may be a challenge resulting in learning gaps in ELA. When sharing the responsibility of teaching students with others, teachers may lose their sense of ownerships toward student success (Chang et al., 2008). Students' learning gaps may go unnoticed because departmentalized teachers are responsible for many more students and they share the increased responsibility with other teachers (Chang et al., 2008). The Missouri Assessment Program (MAP) is the tool the state of Missouri utilizes to hold teachers accountable and provide information on academic achievement for students, classes, schools and districts. This data is used to measure the overall quality of education throughout Missouri (Data Recognition Corporation, 2017).

Missouri Assessment Program

Testing is a main component of the Every Student Succeeds Act (ESSA) (Korte, 2015). The ESSA ensures annual statewide testing assessments measuring students'

progress toward those high standards and ensures the data from the testing is shared with educators, families, students and the community (Ed.gov, 2018). As part of The Missouri Assessment Program Updates and Changes (2014), Nicastro mentions the basis of the MAP test is provided by the Show-Me Standards. These standards set high expectations for instruction and learning and encourage schools throughout the state to develop a challenging curriculum. The MAP is an annual set of mandated standardized assessments taken by students in the state of Missouri for English language arts, mathematics and science in grades 3-8; and English language arts, mathematics, science and social studies in high school (Nicastro, 2014). The MAP is designed to measure how well students acquire the skills and knowledge described in the Missouri Learning Standards (MLS). The assessments provide information on academic achievement at the student, class, school, district and state levels in Missouri. The data is used to measure the overall quality of education throughout Missouri (Data Recognition Corporation, 2017).

The MAP originated after the 1993 Outstanding Schools Act was put into place. This act required Missouri to create a statewide assessment system that would measure challenging academic standards. In 2001, the No Child Left Behind (NCLB) legislation was passed and required states to develop grade-level tests in Reading and Mathematics. DESE contracted with CTB/McGraw-Hill (CTB) in 2003 to expand the testing program in Missouri to grade-level testing for Communication Arts and Mathematics. Per the NCLB legislation, these tests were to be administered annually in Grades 3 through 8 and once in Grades 10 through 12. Student performance had to be reported in terms of proficiency categories and would be used to determine the adequate yearly progress (AYP) of schools, districts and state levels. In 2006, grade level tests were administered

in Communication Arts and Mathematics. In 2009, the MAP was no longer administered at the high school level. It was replaced by the Missouri End-of-Course Assessments. All state assessments provide information on academic achievement at the students, class, school, district, and state levels (Data Recognition Corporation, 2017)

According to DESE (2018), these grade-level assessments are made of multiple-choice (students select the answer) as well as constructed response items (students supply a response). The MAP test is scored according to four achievement levels: Below Basic, Basic, Proficient and Advanced with Missouri's goal to help students reach the top two categories of Proficient or Advanced (Nicastro, 2014). The ELA test is a grade-level test designed to measure students' knowledge of ELA and ensure they are making progress. The test is aligned to the Missouri Learning Standards and was developed by Data Recognition Corporation (DRC) using DRC's college and career ready item bank (Data Recognition Corporation, 2017).

This study utilized ELA MAP scores for fourth through sixth grade from the 2015-16 and 2016-17 school year in an attempt to determine if students who attend departmentalized elementary schools will have higher academic gains in English Language Arts (ELA) than students who attend elementary schools using the traditional self-contained model in grades four through six.

Summary

Chapter two provided an overview of the literature related to the topic of using departmentalization as a structure for delivering instruction in the elementary classroom. The history of learning provided an overview for the reader and included previous influences on educational research and current educational practices. A section about how

people learn which included the three key learning principles (preconceptions, conceptual framework and metacognition) essential to increasing student performance as well as specific information regarding the design of learning environments which should be considered when deciding how to structure a classroom when high student achievement is the goal. Structures for classroom organization including the self-contained model and the departmentalized model were discussed. English language arts expectations, literacy achievement and assessments were examined as well. Chapter Three describes the methodology used in the study and includes the research questions, hypothesis, information about the participants involved in the study, research setting and design, instrumentation and data analysis.

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to determine if students who attend departmentalized elementary schools have higher academic achievement than students who attend elementary schools who use the traditional self-contained model. Review of the literature and research design began in April of 2017 and finalized in December of 2018. Data was collected, disaggregated and reported. The details of the study are present in the following sections.

Research Questions.

1. What is the difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
2. What is the difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
3. What is the difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypotheses.

1. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
2. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
3. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

Participants

Elementary schools housing fourth, fifth and/or sixth graders across Missouri consisted of the pool from which buildings were identified as using a departmentalized classroom model or a traditional classroom model. Twenty-five participants were randomly selected from each region in the state which gave the researcher the possibility of having a total of 225 participants from across Missouri in the study. Missouri Department of Elementary Secondary Education identifies nine regions, which are overseen by an area supervisor. These regions of the state include rural, suburban and urban school districts and various size districts and buildings.

Selection/Sampling

The target population for this study was elementary schools containing fourth, fifth and/or sixth grade students in the state of Missouri. Elementary and middle schools housing fourth, fifth and/or sixth grade students were contacted to ensure a comprehensive review of buildings using the departmentalized classroom model versus buildings who use the traditional, self-contained classroom model. The researcher used the Missouri Department of Elementary and Secondary Education database to generate a list of schools containing fourth, fifth and/or sixth grade settings in the state of Missouri. The researcher divided the pool into nine regions using Missouri's Regional Professional Development Centers as a guide (Missouri Department of Elementary & Secondary Education. (n.d.-b). The nine regions include: Southeast, Heart of Missouri, Kansas City, Northeast, Northwest, South Central, Southwest, St. Louis and Central. Elementary schools throughout the state were organized alphabetically and assigned a number within each region then placed into an Excel document. The researcher used the online tool Research Randomizer found at https://www.randomizer.org/ to randomly identify 25 schools in each region. These randomly identified school became the sample used for this study. The researcher chose 25 because it was understood some of the schools selected in the sample may not be eligible for participation due to not using the same organizational structure for both the 2015-2016 and 2016-2017 school years. The researcher only used these two years in the study due to the change in the MAP test format and administration after the 2014-2015 school year. The goal was to have at least 20 schools from each region as part of the sample. The researcher conducted a phone survey to determine if the elementary schools included in the sample practiced departmentalization or a self-

contained approach to educating their students. Schools included in the sample were required to utilize the said organizational structure during the 2015-2016 and 2016-2017 school years. The phone survey also determined which grades were departmentalized and how long the elementary school had practiced departmentalization. Once the information was gathered on the sample, those grade levels in schools identified as not having the same organizational structure for the 2015-2016 and 2016-2017 school years were not included in the study as this would have changed the dependent variable; data quality and consistency was an important aspect to ensuring this study was accurate. Those identified who had the same structure for the 2015-2016 and 2016-2017 school years were included in the sample of schools studied and had their standardized assessment results for the spring of 2016 and the spring of 2017 collected.

The researcher used the School Content Area Disaggregated Report from the Missouri Departments of Elementary and Secondary Education for the 2016 and 2017 school year to collect data. Data from each school's fourth, fifth and/or sixth grade classrooms were collected and analyzed in this quantitative causal comparative study. Information collected through the phone survey to each school included the following:

1. What grade levels are housed at the school?
2. Does the school practice the departmentalized method to classroom instruction or the traditional, self-contained method to classroom instruction?
    a. Departmentalized
    b. Self-Contained
3. If the building practices the departmentalized method, which grade levels are departmentalized?

4. If the building practices the departmentalized method, was this method used in both the 2015-16 and 2016-17 school years?

Research Setting

All elementary schools with grades four through six who participated in this study were in the state of Missouri. A random sampling of at least 25 schools from each of the nine regions across the state of Missouri were utilized as the sample. Demographic questions for each school included the type of classroom setting utilized in the building for each grade level (e.g. departmentalized or traditional) and how many years the building and/or specific grade level had been using the said model. Only schools with grades who had been consistent in using the same organizational structure for the 2015-16 and 2016-17 school years were able to be part of the sample.

Research Design

The purpose of this quantitative causal comparative study was to examine the organizational structure of schools in relation to the principles of learning as well as the organizational learning structures and the impact they may have on ELA achievement. This study compared the organizational structure used in a school setting and English language arts MAP scores for fourth through sixth grade students at elementary schools across the state of Missouri. The independent variable of interest is the organizational structure of departmentalization or a self-contained setting in the classroom and can generally be defined as the circumstances (location and physical characteristics of an area) in which the principles of learning are applied as teaching is happening and learning takes place. The dependent variable of interest was English language arts MAP scores for students in grades four through six across the state of Missouri and will generally be

defined as a set of mandatory standardized assessments given to students annually in the state of Missouri.

Instrumentation

The researcher used the Missouri Assessment Program (MAP) test to measure student achievement. New ELA and Mathematics assessments for Grades 3–8 were developed for the 2014–15 school year. The 2014–15 assessments consisted of items fully aligned to the new Missouri Learning Standards. The ELA and Mathematics 2014–15 MAP assessments were built as fixed forms using Smarter Balanced Assessment Consortium's (SBAC) computer adaptive item bank. The 2014–15 test scores were reported on new scales, and students were classified into achievement levels based upon cut scores established by SBAC on their computer-adaptive item bank. The MAP test changed again in 2015-16 for ELA and Mathematics in Grades 3-8. Due to this change, there was only two years of MAP assessment data with comparable data available for the researcher to utilize in this study. The assessments were developed using Data Recognition Corporation's (DRC) college and career item pools. New reporting scales were established for this test and new achievement-level cut scores were set. ELA and Mathematics test results from Spring of 2016 are considered the baseline for year-to-year student performance comparisons. The same tests were administered in the Spring of 2017 so student scores and performance-level data are comparable between the 2015-16 and 2016-2017 school years. All 2016–2017 assessments were administered online. ELA and Mathematics contain the following types of questions: multiple-choice (MC), technology-enhanced (TE), evidence-based selected response (EBSR), and short-answer (SA). There is a writing prompt (WP) in ELA for Grades 5 and 8. Paper-and-pencil

versions of the tests, including Braille and large print, are also available for all content areas (Data Recognition Corporation, 2017).

Validity/Reliability

Reliability refers to the consistency of students' test scores on parallel forms of a test. A reliable test is one producing scores expected to be relatively stable if the test is administered repeatedly under similar conditions. According to the Spring 2017 MAP Grade-Level Assessment Technical Report, the reliability statistics ranged from 0.90 to 0.92 for all ELA forms. To assess the evidence of the validity of test scores based on the relationship with other variables, correlations were computed between the ELA, Mathematics, and Science scale scores for students who took more than one MAP subject area test in 2017.

The writing prompts (WPs) in ELA Grades 5 were scored by human readers who were trained by the Data Recognition Corporation (DRC). DRC strives to develop a highly qualified, experienced core of readers so the integrity of all projects is appropriately maintained. All technology enhanced (TE), evidence-based selected response (EBSR), and short answer (SA) items were processed through DRC's autoscoring engine and scored according to the assigned scoring rules. DRC ensured all rubrics and scoring rules were verified for accuracy before scoring any of these items. DRC established an adjudication process for TE, EBSR, and SA items to verify correct answers were identified. Responses to multiple-choice and multi-select items were scored during the online test administration. For Braille, large-print, and paper-and-pencil administrations, student responses were transcribed into the online system by a test examiner (Data Recognition Corporation, 2017).

The MAP scale scores were developed using item-pattern scoring. These scores were based on the student's responses to all items on a given test, and scale scores account for the characteristics of the items in the test (such as item difficulty). A scale score can be interpreted as a highly probable estimate of a student's ability in each content area. Each item uses optimal item weights in terms of item information, therefore items do not contribute equally to the overall scale score. Students with the same raw score may be assigned to different scale scores, depending on which items they answered correctly. A student's achievement level is determined by their scale score. A student's correct responses to the assessment questions are used to assign a scale score. The scale score describes achievement spanning the complete range of Grades 3-8. These scores range in value from 230 to 820 for ELA. Student performance is reported based upon four achievement levels: Below Basic, Basic, Proficient, and Advanced. Each level represents standards of performance for each content area. Achievement level scores provide a description of what students can do in terms of the content and skills assessed, as described by the Missouri Learning Standards.

Data Analysis

This quantitative casual comparative study allowed the researcher to determine if departmentalizing has a positive effect on student achievement or if the traditional self-contained method is a more reliable approach. Student achievement for fourth-, fifth- and sixth-grade students were retrieved from the Missouri Comprehensive Data System and examined to determine the number of students scoring in the top two achievement levels (Proficient and Advanced). Scores were disaggregated into the top two achievement levels for communication arts. Once the data was compiled from the sample, an independent sample t-test with alpha = .05 was used to determine if there is a statistically

significant difference between students in grades four through six who receive instruction in a departmentalized setting as compared to students who receive instruction in a self-contained classroom setting.

The assumptions of the independent sample *t* test include:

1. There are two levels within the independent variable (departmentalized and self-contained).
2. There is a continuous dependent variable (English language arts MAP scores).
3. The variances of the data within each set are similar.
4. Samples are simple and random from their respective populations (each had an equal probability of being selected in the sample).

Summary

This chapter outlined the details and methodology for this study. This included the research questions and hypothesis, participants, selection/sampling, research setting and design, instrumentation, validity and reliability, and data analysis. In Chapter Four the researcher analyzed the collected MAP data and findings of the study. Chapter Five will provide a summary of the study, conclusions and recommendations.

CHAPTER FOUR

ANALYSIS OF DATA

Introduction

Educators have a choice of two organizational structures for delivering instruction, which includes the self-contained model and the departmentalized model (Chan & Jarman, 2004; Contreras, 2009; DelViscio & Muffs, 2007; Gerretson et al., 2008; Gewertz, 2014; Hood, 2010). ELA is one of the core subjects required by the Department of Elementary and Secondary Education (DESE) to be assessed in elementary classrooms ("Missouri Learning Standards," 2018). The researcher sought to determine if students who attended departmentalized elementary schools had higher academic achievement in ELA than students who attended elementary schools that use the traditional self-contained model.

In Chapter Three, the researcher detailed the methodology of the study including the participants, sampling selection, research setting, research design, instrumentation, validity/reliability, and data analysis. The final results of the compiled ELA MAP test scores were uploaded into Microsoft Excel for organizational purposes and into the IBM Statistical Package for Social Sciences (SPSS) statistics program for analysis. Descriptive statistics were used to present quantitative data in a simple, easy to understand way. Inferential statistics were used to analyze the data to determine any statistical differences between students who scored advanced and proficient on the ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting. The following research questions were addressed:

Research Questions.

1. What is the difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
2. What is the difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
3. What is the difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

An independent samples *t* test was performed to test the following null hypotheses:

Null Hypotheses.

1. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
2. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

3. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

Chapter Four will allow the researcher to share useful information from collected data and provide an overview of the findings. The remainder of the chapter will include information about participants, demographics, findings for each null hypothesis, and a conclusion.

Data Analysis and Findings

The scope of this study was to determine any statistical differences between students who scored advanced and proficient on the ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

Participants

Elementary schools housing fourth, fifth, and/or sixth graders across Missouri consisted of the pool from which buildings were identified as using a departmentalized classroom model or a traditional classroom model. Twenty-five participants were randomly selected from each of the nine regions identified by Missouri Department of Elementary and Secondary Education. These regions of the state included rural, suburban, and urban school districts and various size districts and buildings. Once identified, the researcher contacted each building's administrator or secretary via telephone to determine the classroom structure of their fourth-, fifth-, and sixth-grade classes. Once identified the buildings that followed a departmentalized model or a self-

contained model for both the 2015-2016 and 2016-2017 school year were used for this research.

Demographics

The final results of this study represent 181 schools from across the state of Missouri and include 2 years of data from each school. This allowed for 264 fourth-grade ELA MAP assessment scores, 272 fifth-grade ELA MAP assessment scores, and 204 sixth-grade ELA MAP assessment scores. These scores represented both departmentalized and self-contained classroom structures in a variety of elementary schools. There were 10 schools that housed only fourth-grade; 69 schools housed both fourth and fifth grades; 53 schools housed fourth, fifth, and sixth grades; 14 schools housed fifth and sixth grades; 35 schools housed only sixth grade; and none of the schools housed only fifth grade. Student achievement for fourth-, fifth- and sixth-grade students were retrieved from the Missouri Comprehensive Data System. The data were examined to determine the percentage of students scoring in the top two achievement levels for communication arts in each of the two settings identified.

Results

Research Question 1. What is the difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypothesis 1. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and

received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

An independent samples *t* test was performed to test the hypothesis that departmentalization and self-contained instruction were associated with statistically significantly different mean on ELA MAP scores in fourth-grade. As shown in Table 1, when examining fourth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction ($N = 56$, $M = 65.8$, $SD = 15.7$) scored numerically higher (2.1%) than schools that used a self-contained model ($N = 208$, $M = 63.7$, $SD = 16.4$). As shown in Table 2, the assumption of homogeneity of variance was assessed by the Levene's test, $F = .401$, $p = .527$; this indicated no significant violation of the equal variance assumption; therefore, the pooled variances version of the *t* test was used. The 95% CL for the difference between sample means, $M_1 - M_2$, had a lower bound of -2.67 and an upper bound of 6.95.

Table 1

Group Statistics

	Structure	*N*	Mean	Std. Deviation	Std. Error Mean
4th-grade MAP	Departmentalized	56	65.845	15.7392	2.1032
	Self-Contained	208	63.708	16.3538	1.1339

Table 2

Independent Samples Test

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
4th-grade MAP	Equal variances assumed	.401	.527	.875	262	.383	2.1370	2.4429	-2.6733	6.9472
	Equal variances not assumed			.894	89.609	.374	2.1370	2.3894	-2.6104	6.8843

The mean fourth-grade MAP did not differ significantly, $t(262) = .875$, $p = .383$, two tailed. When testing for a statistical difference, the researcher looked for *p*-values. When the *p*-value is 5% or lower ($p < .05$), it is considered statistically significant and did not occur by chance (Pelham, 2013). In this case, the *p* value was .383 ($p > .05$) and was not considered to be statistically significant. Therefore, the researcher did not find a significant difference and failed to reject the null hypothesis.

Research Question 2. What is the difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypothesis 2. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

An independent samples *t* test was performed to test the hypothesis that departmentalization and self-contained instruction were associated with a statistically

significantly different mean on ELA MAP scores in fifth grade. As shown in Table 3, when examining fifth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction (N = 127, M = 61.2, SD = 14.9) scored numerically lower (-.09%) than schools that used a self-contained model (N = 145, M = 62.1, SD = 17.7). As shown in Table 4, the assumption of homogeneity of variance was assessed by the Levene's test, F = 1.69, p = .194; this indicated no significant violation of the equal variance assumption; therefore, the pooled variances version of the t test was used. The 95% CL for the difference between sample means, M_1 - M_2, had a lower bound of -4.92 and an upper bound of 2.96.

Table 3

Group Statistics

	Structure	*N*	Mean	Std. Deviation	Std. Error Mean
5th-grade MAP	Departmentalized	127	61.157	14.8530	1.3180
	Self-Contained	145	62.139	17.7440	1.4736

Table 4

Independent Samples Test

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
5th-grade MAP	Equal variances assumed	1.692	.194	-.491	270	.624	-.9826	2.0002	-4.9207	2.9554
	Equal variances not assumed			-.497	269.465	.620	-.9826	1.9770	-4.8749	2.9097

The mean fifth-grade MAP did not differ significantly, $t(270) = -.491$, $p = .624$, two tailed. When testing for a statistical difference, the researcher looked for *p*-values. When the *p*-value is 5% or lower ($p < .05$), it is considered statistically significant and did not occur by chance (Pelham, 2013). In this case, the *p* value was .624 ($p > .05$) and was not considered to be statistically significant. Therefore, the researcher did not find a significant difference and failed to reject the null hypothesis.

Research Question 3. What is the difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypothesis 3. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

An independent samples *t* test was performed to test the hypothesis that departmentalization and self-contained instruction were associated with statistically significantly different mean on ELA MAP scores in sixth grade. As shown in Table 5, when examining sixth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction (N = 179, M = 58.0, SD = 16.8) scored numerically higher (6.3%) than schools that used a self-contained model (*N* = 25, M = 51.7, *SD* = 23.0). As shown in Table 6, the assumption of homogeneity of variance was assessed by the Levene's test, $F = 7.17$, $p = .008$; this indicated no significant violation of the equal variance assumption; therefore, the pooled variances version of the *t* test was used. The 95% CL for the difference between sample means, $M_1 - M_2$, had a lower bound of -1.07 and an upper bound of 13.8.

Table 5

Group Statistics

	Structure	*N*	Mean	Std. Deviation	Std. Error Mean
6th-grade MAP	Departmentalized	179	58.032	16.8041	1.2560
	Self-Contained	25	51.668	22.9759	4.5952

Table 6

Independent Samples Test

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
6th-grade MAP	Equal variances assumed	7.172	.008	1.689	202	.093	6.3644	3.7686	-1.0665	13.7953
	Equal variances not assumed			1.336	27.699	.192	6.3644	4.7637	-3.3985	16.1273

The mean sixth-grade MAP did not differ significantly, $t(202) = 1.69$, $p = .093$, two tailed. When testing for a statistical difference, the researcher looked for *p*-values. When the *p*-value is 5% or lower ($p < .05$), it is considered statistically significant and did not occur by chance (Pelham, 2013). In this case, the p value was .093 ($p > .05$) and was not considered to be statistically significant. Therefore, the researcher did not find a significant difference and failed to reject the null hypothesis.

Conclusion

This chapter provided the findings of the study. The researcher randomly selected 225 schools and determined 181 schools met the qualifications and agreed to participate in the study. English Language Arts MAP test scores for fourth-, fifth- and sixth-grade students were collected from DESE and analyzed. The researcher disaggregated the data based upon grade level and classroom structure to determine if students who attended departmentalized elementary schools had higher academic achievement in ELA than students who attended elementary schools that used the traditional self-contained model.

Statistical analysis was performed using the SPSS program. Descriptive statistics identifying the number of samples included, average percentage of students who scored advanced and proficient on the ELA MAP test, and standard deviations were reported. Next, inferential statistics consisting of independent sample two-tailed *t* tests were used to determine if there was a statistically significant difference in the percentage of students who scored advanced and proficient on the ELA portion of the MAP test between students who received instruction using a departmentalized setting as compared to students who receive instruction using a self-contained setting. The researcher did not find a significant difference in any grade level, therefore failed to reject all three null hypotheses included in the study. Chapter Five will provide a summary of the research, findings of the data, and conclusions. The researcher will also include recommendations for future research related to this study.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Student achievement is a priority and at the forefront of multiple discussions taking place in schools everywhere. The purpose of this causal comparative quantitative study was to determine if students who attended departmentalized elementary schools had higher academic gains in ELA on the Missouri Assessment Program (MAP) than students who attended elementary schools using the traditional self-contained model in grades 4 through 6. This chapter includes a summary of the methods used in the research, findings, conclusions, and recommendations.

Summary of Methods

After receiving Research Review Board (RRB) approval in October of 2018, a list of schools in Missouri containing fourth, fifth, and/or sixth grade was generated using the Missouri Comprehensive Data System (MCDS) Portal contained on the Missouri Department of Elementary and Secondary Education website per Merriam-Webster. The researcher obtained a list of every school in the state divided by each of the nine regions (Missouri Department of Elementary & Secondary Education, n.d.). The nine regions encompassed the entire state to ensure a reliable sample was utilized. The elementary schools were organized alphabetically using Microsoft Excel and assigned a number. The researcher used the online tool Research Randomizer found at https://www.randomizer.org/ to randomly identify 25 schools in each region. These randomly identified school became the sample used for the study. A phone survey was conducted with each

of the schools in the sample to determine if the fourth-, fifth- and/or sixth-grade classrooms in their building used a departmentalized model or a traditional self-contained model for classroom structure. The researcher ensured the identified grade levels followed the same organizational structure during both the 2015-2016 and 2016-2017 school years. Those schools that were identified as being a part of the sample had their standardized assessment results for the spring of 2016 and the spring of 2017 collected. The researcher used the School Content Area Disaggregated Report from the Missouri Department of Elementary and Secondary Education to gather assessment results. Scores were disaggregated into the top two achievement levels for communication arts (Proficient and Advanced). After the organization of scores using the state achievement report, the data were uploaded into the SPSS program to be analyzed.

Summary of Findings

To determine if students who attended departmentalized elementary schools had higher academic gains in ELA on the MAP than students who attended elementary schools using the traditional self-contained model in grades 4 through 6, the study focused on three research questions. The research questions and null hypotheses are as follows:

Research Questions. There were 3 research questions included in this study.

1. What is the difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

2. What is the difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?
3. What is the difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting?

Null Hypotheses. There were 3 Null Hypothesis included in this study.

1. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fourth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
2. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **fifth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.
3. There is no statistically significant difference in the percentage of students who scored advanced and proficient on the **sixth-grade** ELA MAP test and received instruction in a departmentalized setting as compared to students who received instruction in a self-contained classroom setting.

When examining fourth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction ($N = 56$, $M =$

65.8, *SD* = 15.7) scored numerically higher (2.1%) than schools that used a self-contained model (*N* = 208, *M* = 63.7 *SD* = 16.4 8). Upon examination of fifth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction (*N* = 127, *M* = 61.2, *SD* = 14.9) scored numerically lower (-.09%) than schools who used a self-contained model (*N* = 145, *M* = 62.1, *SD* = 17. 7). Lastly, when analyzing sixth-grade ELA performance for the 2016 and 2017 school years, schools that used a departmentalized model for classroom instruction (*N* = 179, *M* = 58.0, *SD* = 16.8) scored numerically higher (6.3%) than schools that used a self-contained model (*N* = 25, *M* = 23.0, *SD* = 4. 6). Overall, when analyzing the collected data the researcher found no statistically significant difference in 2015-2016 and 2016-2017 mean ELA MAP scores based upon organizational structure, and therefore failed to reject the null hypotheses.

Conclusions

This quantitative study did not find a significant difference in student achievement as related to a departmentalized or self-contained organizational structure, which is consistent with other studies that had the same findings (Braddock et al., 1988; Hampton, 2007; Hood 2010; McPartland, 1987). Based upon these findings the researcher could infer other variables affect student achievement more than departmentalized or self-contained structures. From the current research and other findings throughout the Literature Review, one can infer the emphasis should be on the teacher rather than the organizational structure when increasing student achievement is the goal.

Previous related research conducted by the Committee on Behavioral and Social Sciences and Education of the National Research Council (NRC) provided scientific evidence regarding how the learning environment affects how people learn. This research identified three key principles essential for improving student performance (preconceptions, conceptual or theoretical framework, and metacognition) and identified environmental structures that enhance and support these principles (learner centered, knowledge centered, assessment centered, and community centered). These learning environments need to be aligned and support one another to ensure the three learning principles are attained and student achievement is improved (Bransford et al., 2000).

Implementing these principles effectively and ensuring the learning environments support one another have a common theme: teachers make a difference in the instructional decisions made daily. Research shows effective teachers are the most important factor contributing to student achievement (Hamilton, n.d.; Marzano, 2007). Hattie (2009) revealed that teacher quality accounts for 30% of the variance in student performance. Mendro (1998) reported that research has shown the longitudinal effects of teachers are much larger than expected, and the least effective teachers have a long-term influence on student achievement that takes up to three years to be remediated. Based upon this research, it can be assumed the teacher may be one of the most important variables in improving student achievement.

Educational Implications

Many school leaders are faced with the task of making decisions about organizational structures in school and which structure will best fit their needs. The information gained from this study may be valuable to school leaders while also

suggesting direction for future research. Some factors to be considered when making decisions about organizational structure include the fact that the current research did not provide a significant difference in student achievement or improve learning based upon the classroom structures of a departmentalized or self-contained classroom.

However, a study conducted by the NRC (2000) about how people learn has shown when the four learning environments (learner centered, knowledge centered, assessment centered, and community centered) are utilized effectively by educators the implementation of the three key principles of learning is supported. These three principles include preconceptions, conceptual/theoretical framework, and metacognition and are essential when student achievement is the goal.

Further Research

There are several ways research can be pursued to indicate which organizational structure has the greatest impact on student achievement. To continue research regarding the effect of classroom instructional setting on academic achievement, the researcher recommends the following:

1. Consider adding a qualitative piece to the study. Interviewing teachers would allow the researcher to gain teacher perspective on departmentalization versus the traditional self-contained classroom.
    a. Analyze the data from the teacher interviews based upon teaching experience. Examine the teacher perspective from (a) those who have only taught in a self-contained setting compared to (b) those who have only taught in a departmentalized setting compared to (c) those who

have experience teaching in both settings and focus on their perceptions of the most effective practice.

   b. Including an analysis of student achievement based upon experience in each organizational structure (departmentalized, self-contained, both) would allow the researcher to identify an additional perspective on student achievement in each of those environments.
   c. Analyze student achievement based upon teacher pedagogy within each organizational structure (departmentalized, self-contained, both). The focus can be on teacher collaboration, student/teacher interactions, instructional approaches, and/or the teacher's ability to use the principles from "*How People Learn*" (Bransford et al., 2000) the most effectively.
   d. A student questionnaire can also be considered. The students can share their perspective and discuss which organizational structure they prefer.

2. Consider analyzing fourth-, fifth- and sixth-grade scores from the same group of students. This would allow the researcher to track student achievement for 3 years and compare changes (if any) to the classroom structure as they progress through those grades. The teacher may change each year, however the student variable will remain constant.
3. Consider choosing a different subject such as math or science. Investigating several subject areas is another option one should consider.

Summary

The intent of this study was to provide insight for educators to determine if a departmentalized classroom or a self-contained classroom promotes higher student achievement. The research found no significant difference in student achievement as related to organizational structure, and therefore provided insight into the minimal impact the educational setting has on student achievement. Without a doubt, increasing student achievement will remain a goal education. In an effort to determine which factors can be successfully implemented in order to attain this goal more research using additional variables is required.

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