Exploring School Configuration in Conjunction with the Correlation Between Perceived Sense of School Belonging of Students and Achievement

Kaleb K. Johnson

BS, Missouri Western State University, 2015

MS, Northwest Missouri State University, 2017

EdS, Northwest Missouri State University, 2018

Submitted to the Faculty of the School of Education of Baker University

in partial fulfillment of the requirements for the degree of

Doctor of Education in Educational Leadership

James Robins, EdD
Major Advisor

Harold Frye, EdD

Melody Smith, EdD

Date Defended: August 7, 2024

Abstract

This quantitative correlational study investigated the relationship between sixth-grade students' perceived sense of school belonging and their achievement in reading and mathematics across different school configurations. Data from i-Ready Diagnostic scores and self-reported school belonging measures were gathered from 128 sixth-grade students across three buildings in District J using a purposive sample. This data was analyzed to explore these associations. The results revealed a weak and statistically nonsignificant negative correlation between sixth-grade students' perceived sense of school belonging and their i-Ready Diagnostic scores in both reading and mathematics. This correlation did not vary significantly between sixth-grade students attending elementary versus middle school configurations. Further analysis indicated significant differences in mean achievement scores between students in different school configurations. Sixth graders in elementary schools showed significantly higher mean scores in reading and mathematics compared to those in middle schools. Additionally, sixth-grade students reported higher levels of school belonging in elementary schools than in middle schools. A higher proportion of sixth graders attending middle schools scored in the Below Basic band for reading, while more students attending elementary schools achieved in the Proficient and Advanced bands in both subjects. These findings highlight the influence of school configuration on academic and social outcomes during the crucial middle years. They provide valuable insights into the complex interplay between school belonging, academic achievement, and educational settings, with implications for policies and practices aimed at improving middle school students' educational experiences.

Dedication

This dissertation is dedicated to my loving friends and family, whose unwavering support and encouragement have been a source of strength throughout this journey. In addition, I would like to dedicate this dissertation to all the students whose experiences and insights contribute to enriching our understanding of education and school environments.

Acknowledgements

A special thanks to my partner, Tanner, for their unwavering support and understanding during this endeavor. Thank you for the constant push, encouragement, time, and space throughout this process. It means the world to me. I would like to express my heartfelt gratitude to my mother, Jean, whose endless love and encouragement have been my rock throughout all my life's journeys.

I am deeply appreciative of my advisor, Dr. James Robins, for the invaluable guidance and insights throughout this study. Your support through this work to ensure my final product was of high quality and professional did not go unnoticed. You gave me the space when I needed it and the push to finish when I needed it. To my data analyst, Dr. Peg Waterman, I extend my gratitude for your expertise that was so crucial to helping me complete this work and interpret the findings. Without you, I am not certain this train would have reached the depot. You truly are an inspiration and added more coal to the engine than you will ever know. Thank you for that. Dr. Harold Frye, committee member, thank you for your time and thoughtful feedback that helped to ensure that my dissertation was the best it could be. Dr. Melody Smith, you served as more than a committee member. You served as a mentor for this journey and my journey as an educator. Thank you for helping to get me back on track as I am not sure where I would be without you.

Additionally, I want to express my heartful gratitude to my school district and the many educators who have helped mold me into the educator I am today. Thank you for your support throughout this process and encouragement. I am honored to work for you and be a part of the team. Lastly, I am grateful to the many baristas and coffee

companies, especially Mokaska Coffee, for providing the fuel that kept me going during long hours of research and writing.

Table of Contents

List of Tables

Chapter 1

Introduction

States and school districts across the country have been reconsidering the practice of educating young adolescents in stand-alone middle schools that typically span grades 6 through 8 and replacing them with K-8 schools (Carolan & Chesky, 2012). While there has been dissatisfaction with middle-level education that has prompted this consideration (MacFarland, 2017), the amount of research done is quite small considering how widely the topic has been at the forefront of these conversations (Byrnes & Ruby, 2007). Although little research has been done, it is important that research is conducted as the configuration of sixth-grade students needs to meet not only these adolescents' academic needs, but their unique developmental needs (Schafer, 2010). Sixth graders who are in an elementary setting are among the oldest students and have different needs than the five grades prior to them, while when in a middle school configuration, they become the youngest and are exposed to older adolescents (Cook et al., 2008).

The middle school movement began in the 1960s (Alexander & McEwin, 1989) and continues to raise questions as to which grade-level configuration is best. With the original movement, the intent was to move away from junior highs into middle schools that housed grades 6-8 (Sailor, 1986). The concept was to incorporate open classrooms, team teaching, and multi-age grouping. However, Sailor (1986) noted that many middle schools failed to incorporate these ideas in their shift and still mirrored that of junior highs. While school districts are still debating on the best configuration of sixth-grade students, their unique needs are often left out of the conversation.

Despite the debate, one thing that most school districts can agree on is that sixth-grade students are at a critical point in their developmental needs. Physical maturity occurs around this age group and students encounter many physical changes. Feelings of attraction start to grow and lead students into difficult and conflicting emotions. Peer pressure is another powerful force as sixth graders find themselves (Chen, 2023). With these changes and needs, school districts might consider questioning whether it is most beneficial for them to be in an elementary configuration where they spend most of their day with one teacher, or in a middle school configuration where they have several teachers.

Background

The United States Department of Education does not dictate or regulate grade level configurations. School districts across the United States decide which grade configuration best fits the needs of the district. With this decision left up to each school district, there are variations in grade configurations of middle schools (National Center for Educational Statistics, 2002). Of the 13,860 middle schools in the United States, 9,650 are a grades 6-8 configuration, 1,930 are a grades 7-8 configuration, and 2,280 are classified as other (National Center for Educational Statistics, n.d.) Within these middle school models, 26% of students were Proficient or Advanced in mathematics and 31% were Proficient or Advanced in reading at the end of their eighth-grade year (National Assessment of Educational Progress, 2015).

According to SchoolDigger (2023), there are 459 schools that hold middle grades 6, 7 and 8 in the state of Missouri. Of the 459 schools, 235 are a grades 6-8 configuration, 50 are a grades 7-8 configuration, and 174 are classified as other (SchoolDigger, 2023).

Within these middle school configurations, 24% of students were Proficient or above in mathematics and 28% were Proficient or above in reading at the end of their eighth-grade year (National Assessment of Educational Progress, n.d).

District J has 4 middle schools. Of the 4 schools, 2 are a grades 6-8 configuration and 2 are a grades 7-8 configuration. The sixth graders that are from the feeder system of the two schools that are a grades 7-8 configuration attend an elementary school for their sixth-grade year. Within these middle school models, 26.3% of students were Proficient or above in mathematics and 31.7% were Proficient or above in reading at the end of their eighth-grade year.

Statement of the Problem

Across the United States, 33 to 51% of middle level students are feeling a lack of school belonging (Miles, 2020). According to Klem and Connell (2004), this range widens to 40 to 60% of all students being chronically unattached from school by high school. In addition, Camera (2019) mentioned that math and reading scores have dropped in the United States each year since 2017. Bergin and Bergin (2009) stated, "Children's socioemotional well-being is critical to school success, and attachment is the foundation of socioemotional well-being" (p. 141). With this lack of attachment and drop in student academics, it is critical that school districts across the nation address how students feel at school. A consistent correlation between the sense of school belonging of students with significant outcomes has been documented, but there continues to be little research that explores how this sense is developed and to what extent it differs between school configurations (Bouchard & Berg, 2017).

Purpose of the Study

The purpose of this study was to examine the impact of the sense of school belonging of sixth-grade students on their achievement levels. Specifically, the achievement levels in reading and mathematics were examined to determine whether a correlation was present between sixth-grade students' perceived sense of school belonging and each of these achievement levels. In addition, this study was conducted to examine whether the level of correlation between sixth-grade students' perceived sense of school belonging and their achievement levels were affected by school configuration of sixth graders.

Significance of the Study

Although there are known benefits of a high level of school belonging, there has been little attention given to how and to what degree this influences the relationship between schools' middle level grade configurations and student achievement (Carolan & Chesky, 2012). Hence, it is important to explore school belonging and its relationship to the configuration of sixth-grade students and their achievement in reading and mathematics. With the results from this study, the researcher seeks to contribute to the research on why certain grade configurations work better than others. The results may provide guidance for school districts as to which grade configuration is best to meet the needs of these young adolescents.

Delimitations

"Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (Lunenburg & Irby, 2008, p. 134). This study had the following delimitations:

1. The study was conducted using reading and mathematics scores from the 2024 end-of-year i-Ready Diagnostic.
2. The study was conducted using student belonging data from the School Belonging Student Survey administered in 2024.
3. The study was conducted in one district in northwest Missouri.
4. The research was focused on two elementary schools and one middle school that have sixth grade.
5. The movement of students from one school to another within a given academic year or over their educational careers in school District J; student mobility.

Assumptions

Lunenburg and Irby (2008) defined assumptions as the "postulates, premises, and propositions that are accepted as operational for purposes of the research" (p. 135). The following assumptions were made in relation to this study:

1. Students tried their best on the end-of-year i-Ready Diagnostic.
2. The end-of-year i-Ready Diagnostics were administered and scored in a standardized manner.
3. Students answered the school belonging survey honestly.
4. Teachers administered the school belonging survey in a standardized manner.
5. The percentages for special education, ELD, SES, and ethnicity classifications are the same across each cohort of students and schools.

Research Questions

According to Creswell (2013), research questions (RQs) help to create a focus for the study. The following research questions were addressed in this quantitative study:

RQ1

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic?

RQ2

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic?

RQ3

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

RQ4

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

Definition of Terms

The terms listed below were used throughout this study. Their definitions are provided to prevent misunderstanding. Terms have been defined in the current study

when clarity of language was needed for those outside the field of expertise (Creswell, 2014).

Elementary School

Schools that offer more of grades K through 4 than higher grades are considered elementary schools (National Center for Educational Statistics, 2022).

i-Ready Diagnostic

The i-Ready Diagnostic is a research-based assessment for students in grades K-12. With an alignment to state content standards in reading and mathematics, this adaptive assessment provides a deep, customized evaluation of every student and determines if a student is performing on, below, or above grade level. (Curriculum Associates, 2023).

Middle School

Schools that offer more of grades 5 through 8 than higher or lower grades are considered middle schools (National Center for Educational Statistics, 2022).

Missouri Learning Standards (MLS)

According to Department of Elementary and Secondary Education, the MLS outline the knowledge and skills required for students to succeed in college, post-secondary training, and careers at every grade level and in each course. These expectations are in harmony with the Show-Me Standards, which establish the essential knowledge and abilities that all high school graduates in Missouri should possess (Missouri Department of Elementary and Secondary Learning, n.d.).

School Belonging

Feelings of acceptance, appreciation, and support from others are the main factors that make up school belonging. In addition to these three elements, school belonging encompasses a sense of being included in both the classroom and the broader school community (Goodenow, 1993).

Student Achievement

A student's accomplishments and performance within an educational environment are reflected in their achievement. Student achievement encompasses the extent of knowledge, skills, and academic advancement a student achieves during their tenure in school. The assessment of school achievement can take various forms, including grades, test scores, evaluations, and assessments conducted by teachers. Student achievement serves as an indicator of a student's capability to meet academic benchmarks and standards (Hattie & Anderman, 2013).

Organization of the Study

This study was organized into five chapters. Chapter 1 included an introduction, background information, statement of the problem, purpose of the study, the significance of the study, delimitations, assumptions, research questions, and definitions of terms. The second chapter includes a review of literature that is pertinent to this study. Within this chapter is information pertaining to school belongingness, middle school configuration, and student achievement in the areas of reading and mathematics. Chapter 3 contains the methodology of this study. This includes the research design, selection of participants, measurement, data collection procedures, data analysis and hypotheses testing, and limitations. The fourth chapter is written to reflect the results of the study. Hypotheses

testing, additional analyses, and a summary of results are included in this chapter. The fifth and final chapter contains the study summary, findings related to the literature, and conclusions. Within the conclusions, implications for action, recommendations for future research, and concluding remarks can be found.

Chapter 2

Review of the Literature

Decades of research has been conducted over grade-level configuration and its impact on student sense of belonging. According to Chen (2023), a decades long-debate has revolved around whether sixth graders are more advantageous in elementary school or middle school. While some studies provide evidence that sixth-grade students should be placed in middle schools, other studies have suggested that sixth-grade students should remain in elementary schools. Despite the difference in conclusions, one thing is consistent; sixth grade has been deemed a major crossroad of a child's development (Chen, 2023). Ensuring that sixth-grade students are placed in the right school configuration should be of high importance.

One important area to consider when determining the right school configuration is student sense of school belonging. The purpose of this research was to examine the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their performance on the reading and mathematics end-of-year i-Ready Diagnostic. An additional purpose of this study was to determine whether there was a difference in sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, attending an elementary school configuration and students attending a middle school configuration. Results from this study can be used by district officials in determining the most beneficial configuration for sixth-grade students.

In this chapter, research is examined regarding three topics applicable to this study. First, research is explored around sense of belonging and its definitions. Secondly,

research is examined regarding academic achievement and its relationship to students' sense of belonging. Finally, research is presented that examined the history surrounding the middle school models. Decades of research has focused on the debate of grade-level configuration, particularly focusing on the placement of sixth-grade students in elementary or middle schools, highlighting the crucial stage in the development of sixth-grade students. This study investigated the connection between their perceived school belonging and academic performance and seeks to contribute to the ongoing conversation surrounding the most beneficial configuration for these students, exploring key areas such as the definitions of belonging, adolescent development, academic achievement, and the history of middle school models.

Sense of School Belonging

A sense of being accepted, valued, and encouraged by others are the constructs that Goodenow (1993) used to define school belongingness. In conjunction with these three constructs, school belongingness includes feeling included within the life and activity of not only the class, but the school (Goodenow, 1993). School belonging relates to self-esteem, acceptance, and positive interpersonal relationships (Baumeister & Leary, 1995). Arslan and Duru (2017) added that a strong sense of school belonging involves students' perceptions of themselves as important, meaningful, and valuable parts of their school. While school belonging is a term that is used widely across the educational spectrum, there are many variations in how researchers describe school belonging. Although these differences in descriptions are minute, this range allows for school leaders to have a wide range of information to consider when deciding the best school configurations for students to ensure maximum learning is taking place.

Throughout research, a wide range of terminology has been used. Such terminology used interchangeably includes school bonding, attachment, engagement, connectedness, and community (Allen et al., 2016). Despite there being several names and ways to describe school belonging, there are some consistent characteristics. These characteristics include a student's sense of belonging, feeling of being a part of school, whether a student likes school, the level of support and care student feel from their teachers, having a sense of strong friendships in school, being involved in their learning, and participation in extracurricular activities (Carolan & Chesky, 2012). For this research, the term school belonging will be used throughout to refer to the general sense of belonging or connectedness to others in the school.

Theoretical Perspectives Regarding Sense of School Belonging

Maslow, a psychologist, was interested in studying human potential and how that potential is fulfilled. Within his studies, Maslow identified five areas known as Maslow's Hierarchy of Needs. One need identified is love and belonginess. The need to belong is a human response that comes naturally (Maslow, 1943). For humans to reach their full potential, they need to have positive interpersonal relationships, affiliating, connectedness, and being part of a group (McLeod, 2022). If students are expected to reach their full potential in school, they must have this Maslow need met. It was through Maslow's Hierarchy of Needs that the fundamental human requirement for love and belonging was stressed, emphasizing the essential role of positive interpersonal relationships and a sense of belonging in facilitating realization of their full potential in the school environment as students (Maslow, 1943).

A strong sense of school belonging for students includes their ability to perceive the value and attainability of the objectives outlined in their educational journey. Rotter (1954) developed a theory called expectancy-value that explains that both the perceived value and importance students attribute to their academic goals, in conjunction with their expectancy of success, are important factors in a student's overall sense of school belonging. If students have a deep belief and understanding of the significance of their education and have a high level of confidence in achieving their academic goals, they will be more inclined to have a greater experience with their sense of belonging at school. Motivation, personal aspirations and dreams, and a sense of purpose on students' overall sense of school belonging, establishing, and nurturing a supportive and goal-oriented school environment that elevate a students' feelings of belonging and academic success are the cornerstones of the expectancy-value theory (Mearns, 2021).

According to Bronfenbrenner (1979), school belonging involves a link between various environmental systems that shape a student's experience within the educational setting. Through the ecological systems theory, Bronfenbrenner (1979) acknowledged that a student's sense of belonging is not solely confined to the school itself, but rather it was a complex interplay of multiple systems. The microsystem plays a central role in that it encompasses the immediate school environment. Bronfenbrenner (1979) also emphasized the mesosystem and the interactions between the microsystems. These interactions include the connections between school and home, where often the foundation for belonging is laid. Furthermore, the macrosystem, which encompasses broader cultural and societal influences, can significantly influence the overall climate of belonging within a school, despite the foundation that has been started at home.

Educators should develop a deeper understanding of how the ecological systems intersect and impact a students' sense of belonging to create a more supportive and inclusive educational environment (Bronfenbrenner, 2005).

Goodenow (1993) argued that students' perceptions of belonging are critical and have significant effect on the educational experiences of students. Goodenow (1993) argued that a strong sense of school belonging correlated with various positive educational outcomes. These outcomes included increased motivation, engagement, and overall well-being. With these realizations, Goodenow developed the Psychological Sense of School Membership scale to help examine the importance of a student's sense of belonging within the school setting at a deeper level. Through this measure and theory, Goodenow (1993) suggested that a student's sense of belonging was shaped by a multitude of factors, including the quality of their relationships with teachers and peers, their level of academic engagement, and their overall sense of importance within their school community. The psychosocial aspects of the education experience of students are highly impactful and should be of importance when building a school community that fosters a positive, supportive, and inclusive school environment that elevates students' feelings of belonging and most importantly their overall well-being (Goodenow, 1993).

The acquisition of knowledge, how students apply that knowledge, their attitudes, and various behaviors are all areas that have been studied. Bandura (2001) emphasized the interplay of cognitive, behavioral, and environmental factors that shaped the development of humans. Bandura (2001) theorized that human development comes from observational learning, self-efficacy, reciprocal determinism, cognitive process, modeling, self-regulation, and agentic perspective. These key principles are important to

consider when trying to understand how students learn, develop, and adapt. Educators designing effective interventions and educational strategies should keep these areas at the forefront of their conversations.

Engaging students through highly effective educational strategies is a goal of many school systems. The higher the level of engagement, the higher the level of school belonging of students. Many theorists have studied student engagement. Fredricks (2011) concluded that student engagement was a multi-dimensional construct, and that fostering these different aspects of engagement was crucial for promoting learning and academic success. Through creating a higher level of student engagement and sense of belonging, academic achievement in schools would increase (Fredricks, 2011). Fredricks et al. (2004) emphasized the significance of emotional, behavioral, and cognitive engagement from students in the learning process. They believed an overall sense of belonging within schools could be greatly increased if students were actively and intellectually involved in their learning, connected to the learning experience emotionally, and were proactive with their behaviors (Fredricks et al., 2004). These theorists highlighted the connection between a strong level of engagement, emotional investment, and contribution from students to create a strong sense of school belonging.

A student's sense of school belonging often can be connected to the identities of students. The intersectionality theory has been a crucial and complex framework that considers a student's identity and its relationship to their sense of school belonging. Identities include many different dimensions such as race, gender, and socioeconomic status (Crenshaw, 2017). Therefore, students cannot be pinpointed by one sole category, but rather a combination of these dimensions. Crenshaw (2017) emphasized that students'

experiences of belonging are not uniform but are deeply influenced by how their intersecting identities are perceived and treated within the school community. If schools are striving for inclusivity and belonging, there is much consideration that should be given to each of these complex and interconnected factors. Each student has different experiences, particularly those from marginalized and underrepresented groups, which are shaped through various identity measures (Ladson-Billings, 2009; Noguera, 2016).

Gaining a deeper level of understanding of students' sense school belonging required many theories and perspectives to be explored. With the complexity of this area of study, these theorists and their theories provided a different perspective on the different facets of a student's sense of school belonging. Through Maslow's (1943) hierarchy of needs, we are reminded that the core of a student's potential realization relies on the fundamental human requirements for love and belonging. Rotter's (1954) expectancy-value theory depicted that a student's belief in the significance of their educational goals in conjunction with their confidence in reaching those goals were pivotal in establishing a strong sense of school belonging. Bronfenbrenner's (1979, 2005) ecological systems theory, Albert Bandura's (2001) social cognitive theory, and Goodenow's (1993) work with her Psychological Sense of School Membership scale both give a reminder that a sense of belonging is a multifaceted idea that has many components that are interconnected. Fredricks (2001) emphasis on the multi-dimensions of engagement help to reaffirm the connection between a high level of student engagement and an increased sense of school belonging. The complexity of students' identities and how they contribute to the shaping of belonging by Crenshaw (2017) elevate the importance of acknowledging and highlighting the diverse components that

help shape a student's sense of school belonging. Collectively each of these theorists and their theories deepen the level of understanding of school belonging, urging educators and researchers to consider the many dimensions of the critical concept of creating a supportive and inclusive educational setting that has the student's well-being and academic success at the heart of it.

Benefits of a Strong Sense of School Belonging

An increase in the sense of belonging in the school setting is positively related to good academic performance (Sari, 2012). If a student's sense of belonging is increased, student achievement will naturally increase and build upon their overall well-being and future successes throughout the remainder of their educational journey and life. Creating a strong sense of school belonging helps create a sense of protection for students and in turn supports not only the psychosocial well-being of students, but also their academic well-being (Whiting et al., 2017). Feeling a connection to the school positively impacts the social and emotional well-being of students and correlates to students making better decisions within the school environment (Allen & Kern, 2017). By fostering a sense of belonging, schools can significantly influence the overall health of students. This strong connection to the school environment has the potential to positively impact the emotional and physical well-being of students (Centers for Disease Control [CDC], 2009).

Assessing a student's sense of school belonging provides a significant predictor of important school-based and quality-of-life outcomes (Arslan, 2019). Gillen-O'Neel & Fuligni (2013) mentioned not only the strong connection between school belonging and student achievement, but also the promotion of mental health associated with school belonging. The psychosocial benefits of school belonging might be more important than

the academic benefits (McNeely et al., 2002). Despite the various uses and definitions, there tend to be three similar aspects. Allen et al. (2016) have identified these aspects as school-based relationships and experiences, student-teacher relationships, and students' general feelings about school.

From test scores to attendance, the numbers for public schools are on a continual decline. With a crisis amongst public schools in America, government officials continue to engage in political battles that apply more pressure than ever to public school entities (Meckler, 2022). A growing amount of pressure creates a sense of urgency for public school leaders and school boards across the nation. Nichols (2008) emphasized that when students experience a sense of belonging to their school environment and the individuals they interact with daily, this tends to boost their motivation to maintain consistent attendance. A positive feeling of belonging has been linked to enhancing the mental well-being of children and facilitating smooth transitions throughout their academic journey (Baumeister, 2012). It is important for schools to help students develop an increased level of agency and confidence with school expectations. Riley (2017) found a correlation between an elevated level of sense of belonging and the level of agency and confidence felt by students. Additionally, Anderman (2002) expressed evidence that indicated reduced feelings of anxiety, depression, social exclusion, thoughts of self-harm, and behavioral issues.

In addition to the emotional wellness of students being positively impacted by a strong sense of school belonging, physical wellness of students is also impacted positively (CDC, 2009; McNeely et al., 2002; McNeely & Falci, 2004; Resnick, 1997). According to Terada (2017), peer pressure can have adverse effects on students and their

success. Pressure to engage in smoking, alcohol consumption, or seeking connections with peers through intimate relationships can be lessened through an increase in positive feelings of belonging (CDC, 2009). With a decreased sense of school belonging, students may be more apt to be involved with substance abuse and violence. An increased focus in schools to create and foster a strong sense of school belonging has been related to a decrease in substance abuse and lower involvement in violence (Resnick, 1997). A sense of school belonging can have multiple facets and may not always act as a barrier to the onset of risky behavior. However, it can exert a lasting influence on whether these behaviors persist and persist over time or decrease (McNeely et al., 2022).

Factors Influencing School Belonging

School belonging is a multidimensional concept that is influenced by various factors. One of the primary factors that play a pivotal role in determining the sense of belonging of students, is the quality of relationships they establish with their teachers and peers (Allen et al., 2016). Positive and supportive relationships are the foundation of school belonging (Bronfenbrenner, 2015; Hattie, 2014). When students feel valued, respected, and supported by their educators and peers, they are more likely to develop a strong connection to the school environment (Blum & Libbey, 2004).

The overall sense of school connection is developed gradually, shaped by experiences with both adults and peers. Through these experiences, a feeling of being embraced and accepted is cultivated. Gowing and Jackson (2016) mentioned that many students experienced this connection through the opportunities provided by their school. Allen and Kern (2017) pointed out that while certain factors exert a stronger influence on the formation of a sense of belonging, it's the interplay of both internal qualities of the

student and the external environment that shapes the school community experience. School belonging is closely tied to the establishment of strong relationships with peers and educators, the cultivation of a positive attitude and dedication to being a part of the school community, and an overarching sense of appreciation for the school's environment and culture (Barber & Schluterman, 2008; Blum & Libbey, 2004; CDC, 2009).

Inclusivity and diversity within the school community are also key factors influencing school belonging (Anderman, 2002; Benner & Graham, 2013; Hussain & Jones, 2019). Schools that actively promote inclusivity and celebrate diversity create an environment where students from different backgrounds feel a sense of belonging (Hussain & Jones, 2019). When students see themselves represented and respected in the school community, it fosters a greater sense of connection and belonging (Benner & Graham, 2013). In contrast, exclusionary practices and discrimination can erode the sense of belonging and well-being of students (Anderman, 2002).

Classroom environment and teaching methods play a crucial role in shaping school belonging. A positive and engaging classroom atmosphere, combined with innovative, student-centered teaching approaches, significantly enhances the sense of belonging of students (Hattie, 2014). Feeling challenged and successful in their academic pursuits can boost this sense of belonging. Conversely, Hattie (2014) suggests that monotonous or overly stressful classrooms can hinder it. Allen et al. (2018) noted that the most influential factor contributing to positive school belonging is teacher support. Strong teacher-student relationships have a profound impact on a sense of belonging, as students perceive adults in the school community care about their well-being and

academic success (Osterman, 2000). Supportive teachers set high expectations for students and provide guidance to help them achieve their best (Allen et al., 2018). When strong relationships exist between students and adults in the school setting, they create an emotional foundation that fosters connection, safety, and a sense of acceptance, making the school experience more enjoyable (Anderman, 2003; Blum & Libbey, 2004).

The school culture, climate, policies, and values play a substantial role in influencing school belonging. Schools that prioritize a culture of respect, inclusivity, and support tend to foster a stronger sense of belonging. An open and inclusive atmosphere that encourages student involvement in decision-making processes, such as offering input on school policies, can further enhance this sense of belonging (Leithwood et al., 2012; Shepard, 2000). In essence, schools that consider and promote these factors create an environment where students are more likely to feel they belong, resulting in positive academic and emotional outcomes. Additionally, Allen et al. (2018) identified that positive personal characteristics and dispositions are top contributors to the development of a sense of belonging, with a moderate to high correlation between these characteristics and the development of social relationships. There is an increasing focus on nurturing positive personal and academic skills within the school setting to build the psychological resilience of students and their persistence when confronted with challenging academic experiences (Friedman & Kerns, 2014; White & Waters, 2015).

While school belonging is a multifaceted concept influenced by various factors, it pertains to the way students perceive their surroundings and their assessment of their connectedness within the school community. A school environment that provides students with care, safety, and fairness promotes the development of a positive sense of

belonging (Ma, 2003). These components in conjunction with positive and supportive relationships form the foundation of school belonging. Resnick (1997) proposed three vital factors are required to enhance the sense of belonging of students: attachment, commitment, and involvement. Elevating these factors within schools can, in turn, have a more significant impact on academic achievement in the school environment.

Middle School Configuration

The concept of middle school, an educational stage between elementary and high school, has evolved significantly over time. The roots of middle school can be traced back to the early 20th century in the United States (Alexander, 1963). The idea emerged as educators began to recognize that the educational needs of early adolescents were distinct from those of younger children and older teenagers (Eichhorn, 1966). This realization led to the creation of a separate educational stage designed to address the unique developmental needs of students typically ranging from grades 6 through 8.

The first middle schools appeared in the United States in the 1960s, though the concept was discussed as early as the 1910s (Carnegie Council on Adolescent Development, 1989). Educators such as William Alexander championed the idea of a middle school that would provide a more gradual transition from elementary to high school (Lounsbury, 1989). This period saw a growing recognition of the psychological, social, and academic challenges faced by students in the middle grades. The goal was to create an educational environment that would better support these students during a critical developmental period.

The establishment of middle schools was also influenced by the junior high school movement, which began in the early 20th century. Junior high schools, typically

including grades 7 through 9, aimed to bridge the gap between elementary and high school (Boyer, 1989). However, many educators felt that junior high schools did not adequately address the specific needs of early adolescents (Tomlinson, 2001). Boyer (1989) discusses how this led to the development of middle schools, which focused more on the unique characteristics of young adolescents, including their need for social interaction, exploration, and a supportive learning environment.

During the 1970s and 1980s, middles schools gained popularity and became a standard part of the American educational system (Carnegie Council on Adolescent Development, 1989). This popularity can be attributed to the work of educational reformers advocating for a curriculum and instructional methods tailored to the developmental stages of young adolescents in the 1960s (Alexander, 1963). This included a greater emphasis on interdisciplinary teaching, team teaching, and advisory programs to provide students with additional support and guidance (Eichhorn, 1966).

During the 1990s, middle schools saw further refinement in their educational model because of the work that came from the Carnegie Council on Adolescent Development (1989) and Lounsbury (1989). The Carnegie Council on Adolescent Development published *Turning Points: Preparing American Youth for the 21st Century* in 1989, which became a seminal document in middle school reform. This report emphasized creating smaller learning communities, fostering positive student-teacher relationships, and promoting rigorous academic standards. These recommendations influenced many schools to adopt student-centered approaches, enhancing the supportive educational environment for young adolescents. Through these reformed middle school environments, there was a greater sense of emphasis on the unique developmental needs

of young adolescents and advocating for educational practices that are responsive to these needs (Lounsbury, 1996).

In the early 21st century, middle schools continued to evolve with advancements in technology and educational research (Sternberg, 2003). Elias (1997) advocated for social-emotional learning programs to support the holistic development of young adolescents, emphasizing their emotional and interpersonal growth which laid the foundation for the evolution of middle schools in the 21st century. Concurrently, Sternberg (2003) highlighted the importance of developing practical skills and critical thinking abilities in middle school education, preparing students for future academic and career challenges.

Middle schools also began to prioritize college and career readiness in the early 21st century (Tomlinson, 2001; Sternberg, 2003). Tomlinson (2001) advocated for differentiated instruction to address diverse student needs, promoting inclusive educational practices. Meanwhile, Sternberg (2003) underscored the importance of practical intelligence and creativity in middle school curricula, aligning education with future workforce demands.

Student Achievement

In the United States, assessing and improving achievement levels among students has been a focal point of educational policy and practice for decades. This emphasis arises from the acknowledgement that educational achievement not only signifies individual student success but also impacts national competitiveness and social mobility (National Center for Education Statistics, 2021). The assessment of achievement levels spans a wide range, encompassing standardized test scores and comprehensive measures

of cognitive, social, and emotional development (Darling-Hammond & Snyder, 2020). These assessments have evolved over time in response to shifting educational paradigms, societal demands, and advancement in assessment methodologies. Understanding and enhancing student achievement continues to be a cornerstone of educational research and policy, underpinned by ongoing efforts to promote equitable opportunities and outcomes for all learners.

Assessing student achievement in Missouri is integral to understanding the state's educational landscape and its impact on both local communities and the broader national context. Missouri, like many states across the United States, employs various measures to gauge student learning outcomes, including standardized testing, graduation rates, and college readiness indicators (Missouri Department of Elementary and Secondary Education, 2021). These assessments not only reflect the academic progress of Missouri's diverse student population, but all inform educational policies aimed at enhancing learning opportunities and outcomes.

Over the years, Missouri has implemented initiatives to improve educational quality and equity. The state's educational system has been responsive to the needs of its students, striving to ensure that all learners receive a robust education that prepares them for future success in an increasingly competitive global environment (National Center for Education Statistics, 2021). Missouri's approach to student achievement encompasses a broad spectrum of strategies, from statewide standardized assessments to localized efforts aimed at addressing the unique challenges faced by schools and districts across the state. These efforts reflect commitment to fostering a supportive educational environment that nurtures both academic excellence and personal growth among its student population.

Reading Achievement

Currently, reading achievement levels in the United States have shown significant decline in recent years. Reports from the National Center for Education Statistics (2021) and other educational assessments indicate a downward trend in reading proficiency among students across various grade levels. Factors contributing to this decline include disparities in access to quality literacy resources (Neuman & Celano, 2012), challenges in adapting educational practices to meet diverse student needs (Darling-Hammond, 2020), and the impact of technological distractions on reading habits (Foehr, 2006). The decline in reading proficiency is particularly noteworthy among certain demographic groups and socioeconomic backgrounds, highlighting persistent inequalities in educational outcomes Efforts to address this issue include targeted interventions such as literacy-focused initiatives, increased professional development for educators in literacy instruction (International Literacy Association, 2019), and community partnerships to promote reading engagement both in and out of school settings. Despite these challenges, ongoing research and policy efforts continue to emphasize the importance of fostering strong reading skills as foundational to academic achievement and lifelong success in the United States.

Mathematics Achievement

Mathematics achievement in the United States remains a pivotal area of concern and focus within educational assessment and policy. Proficiency in mathematics is crucial not only for academic success across various disciplines but also for developing critical thinking, problem-solving, and quantitative reasoning skills essential in today's global economy. Recent assessments, such as those conducted by the National Center for

Education Statistics (2021), highlight both strengths and challenges in mathematics proficiency among students at different educational levels. Factors influencing mathematics achievement include the quality of mathematics instruction, access to advanced coursework, and the effectiveness of educational interventions aimed at improving numerical literacy and problem-solving abilities (Organization for Economic Co-operation and Development, 2019). Disparities in mathematics achievement across demographic groups and socioeconomic backgrounds underscore the need for targeted strategies to enhance educational equity and ensure all students can excel in mathematics. Efforts to improve mathematics achievement include curriculum reforms, professional development for educators in effective teaching strategies, and initiatives promoting STEM education to cultivate a skilled and competitive workforce. Despite challenges, ongoing research and policy initiatives continue to emphasize the importance of mathematics proficiency as a cornerstone of academic achievement and future success in the United States.

Summary

In this chapter, research was reviewed that was relevant to this study. Within the literature review were summaries regarding student school belongingness. This included examining and reviewing literature revolving around the theoretical perspectives regarding sense of school belonging. In addition, the benefits of a strong sense of school belonging and factors influencing school belonging were reviewed. Middle school configuration and its history from the 1960s to 21st century was presented. Lastly, the reading and mathematics achievement in the United States was discussed. With much debate revolving around the most effective grade configuration of sixth-grade students,

school belonging is often a missing piece in the conversations. In efforts to truly determine which configuration is best for sixth-grade students, one must analyze the environmental characteristics of these schools to determine what makes them work (Carolan & Chesky, 2012). Discussed in Chapter 3 are the topics of research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations of the current study.

Chapter 3

Methods

This study was conducted to examine how the sense of school belonging among sixth-grade students is related to their achievement levels, specifically in reading and mathematics. Additionally, the study was designed to investigate the impact of grade level configuration on the relationship between sixth-grade students' sense of school belonging and achievement. This chapter includes an overview of the research design, selection of participants, and measurements used. In addition, this chapter includes the data collections procedures, data analysis, and limitations of the study.

Research Design

A quantitative correlational research design was used to guide this study. A correlation research design was most appropriate for this study because two numerical variables were analyzed to determine if there was a relationship. According to Creswell and Creswell (2018), investigators use correlational statistics to describe and measure the degree or association (or relationship) between two or more variables or sets of scores when using a correlational design. The variables of interest of this study were student scale scores on the reading and mathematics end-of-year i-Ready Diagnostic. In addition, another variable of interest of this study were grade level configurations in the schools and student belonging scores.

Selection of Participants

This study utilized data involving sixth-grade students enrolled in Missouri public schools. To investigate a specialized population of sixth-grade students enrolled in Missouri public schools, purposive sampling was utilized. According to Lunenburg and

Irby (2008), "purposive sampling involves selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (p. 175). The participants in this study were students enrolled in the sixth grade in District J during the 2023-2024 school year. Students in sixth grade who participated in i-Ready Diagnostic testing and completed the School Belonging Student Survey were included in the sample. Students were grouped based on their school configuration. Sixth-grade students who attended school at an elementary level were grouped together and sixth-grade students who attended school at a middle school level were grouped together.

Measurement

For the purpose of this study, survey responses of sixth-grade students were used to measure each student's school belonging level. These levels were measured by the Student Questionnaire: A Sense of Belonging, which was adapted from *Building a Culture of Hope: Enriching Schools with Optimism and Opportunity*. The survey originally was built using a 3-point scale. The researcher was granted permission to adapt the survey to include a 5-point scale (Barr and Gibson, 2013).

Students were presented with a set of 15 statements to help measure the level of hope, belonging, engagement, and social emotional learning. Students were asked to indicate how much they agreed or disagreed with each statement. A Likert scale was used with the following options: 1) strongly disagree, 2) disagree, 3) neutral, 4) agree, and 5) strongly agree. Student responses for each of the 15 items were averaged to obtain a value that represents how much students feel they belong at school.

When using a survey, it is important for the researcher to ensure that it is both valid and reliable (Litwin, 1995). The authors of the survey did not provide any validity

or reliability evidence. With this lack of evidence, a panel of experts deemed by the researcher was selected. This panel consisted of educators with decades of experience in education. Their backgrounds include knowledge of student belonging, needs of sixth-grade students, and reading levels. This panel was asked to check the survey to ensure that it covered the areas of student belonging, revolved around the direct needs of sixth-grade students, and that the reading level was appropriate for sixth-grade students. The experts agreed that the survey met each of these areas appropriately. It was not necessary to make any modifications to the survey. The researcher was not able to calculate the reliability index, Cronbach's alpha, for the survey because individual responses to each survey item were not available.

Student achievement of sixth-grade students was measured by the reading and mathematics end-of-year i-Ready Diagnostic test for school year 2023-2024 in District J. The i-Ready Diagnostic assessment is administered three times a year to help districts measure student progress toward the mastery of grade level skills and concepts. The reading i-Ready Diagnostic measured and assessed six key domains. These domains are phonological awareness, phonic, high-frequency words, vocabulary, comprehension of literature, and comprehension of informational text (Curriculum Associates, 2023). The mathematics i-Ready Diagnostic measured and assessed four key domains. These domains are number and operations, algebra and algebraic thinking, measurement and data, and geometry (Curriculum Associates, 2023).

Scoring of the i-Ready Diagnostic is not based on how many questions a student answers correctly. Rather, scoring is determined by adjustments being made after each question to determine an approximate level of proficiency. There are five placement

levels students are categorized in based on their test results. The highest placement level is considered mid or above grade level. From here, students can be placed at early on grade level, one grade level below, two grade levels below, or three or more grade Levels below. According to Curriculum Associates (2024) the definitions of each placement level are as follows:

Mid or Above Grade Level

Students at this level have met or surpassed the minimum requirements for the expectations of college- and career-ready standards in their grade level. Students will benefit from instruction in late on-grade level topics or above-grade level instruction.

Early on Grade Level

Students at this level have partially met grade-level expectations. They will benefit from continued on-grade level instruction.

One Grade Level Below

Students at this level are approaching grade-level expectations. They will benefit from continued on-grade level instruction.

Two Grade Levels Below

Students at this level will likely need additional support with key skills below their chronological grade level to be ready for grade-level instruction.

Three or More Grade Levels Below

Students at this level will likely need additional support with key skills below their chronological grade level to be ready for grade-level instruction. (pp. 6-8)

For the purposes of this study, scale scores were used to identify individual student achievement levels in reading and mathematics. In the area of reading, scale scores can range from 100 to 800. The range for scale scores is the same in mathematics.

When using a summative assessment of academic success, it is important for the researcher to first ensure that it is both valid and reliable (Assessment Systems Corporation, 2013). Curriculum Associates (2018) provided evidence of criterion-related validity for the assessment using correlations with state assessment scores from grades three through six. The correlations ranged between .67 and .87. Curriculum Associates (2018) stated that this is evidence for a "strong association between i-Ready and state assessments" (p. 39). Curriculum Associates (2018) established test-retest reliability for the i-Ready Diagnostic for sixth graders. The correlations, .86 for reading and .86 for mathematics, provide strong evidence for the reliability of the assessment.

The last variable measured for this study was the grade level configuration of sixth-grade students. In District J some sixth-grade students attend an elementary school, while others attend a middle school. For the purposes of this study, sixth-grade students who attended the elementary level were grouped together and sixth students who attended the middle school level were grouped together. These two groups were then compared to one another when analyzing the relationship between academic achievement and school belonging.

Data Collection Procedures

Prior to conducting research for this study, the researcher was required to complete training through the Office for Human Research Protections. Through the principles of the Belmont Report and the requirements of the revised Common Rule, the

Office for Human Research Protections provides education revolving around human research protections. Five lessons were completed and passed. Lessons included when regulations apply, what human subjects research is, what IRBs are, independent review of research, and human research protection training.

Once module work was completed, the researcher submitted a request for consent to District J to conduct research. This was requested through a written proposal to the Director of School Improvement and Data. A copy of the written proposal and approval letter granting consent to conduct research are included in Appendix A. In addition, a proposal was also submitted to the Institutional Review Board of Baker University. A copy of the written proposal that was submitted to the Institutional Review Board of Baker University. A copy of the approval is included in Appendix B. After approval was granted from both District J and Baker University, data collection began. Data were gathered from the end-of-year i-Ready Diagnostic for both reading and mathematics administered in the Spring of 2024 to sixth-grade students.

In addition, data were gathered from the School Belonging Student Survey administered during the 2023-2024 school year. A letter explaining the survey and its purpose was sent home with each student. A copy of the letter is included in Appendix C. Parents/Guardians were asked to contact the school should they not want their student to participate in the survey. The window to opt out was one week after the initial letter was sent home. Advisement/homeroom teachers then administered the survey to students. The directions read by each teacher and the directions printed at the top of the survey clearly stated that the survey was completely voluntary and not required. In addition, the letter clearly stated that there would be no consequences or penalties if the student did not

participate. Students used their school ID number instead of their names. This ID number allowed for the district to correlate their survey responses to their achievement levels. Prior to receiving the document with this information, student school ID numbers were removed to allow for the information to remain anonymous. Teachers received communication regarding the directions for the survey and survey link from the building principal.

Both i-Ready Diagnostic data and School Belonging Student Survey data were downloaded into an Excel spreadsheet. The students' state assigned MOSIS numbers were used instead of their names during the merging of data to protect their identity. In addition, a "0" was used if students were at an elementary school and a "1" was used if students were at a middle school. The final Excel spreadsheet used to conduct the data analysis consisted of an arbitrarily assigned ID number in place of their MOSIS number, the student's i-Ready Diagnostic scale scores, school configuration, and school belonging score as measured by the School Belonging Student Survey.

Data Analysis and Hypothesis Testing

This section includes the research questions and hypotheses that were used to guide the research of this study. In conjunction with each research question and hypothesis, an explanation of the data analysis has been included.

RQ1

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic?

H1. There is a statistically significant correlation between sixth-grade students' perceived sense of school belonging and their reading achievement.

To address this research question, a Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in reading. In addition, a *t* test was conducted to test for the statistical significance of the correlation coefficient. The level of significance was set at 0.05. The effect size is reported when appropriate.

RQ2

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic?

H2. There is a statistically significant correlation between sixth-grade students' perceived sense of school belonging and their mathematical achievement.

To address this research question, a Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in mathematics. In addition, a *t* test was conducted to test for the statistical significance of the correlation coefficient. The level of significance was set at 0.05. The effect size is reported when appropriate.

RQ3

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their

reading achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

H3. The correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic, is affected by school configuration of sixth graders.

Prior to the hypothesis testing, the numerical data for sixth-grade students' perceived sense of school belonging and their i-Ready Reading scale score were disaggregated by school configuration of sixth graders. A Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for sixth-grade students in an elementary school. A second Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for sixth-grade students in a middle school. A Fisher's *z* test was conducted to address H3 because the difference between two Pearson correlation coefficients was examined. The two sample correlations were compared. The level of significance was set at .05. The effect size is reported where appropriate.

RQ4

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

H4. The correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic, is affected by school configuration of sixth graders.

Prior to the hypothesis testing, the numerical data for sixth-grade students' perceived sense of school belonging and their i-Ready Mathematics scale score were disaggregated by school configuration of sixth graders. A Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for sixth-grade students in an elementary school. A second Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for sixth-grade students in a middle school. A Fisher's *z* test was conducted to address H3 because the difference between two Pearson correlation coefficients was examined. The two sample correlations were compared. The level of significance was set at .05. The effect size is reported where appropriate.

Limitations

Limitations are "factors that may have an effect on the interpretation of the findings or on the generalizability of the results" (p. 133) according to Lunenburg and Irby (2008). The researcher of the study does not control the limitations. The limitations of this study included the following:

1. The responses on the School Belonging Student Survey were self-reports. Consequently, student responses may be heightened or lessened.

2. The School Belonging Student Survey did not have any reliability and validity tests done by the publisher.
3. Many factors influence student achievement. Some of these factors include things schools cannot control, including a student's health the day of the test, their level of effort, or the amount of sleep a student received before the test.
4. The level of effort put forth by students during the i-Ready Diagnostic and School Belonging Student Survey is not known.
5. The findings of this study are important for District J, by generalizations should not be met for other districts in Missouri or the United States.

Summary

This chapter provided an explanation of the methods of this quantitative study. The design process, selection of participants, and measurement were explained in this chapter. A purposive sample was used and an explanation of how schools were grouped was explained. In addition, the data collection procedures and data analyses of the hypotheses were outlined. The study limitations were identified. Chapter four includes the results of the study.

Chapter 4

Results

The purpose of this study was to examine the impact of the sense of school belonging of sixth-grade students on their achievement levels. Specifically, the achievement levels in reading and mathematics were examined to determine whether a correlation was present between sixth-grade students' perceived sense of school belonging and each of these achievement levels. In addition, this study was conducted to examine whether the level of correlation between sixth-grade students' perceived sense of school belonging and their achievement levels were affected by school configuration of sixth graders. Presented in Chapter 4 are the results of the quantitative analysis for each of the study's research questions.

Hypothesis Testing

This section includes the results of the hypothesis testing conducted to address the four research questions. Each research question was analyzed statistically. The research questions, hypotheses, analyses, and results are listed below.

RQ1

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic?

H1. There is a statistically significant correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic.

To address this research question, a Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in reading. In addition, a *t* test was conducted to test for the statistical significance of the correlation coefficient. The level of significance was set at 0.05. The effect size is reported when appropriate.

The correlation coefficient (r = -.087) provided evidence for a weak negative relationship between the variables. The hypothesis test for the correlation indicates there is not a statistically significant relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in reading, $t(126) = -.981$, $p = .328$. H1 was not supported.

RQ2

To what extent is there a correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic?

H2. There is a statistically significant correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic.

To address this research question, a Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in reading. In addition, a *t* test was conducted to test for the statistical significance of the correlation

coefficient. The level of significance was set at 0.05. The effect size is reported when appropriate.

The correlation coefficient (r = -.034) provided evidence for a weak negative relationship between the variables. The hypothesis test for the correlation indicates there is not a statistically significant relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in mathematics, $t(126) = .385$, $p = .701$. H2 was not supported.

RQ3

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

H3. There is a statistically significant difference in the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic, between students attending an elementary school configuration and students attending a middle school configuration.

Prior to the hypothesis testing, the numerical data for sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their reading achievement, as measured by the i-Ready Diagnostic were disaggregated by school configuration. A Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for students attending an elementary school configuration. A second

Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for students attending a middle school configuration. A Fisher's *z* test for two correlations was conducted to test H3 because the difference between two Pearson correlation coefficients was examined. The two sample correlations were compared. The level of significance was set at .05. The effect size is reported where appropriate.

The results of the Fisher's *z* test for two correlations indicated no difference between the two correlation coefficients, $z = -0.76$, $p = .447$. The correlation for students attending an elementary school configuration ($r = -.235$, $n = 69$) was not different from the correlation for students attending a middle school configuration ($r = -.101$, $n = 59$). H3 was not supported.

RQ4

To what extent is the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic, affected by school configuration of sixth graders?

H4. There is a statistically significant difference in the correlation between sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic, between students attending an elementary school configuration and students attending a middle school configuration.

Prior to the hypothesis testing, the numerical data for sixth-grade students' perceived sense of school belonging, as measured by the School Belonging Student

Survey, and their mathematics achievement, as measured by the i-Ready Diagnostic were disaggregated by school configuration. A Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for students attending an elementary school configuration. A second Pearson product moment correlation coefficient was calculated to index the strength and direction of the relationship between the numerical variables for students attending a middle school configuration. A Fisher's *z* test for two correlations was conducted to test H4 because the difference between two Pearson correlation coefficients was examined. The two sample correlations were compared. The level of significance was set at .05. The effect size is reported where appropriate.

The results of the Fisher's *z* test for two correlations indicated no difference between the two correlation coefficients, $z = -1.09$, $p = .276$. The correlation for students attending an elementary school configuration ($r = -.101$, $n = 69$) was not different from the correlation for students attending a middle school configuration ($r = .074$, $n = 59$). H4 was not supported.

Additional Analyses

When looking at the relationship between sixth-grade students' perceived sense of school belonging and their reading achievement to test H1, there was not a statistically significant relationship. There was not a statistically significant relationship when looking at the relationship between sixth-grade students' perceived sense of school belonging and their mathematics achievement to test H2. In addition, there was no difference in the correlation between sixth-grade students' perceived sense of school belonging and their reading achievement based on school configuration when testing H3.

There was also no difference in the correlation between sixth-grade students' perceived sense of school belonging and their mathematics achievement based on school configuration when testing H4. These results led the researcher to analyze the data further after conducting the initial hypothesis testing.

These hypothesis testing results based on grade level configuration sparked a curiosity to analyze whether there was a statistically significant difference between the mean reading achievement based on grade level configuration. Mean mathematics achievement based on grade level configuration was also analyzed to see if there was a significant difference. The mean belongingness levels based on grade level configuration were also analyzed to see if there was a significant difference based on grade level configuration. Independent samples *t* tests were used to compare the means. In addition, the relationship between reading achievement, mathematics achievement, and grade level configuration were examined from a slightly different perspective. The researcher used a chi-square test of independence. This test involved the construction of a crosstabulation of each of the achievement variables with grade level configuration. The categorical variables, reading and mathematics MAP performance bands, from Curriculum Associates, were used to construct the two-variable table of observed and expected frequencies for each. These additional analyses required that the researcher take each of the individual students' reading and mathematics scale scores as measured by the i-Ready Diagnostic and assigned them to MAP performance levels. These levels are provided by Curriculum Associates (2023) and state that Level 1 is Below Basic, Level 2 is Basic, Level 3 is Proficient, and Level 4 is Advanced. Tabel 1 provides the scale score and MAP performance levels.

Table 1

i-Ready Diagnostic Scale Scores Related to MAP Performance Levels

Subject	Grade Level	Level 1	Level 2	Level 3	Level 4
Reading	Grade 6	100-526	527-594	595-627	628-800
Mathematics	Grade 6	100-473	474-498	499-518	519-800

Note. Adapted from *Scores on i-Ready diagnostic that are equivalent to performance levels on the Missouri Assessment Program (MAP)*, by Curriculum Associates, 2019, p. 3

Below, the independent-samples *t* tests analysis and results are explained for reading, mathematics, and belongingness. The chi-square test of independence for reading achievement and school configuration is also listed below. In addition, the chi-square test of independence for mathematics achievement and school configuration is explained below. A table showing the observed and expected frequencies for reading and mathematics are provided for the results of each chi-square test of independence and includes an interpretation.

Independent-Samples t Test for Reading

Data Analysis. An independent-samples *t* test was conducted to examine the mean difference between two mutually exclusive independent groups and the means were calculated using data for numerical variables. To continue the investigation for this study, the mean for sixth-grade students' reading achievement, as measured by the i-Ready Diagnostic, was compared between sixth-grade students attending an elementary school configuration and sixth-grade students attending a middle school configuration. The level of significance was set at .05. An effect size is reported, when appropriate.

Results. The results of the independent-samples *t* test indicated a statistically significant difference between the two means, $t(126) = 3.690$, $p = .000$, $d = .654$. The i-Ready Diagnostic score mean for sixth-grade students attending an elementary school configuration ($M = 583.90$, $SD = 48.75$, $n = 69$) was significantly higher than i-Ready Diagnostic score mean for sixth-grade students attending a middle school configuration ($M = 549.00$, $SD = 58.25$, $n = 59$). The effect size indicated a medium effect.

Independent-Samples t Test for Mathematics

Data Analysis. An independent-samples *t* test was conducted to examine the mean difference between two mutually exclusive independent groups and the means were calculated using data for numerical variables. To continue the investigation for this study, the mean for sixth-grade students' mathematics achievement, as measured by the i-Ready Diagnostic, was compared between sixth-grade students attending an elementary school configuration and sixth-grade students attending a middle school configuration. The level of significance was set at .05. An effect size is reported, when appropriate.

Results. The results of the independent-samples *t* test indicated a statistically significant difference between the two means, $t(126) = 3.205$, $p = .002$, $d = .568$. The i-Ready Diagnostic score mean for sixth-grade students attending an elementary school configuration ($M = 494.09$, $SD = 31.66$, $n = 69$) was significantly higher than i-Ready Diagnostic score mean for sixth-grade students attending a middle school configuration ($M = 476.03$, $SD = 31.89$, $n = 59$). The effect size indicated a medium effect.

Independent-Samples t Test for School Belonging

Data Analysis. An independent-samples *t* test was conducted to examine the mean difference between two mutually exclusive independent groups and the means were calculated

using data for numerical variables. To continue the investigation for this study, the mean for sixth-grade students' perceived sense of school belonging, as measured by the 2024 School Belonging Student Survey was compared between sixth-grade students attending an elementary school configuration and sixth-grade students attending a middle school configuration. The level of significance was set at .05. An effect size is reported, when appropriate.

Results. The results of the independent-samples *t* test indicated a statistically significant difference between the two means, $t(126) = 2.551$, $p = .012$, $d = .452$. The perceived sense of school belongingness score mean for sixth-grade students attending an elementary school configuration ($M = 3.42$, $SD = .76$, $n = 69$) was significantly higher than the perceived sense of school belongingness score mean for sixth-grade students attending a middle school configuration ($M = 3.07$, $SD = .81$, $n = 59$). The effect size indicated a medium effect.

Chi-Square Test of Independence for Reading Achievement and School Configuration

Data Analysis. A chi-square test of independence was conducted because the relationship between two categorical variables was analyzed. A frequency table was constructed for the two categorical variables: sixth-grade students' reading achievement bands, as measured by the i-Ready Diagnostic performance bands and the school configuration of the sixth graders. The observed frequencies were compared to those expected by chance. The level of significance was set at .05. An effect size is reported, when appropriate.

Results. The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $c^2(3) = 13.121$, $p = .004$, Cramer's $V = .320$. See Table 2 for the observed and expected frequencies. The

observed frequency (n = 19) was higher than the expected frequency (n = 12.9) for sixth-grade students who scored in the Below Basic band and were enrolled in a middle school configuration. The observed frequency (n = 24) was higher than the expected frequency (n = 19.4) for sixth-grade students who scored in the Proficient band and were enrolled in an elementary school configuration. The observed frequency (n = 11) was higher than the expected frequency (n = 7.0) for sixth-grade students who scored in the Advanced band and were enrolled in an elementary school configuration. Sixth-grade students enrolled in a middle school configuration tended to score in the Below Basic band, while students enrolled in the elementary school configuration tended to score in the Proficient and Advanced bands. The effect size indicated a large effect.

Table 2

Observed and Expected Frequencies

Reading achievement	Configuration	$f_{observed}$	$f_{expected}$
Below Basic			
	Elementary	9	15.1
	Middle	19	12.9
Basic			
	Elementary	25	27.5
	Middle	26	23.5
Proficient			
	Elementary	24	19.4
	Middle	12	16.6
Advanced			
	Elementary	11	7.0
	Middle	2	6.0

Chi-Square Test of Independence for Mathematics Achievement and School Configuration

Data Analysis. A chi-square test of independence was conducted because the relationship between two categorical variables was analyzed. A frequency table was constructed for the two categorical variables: sixth-grade students' mathematics achievement bands, as measured by the i-Ready Diagnostic performance bands and the school configuration of the sixth graders. The observed frequencies were compared to those expected by chance. The level of significance was set at .05. An effect size is reported, when appropriate.

Results. The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $c^2(3) = 10.956$, $p = .012$, Cramer's $V = .293$. See Table 3 for the observed and expected frequencies. The observed frequency ($n = 25$) was higher than the expected frequency ($n = 18.4$) for sixth-grade students who scored in the Below Basic band and were enrolled in a middle school configuration. The observed frequency ($n = 20$) was higher than the expected frequency ($n = 18.3$) for sixth-grade students who scored in the Proficient band and were enrolled in an elementary school configuration. The observed frequency ($n = 15$) was higher than the expected frequency ($n = 9.7$) for sixth-grade students who scored in the Advanced band and were enrolled in an elementary school configuration. Sixth-grade students enrolled in a middle school configuration tended to score in the Basic Band, while students enrolled in the elementary school configuration tended to score in the Proficient and Advanced band. The effect size indicated a large effect.

Table 3

Observed and Expected Frequencies

Mathematics achievement	Configuration	$f_{observed}$	$f_{expected}$
Below Basic			
	Elementary	15	21.6
	Middle	25	18.4
Basic			
	Elementary	19	19.4
	Middle	17	16.6
Proficient			
	Elementary	20	18.3
	Middle	14	15.7
Advanced			
	Elementary	15	9.7
	Middle	3	8.3

Summary

This chapter presented the results for the testing for the descriptive statistics for the four research questions and their associated four hypotheses. It also presented additional analyses for the mean reading achievement based on grade level configuration, the mean mathematics achievement based on grade level configuration, and the mean belongingness levels based on grade level configuration. In addition, this chapter also presented the results of the analyses of the relationship between achievement and grade level configuration.

Chapter 5 begins with a summary of the study and its major findings, an overview of the problem, the purpose statement and research questions, and a review of the methodology. Findings related to literature are also discussed. Conclusions, implications, and recommendations are stated in chapter five.

Chapter 5

Interpretation and Recommendations

This study was conducted to examine the impact of the sense of school belonging of sixth-grade students on their academic achievement. Additionally, this study examined whether the level of correlation between sixth-grade students' perceived sense of school belonging and their achievement levels was affected by school configuration of sixth-grade students. Chapter 5 includes a summary of the study, findings related to the literature, and conclusions.

Study Summary

Finding the right grade configuration for students is a critical aspect in ensuring they are performing at their best academically and that they feel a strong sense of school belonging. Across the United States, there are various grade level configurations. It can be perceived that these configurations are based on the financial situation of the school district and exclude doing what is best for students. In this study, the impact of sense of school belonging and student achievement is reported. In addition, the correlation between sixth-grade students' perceived sense of school belonging and their achievement levels is affected by school configuration is reported. Provided in the following sections is an overview of the study that includes reviewing the problem, purpose statement and research questions, review of the methodology, and major findings.

Overview of the Problem

Across the United States, 33 to 51% of middle school students reported feeling a lack of school belonging (Miles, 2020). Earlier Klem and Connell (2004) had found that this range expands to 40 to 60% of all students being chronically unattached from school

by high school. Additionally, Camera (2019) noted that math and reading scores have declined each year in the United States since 2017. Bergin and Bergin (2009) emphasized, "Children's socioemotional well-being is critical to school success, and attachment is the foundation of socioemotional well-being" (p. 141). Given the decline in student attachment and academic performance, it is imperative that school districts nationwide address how students feel at school. Although there is a well-documented correlation between students' sense of school belonging and academic achievement, there remains limited research on how this sense is developed and how it varies between different school configurations (Bouchard & Berg, 2017).

Purpose Statement and Research Questions

There were two purposes for this quantitative correlation study. The first purpose was to examine the relationship between the sense of school belonging of sixth-grade students and their achievement levels. The second purpose was to examine whether the level of correlation between sixth-grade students' perceived sense of school belonging and their achievement levels was affected by school configuration of sixth graders. To guide this study, four hypotheses were tested to address the purposes of the study.

Review of the Methodology

The population of this study was 128 sixth-grade students from three schools enrolled in District J during the 2023-2023 school year. A quantitative correlation design using archival data was used. Two variables of interest in this study were student scale scores on the reading and mathematics end-of-year i-Ready Diagnostic. Another two variables of interest in this study were grade level configurations in the schools and

student belonging scores. A Pearson product moment correlation and Fisher's *z* test was conducted to test the hypotheses.

Major Findings

The results of the data analysis indicated that there is not a statistically significant relationship between students' perceived sense of school belonging and i-Ready Diagnostic scores in reading and mathematics. Both tests provided evidence for a weak nonsignificant relationship between the variables. The correlation for students attending an elementary school configuration was not different from the correlation for students attending a middle school configuration when looking at the correlation between sixth-grade students' perceived sense of school belonging and their reading or mathematics achievement.

The results of the additional data analysis indicated that the mean reading achievement scores were significantly higher for sixth-grade students attending an elementary school than those attending a middle school. This is also applicable for mathematics. The mean for sixth-grade students' perceived sense of school belonging was significantly higher at the elementary level than the middle school level. As a part of the analysis, grade configuration was added in. More students who attended a middle school scored in the Below Basic band in reading. Students who scored in the Proficient and Advanced bands in reading was higher for students who attended an elementary school. This is also applicable for mathematics.

Findings Related to the Literature

This section evaluates the current findings of this study in relation to the literature on student achievement, sense of school belonging, and grade level configuration.

Research questions one and two examined if there was a correlation between sixth-grade students' perceived sense of school belonging and their achievement. Research question 1 specifically examined reading and research question 2 specifically looked at mathematics. Goodenow (1993) studied the psychological sense of school membership among adolescents. Specifically, this researcher developed and validated a scale to measure this sense of belonging and examined its relationship with various educational outcomes. Goodenow (1993) explored how a sense of belonging at school influences students' academic motivation, engagement, and achievement and concluded that "Students who feel a sense of belonging are more likely to be engaged and perform better academically" (Goodenow, 1993, p. 79). Osterman (2000) studied students' need for belonging within the school community and the impact on their academic motivation and achievement. "Students' sense of belonging in their school community is crucial for their academic motivation and achievement. When students feel accepted and supported, they are more likely to engage in learning and perform better academically (Osterman, 2000, p. 338). This researcher found that there is a relationship between students' sense of belonging in their community and their academic motivation and achievement.

Despite the findings of Goodenow (1993) and Osterman (2000), the current study did not indicate a statistically significant relationship between students' perceived sense of school belonging and their academic achievement in reading and math. Walton and Cohen (2007) discussed how interventions that address subtle environmental cues rather than focusing solely on students' sense of belonging can impact academic achievement. While many educators and researchers understand the importance of belongingness, these

researchers support the idea that there are many factors that impact a student's academic achievement.

Research questions 3 and 4 examined the extent to which sixth-grade students' perceived sense of school belonging and their achievement, both reading and mathematics, is affected by school configuration. Darling-Hammond (2010) emphasized how examining educational equity, the structural design of schools, including factors such as size, governance, and resource allocation, plays a pivotal role in shaping students' opportunities and outcomes. The differences in school size, resources, and organization are factors that impact educational opportunities and outcomes for students. Noguera (2011) discussed segregation and inequality, policy and reform, social context, and student experiences as all impacting the academic experiences and outcomes of students. While each of these researchers support the idea that school configuration impacts a students' perceived sense of school belonging and academic achievement, neither supports the correlation between the two. The results of the hypothesis testing for the current study indicate that the correlation for students attending an elementary school configuration was not different from the correlation for students attending a middle school configuration. This is applicable for both reading and mathematics. These findings prove to be inconsistent with Darling-Hammond (2010) and Noguera (2011) as they both suggest that school configuration affects many aspects of a students' academic journey.

Conclusions

Providing the best possible education for students is a task that all school districts face. Regardless of configuration, all students are afforded the opportunity to be successful in reading and mathematics and to feel like they belong. The results of the

current study indicate that there is a weak negative relationship between a students' perceived sense of school belonging and academic achievement in reading and mathematics. In addition, the results of this study indicate no difference in the difference in the correlations between students attending an elementary school configuration and middle school configuration in both reading and mathematics. However, through the additional analyses it was indicated that there was a statistically significant difference in the mean reading, mathematics, and sense of belonging scores. Students who attended an elementary configuration had significantly higher scores than those who attended a middle school configuration. The difference between the means was also statistically different. The findings from this study have implications for district and building leaders to be intentional in addressing the social and academic needs of students. It is important to think about these factors when deciding which grade level configurations are best. Included in this section are the implications for action, recommendations for future research, and the concluding remarks.

Implications for Action

School districts are challenged to enhance student academic achievement to meet federal requirements while also striving for efficiency amidst declining state and federal financial support. According to the study findings, it appears that while there is no direct relationship between student achievement and school belongingness, students are performing better and have a higher sense of school belonging at the elementary level versus the middle level. Hence, the specific grouping of sixth-grade students into elementary or middle school configurations needs to be a consideration for districts aiming to enhance academic outcomes.

There is no statistically significant correlation between sixth-grade students' perceived sense of school belonging and their reading achievement. This suggests that the strength of belongingness within the school environment does not significantly impact reading scores as measured by the i-Ready Diagnostic. Similarly, there is no statistically significant correlation between students' perceived sense of school belonging and their mathematics achievement. This indicates that school belongingness does not significantly affect mathematics scores as measured by the i-Ready Diagnostic.

There is no difference in the correlation between school belongingness and reading achievement based on whether students attend an elementary school or a middle school configuration. This suggests that school structure (elementary vs. middle school) does not alter the relationship between school belongingness and reading achievement. Similarly, there is no difference in the correlation between school belongingness and mathematics achievement based on school configuration. This indicates that the type of school configuration (elementary vs. middle school) does not affect the relationship between school belongingness and mathematics achievement.

Additional analyses revealed that sixth-grade students attending elementary school configurations showed significantly higher reading achievement scores compared to those in middle configurations. Similarly, students in elementary school configurations had higher mathematics achievement scores than those in middle school configurations. Students in elementary school configurations reported a significantly higher sense of school belonging compared to students in middle configurations. There were significant associations between school configuration and reading/mathematics achievement bands. Elementary school configurations showed higher proportions of students in proficient and

advanced achievement bands compared to middle school configurations, which had higher proportions in basic and below basic bands.

In conclusion, while school belongingness did not correlate significantly with academic achievement, the type of school configuration did influence academic outcomes and students' sense of belonging. This suggests that factors beyond school belonging may play a more critical role in determining academic achievement in sixth-grade students.

Recommendations for Future Research

For future research, several recommendations emerged from the findings of this study. First, longitudinal studies could offer valuable insights by tracking how students' perceived sense of school belonging evolves over time and the enduring impact on academic achievement across different grade configurations. Understanding the developmental trajectories of school belonging from elementary through middle school could provide insights into how students' experiences and perceptions change as they progress through their schooling.

Qualitative approaches, such as interviews or focus groups, would complement longitudinal studies by providing deeper understanding of students' subjective experiences regarding school belonging in varying school setups. Exploring the qualitative aspects could uncover nuanced factors influencing students' sense of belonging, such as peer relationships, teacher-student interactions, and school climate.

Further exploration of contextual factors is also recommended. Investigating variables like school culture, socioeconomic status, and student demographics could enrich our understanding of how these factors interact with school belonging and impact academic outcomes. These contextual insights could help tailor interventions and policies

that are sensitive to the diverse needs and backgrounds of students in different educational settings.

Intervention studies aimed at enhancing school belonging could be implemented and rigorously evaluated to assess their effectiveness across various grade configurations. Testing interventions that promote inclusive school environments and foster positive relationships among students and between students and staff could be particularly beneficial. In addition, comparative research across diverse school districts would contribute to understanding how educational policies and practices influence the relationship between school belonging, grade configuration, and academic achievement. Examining variations in educational contexts could highlight effective practices that promote both school belonging and academic success across different settings.

Employing mixed-methods approaches would further enhance comprehensiveness by integrating quantitative measures with qualitative insights. This approach could provide a more holistic understanding of the complex interactions between school belonging, grade configuration, and student outcomes.

Lastly, extending research beyond sixth grade to include other grade levels would provide a broader perspective on developmental differences and continuity in school belonging across different stages of schooling. It would be important to also expand the sample size. Exploring measures of students success beyond academic achievement, such as social-emotional development and school engagement, could capture the holistic impacts of school belonging interventions and policies. These avenues of inquiry aim to inform educational policies and practices that promote student well-being, inclusivity, and academic success across varied school environments.

Concluding Remarks

This study has revealed that the perceived sense of school belonging among sixth-grade students does not significantly differ from their academic achievement in reading and mathematics, regardless of whether they are in an elementary or middle school configuration. However, this study highlighted that students in elementary school configurations tend to perform better academically and feel a stronger sense of belonging compared to those in middle school configurations. These findings suggest that while grade configuration may not directly influence the relationship between belonging and academic achievement, the type of school setting can impact overall student performance and feelings of inclusion. Consequently, educational policies and interventions should be developed with consideration of the broader context of school environments to foster academic success and a supportive atmosphere for all students.

References

Alexander, W.M. (1963). *The emergent middle school.* Holt, Rinehart and Winston.

Alexander, W. M., & McEwin, C. K. (1989). *Schools in the middle: Progress 1968-1988* (ED32700). ERIC. https://files.eric.ed.gov/fulltext/ED327000.pdf

Allen, K.-A., & Kern, M. L. (2017). *School belonging in adolescents: Theory, research, and practice*. Springer Singapore.

Allen, K., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2016). What schools need to know about fostering school belonging: A meta-analysis. *Educational Psychology Review*, *30*(1), 1–34. https://doi.org/10.1007/s10648-016-9389-8

Anderman, E. M. (2002). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology*, *94*(4), 795–809. https://doi.org/10.1037/0022-0663.94.4.795

Arslan, G. (2019). School belonging in adolescents: Exploring the associations with school achievement and internalising and externalising problems. *Educational and Child Psychology*, *36*(4), 22–33. https://doi.org/10.53841/bpsecp.2019.36.4.22

Arslan, G., & Duru, E. (2016). Initial development and validation of the school belongingness scale. *Child Indicators Research*, *10*(4), 1043–1058. https://doi.org/10.1007/s12187-016-9414-y

Assessment Systems Corporation. 2013. Test reliability and validity. Retrieved July 16, 2024, from https://www.assess.com/docs/Test-reliability-and -validity.pdf

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology*, *2*(1), 21–41. https://doi.org/10.1111/1467-839x.00024

Barber, B. K., & Schluterman, J. M. (2008). Connectedness in the lives of children and adolescents: A call for greater conceptual clarity. *Journal of Adolescent Health, 43*(3), 209–216. https://doi.org/10.1016/j.jadohealth.2008.01.012

Barr, R.D., & Gibson, E.L. (2013). *Building a culture of hope: Enriching schools with optimism and opportunity.* Solution Tree Press.

Baumeister, R. (2012). Need-to-belong theory. *Handbook of theories of social psychology:* (Vol. 22, pp. 121-140). Sage Publications.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. https://doi.org/10.1037/0033-2909.117.3.497

Benner, A. D., & Graham, S. (2013). The antecedents and consequences of racial/ethnic discrimination during adolescence: Does the source of discrimination matter? *Developmental Psychology, 49*(8), 1602–1613. https://doi.org/10.1037/a0030557

Bergin, C., & Bergin, D. (2009). Attachment in the classroom. *Educational Psychology Review, 21*(2), 141–170. https://doi.org/10.1007/s10648-009-9104-0

Blum, R. Wm., & Libbey, H. P. (2004). Executive summary. *Journal of School Health, 74*(7), 231–232. https://doi.org/10.1111/j.1746-1561.2004.tb08278.x

Bouchard, K., & Berg, D. (2017). Students' school belonging: Juxtaposing the perspectives of teachers and students in the late elementary school years (grades 4-8). *School Community Journal, 27*(1). https://files.eric.ed.gov/fulltext/EJ1146469.pdf

Boyer, E.L. (1989). *Turning points: Preparing American youth for the 21st century.* Author.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Harvard University Press.

Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development.* Sage Publications.

Byrnes, V., & Ruby, A. (2007). Comparing achievement between K-8 and middle schools: A large-scale empirical study. *American Education Research Journal, 26*(3), 353-383. https://www.journals.uchicago.edu/doi/full/10.1086/520693

Camera, L. (2019, October 30). Across the board, scores drop in math and reading for U.S. students. *U.S. News.* https://www.usnews.com/news/education-news/articles/2019-10-30/across-the-board-scores-drop-in-math-and-reading-for-us-students

Carnegie Council on Adolescent Development. (1989). *Turning points: Preparing American youth for the 21st century.* Author.

Carolan, B. V., & Chesky, N. Z. (2012). The relationship among grade configuration, school attachment, and achievement. *Middle School Journal, 42*(4), 32-39. https://www.tandfonline.com/doi/abs/10.1080/00940771.2012.11461818

Centers for Disease Control and Prevention. (2009). *Fostering school connectedness - Improving student health and academic achievement.* https://www.cdc.gov/healthyyouth/protective/pdf/connectedness_administrators.pdf

Chen, G. (2023, June 30). Should sixth grade be in elementary school or middle school? *Public School Review*. https://www.publicschoolreview.com/blog/should-sixth-grade-be-in-elementary-school-or-middle-school Public School Review. Retrieved from http://www.publicschoolreview.com/articles/13

Cook, P. J., MacCoun, R., Muschkin, C., & Vigdor, J. (2008). The negative impacts of starting middle school in sixth grade. *Journal of Policy Analysis and Management, 27*(1), 104–121. https://doi.org/10.1002/pam.20309

Crafts, L. W., & Rotter, J. B. (1955). Social learning and clinical psychology. *The American Journal of Psychology, 68*(4), 698. https://doi.org/10.2307/1418818

Crenshaw, K. (2017). *On intersectionality: Essential writings*. New Press.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE.

Creswell, J. D., & Creswell, J. W. (2018). Research Design: Qualitative, quantitative, and mixed method approaches. Sage Publications, Inc.

Curriculum Associates. (2018). *i-Ready assessments technical manual.* Curriculum Associates.

Curriculum Associates. (2024). *i-Ready diagnostic placement tables.* Curriculum Associates. https://cdn.bfldr.com/LS6J0F7/as/s677f7rxj6cm37bt8npbgffp/iready-diagnostic-placement-tables

Curriculum Associates. (2019). *Scores on i-Ready diagnostic that are equivalent to performance levels on the Missouri Assessment Program (MAP).* Curriculum Associates.

Curriculum Associates. (2023, July). *Science behind the diagnostic: How it works and what it measures*. www.curriculumassociates.com. https://cdn.bfldr.com/LS6J0F7/as/9kkp35gxsm3mffhv96rrp6n/iready-deep-dive-iready-diagnostic-what-it-measures

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future.* Teachers College Press.

Darling-Hammond, L., & Snyder, J. (Eds.). (2020). *The future of education: Reimagining our schools from the ground up.* Routledge.

Eichhorn, D.H. (1966). *The middle school.* The Center for Applied Research in Education.

Elias, M.J. (1997). *Promoting social competence.* Guilford Press.

Foehr, U. G. (2006). *Media multitasking among American youth: Prevalence, predictors and pairings.* Kaiser Family Foundation.

Fredricks, J. A. (2011). Engagement in school and out-of-school contexts: A multidimensional view of engagement. *Theory into Practice, 50*(4), 327–335. https://doi.org/10.1080/00405841.2011.607401

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Friedman, H. S., & Kern, M. L. (2014). Personality, well-being, and health. *Annual Review of Psychology, 65*(1), 719–742. https://doi.org/10.1146/annurev-psych-010213-115123

Gillen-O'Neel, C., & Fuligni, A. (2013). A longitudinal study of school belonging and academic motivation across high school. *Child Development*, *84*(2), 678–692. https://doi.org/10.1111/j.1467-8624.2012.01862.x

Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, *30*(1), 79–90. https://doi.org/10.1002/1520-6807(199301)30:1%3C79::aid-pits2310300113%3E3.0.co;2-x

Gowing, A., & Jackson, A. C. (2016). Connecting to school: Exploring student and staff understandings of connectedness to school and the factors associated with this process. *The Educational and Developmental Psychologist*, *33*(1), 54–69. https://doi.org/10.1017/edp.2016.10

Hattie, J. (2014). *Visible learning and the science of how we learn.* Sage Publications.

Hattie, J., & Anderman, E. M. (2013). *International guide to student achievement.* Routledge.

Hussain, M., & Jones, J. M. (2019). Discrimination, diversity, and sense of belonging: Experiences of students of color. *Journal of Diversity in Higher Education*, *14*(1). https://doi.org/10.1037/dhe0000117

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, *74*(7), 262–273. https://doi.org/10.1111/j.1746-1561.2004.tb08283.x

Ladson-Billings, G. (2009). *The dreamkeepers: Successful teachers of African American children* (2nd ed.). Jossey-Bass.

Leithwood, K. A., & Louis, K. S. (2012). *Linking leadership to student learning*. Jossey-Bass.

Litwin, M. (1995). *The importance of survey reliability and validity.* Sage Publications.

Lounsbury, J.H. (1989). *Educational reform and the concept of middle school.* Publisher.

Lounsbury, J.H. (1996). The middle school movement: A twentieth-century educational reform. In J.L. Irvin (Ed.), *What current research says to the middle level practitioner* (pp. 1-48). National Middle School Association.

Lunenburg, F. C., & Irby, B.J. (2008). Writing a successful thesis or dissertation; Tips and strategies for students in the social and behavioral sciences. Corwin Press.

Ma, X. (2003). Sense of belonging to school: Can schools make a difference? *The Journal of Educational Research, 96*(6), 340–349. https://doi.org/10.1080/00220670309596617

MacFarland, A. M. (2017). *A comparative analysis of 6th grade academic and nonacademic outcomes in two different school configurations* (Publication No. 10270498) [Doctoral dissertation, University of Nebraska]. ProQuest Dissertations and Theses Global.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396. https://doi.org/10.1037/h0054346

McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of social belonging and teacher support. *Journal of School Health, 74*(7), 284–292. https://doi.org/10.1111/j.1746-1561.2004.tb08285.x

McNeely, C. A., Nonnemaker, J. M., & Blum, R. W. (2002). Promoting school connectedness: Evidence from the national longitudinal study of adolescent health. *Journal of School Health, 72*(4), 138–146. https://doi.org/10.1111/j.1746-1561.2002.tb06533.x

Mearns, J. (2021). *The social learning theory of Julian B. Rotter*. Psych.fullerton.edu. https://psych.fullerton.edu/jmearns/rotter.htm

Meckler, L. (2022, January 30). Public education is facing a crisis of epic proportions. *Washington Post*. https://www.washingtonpost.com/education/2022/01/30/public-education-crisis-enrollment-violence/

Miles, S. (2020, October 1). *Why student belonging matters: October 2020*. National Association of Secondary School Principals. https://www.nassp.org/publication/principal-leadership/volume-21-2020-2021/principal-leadership-october-2020/why-student-belonging-matters-october-2020/#:~:text=As%20shown%20in%20Figures%201

Missouri Department of Elementary and Secondary Education. (2021). *Annual performance report.* Author.

Missouri Department of Elementary and Secondary Learning. (n.d.). *Missouri assessment program.* Retrieved October 6, 2023, from https://dese.mo.gov/special-education/effective-practices/student-assessments/missouri-assessment-program#:~:text=The%20Missouri%20Assessment%20Program%20(MAP

Missouri Department of Elementary and Secondary Learning. (n.d.). *Missouri learning standards - For parents.* Retrieved October 6, 2023, from

https://dese.mo.gov/college-career-readiness/curriculum/mls-for-parents#:~:text=The%20Learning%20Standards%20define

National Center for Educational Statistics. (2015). *NAEP Report Cards - Home.* Nationsreportcard.gov. https://www.nationsreportcard.gov/

National Center for Education Statistics. (2021). *The condition of education 2021.* U.S. Department of Education. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2021144

National Center for Educational Statistics. (n.d.). *NAEP state profiles.* Www.nationsreportcard.gov. https://www.nationsreportcard.gov/profiles/stateprofile/overview/MO?cti=PgTab_Findings&chort=1&sub=MAT&sj=MO&fs=Grade&st=MN&year=2022R3&sg=Gender%3A%20Male%20vs.%20Female&sgv=Difference&ts=Single%20Year&tss=2022R3&sfj=NP

National Center for Educational Statistics. (2022, May). *COE - Characteristics of elementary and secondary schools.* https://nces.ed.gov/programs/coe/indicator/cla/elementary-secondary-schools

National Center for Educational Statistics. (n.d.). *National teacher and principal survey (NTPS).* https://nces.ed.gov/surveys/ntps/tables/ntps1516_20180307001_s1n.asp#:~:text=Middle%20schools%20have%20no%20grade

National Center for Educational Statistics. (2002, May). *Overview of public elementary and secondary schools and districts: School year 2000-01.* https://nces.ed.gov/pubs2002/overview/index.asp

Neuman, S. B., & Celano, D. (2012). *Giving our children a fighting chance: Poverty, literacy, and the development of information capital.* Teachers College Press.

Nichols, S. L. (2008). An exploration of students' belongingness beliefs in one middle school. *The Journal of Experimental Education*, *76*(2), 145–169. https://doi.org/10.3200/jexe.76.2.145-169

Noguera, P. A. (2011). A broader and bolder approach uses education to break the cycle of poverty. *Phi Delta Kappan, 93*(3), 8-14.

Noguera, P. A., Blankstein, A. M., & Kelly, L. (2016). *Excellence through equity: Five principles of courageous leadership to guide achievement for every student.* ASCD.

Organization for Economic Co-operation and Development. (2019). *PISA 2018 results (Volume I): What students know and can do.* OECD Publishing.

Osterman, K. F. (200). Students' need for belonging in the school community. Review of Educational Research, 70(3), 323-367.

Resnick, M. D. (1997). Protecting adolescents from harm. Findings from the National Longitudinal Study on Adolescent Health. *The Journal of the American Medical Association*, *278*(10), 823–832. https://doi.org/10.1001/jama.278.10.823

Rotter, J. B. (1954). *Social learning and clinical psychology.* Prentice-Hall. https://doi.org/10.1037/10788-000

Sailor, P. (1986). *The effects of various middle-grade configurations* (Report No. AISD 85-20). Department of Management Information.

Sari, M. (2012). Sense of school belonging among elementary school students. *Cukurova University Faculty of Education Journal*, *41*(1), 1–11. https://dergipark.org.tr/en/pub/cuefd/issue/4133/54251

Schafer, K. L. (2010). *The impact of grade configuration on sixth grade academic achievement in Florida public schools* (Publication No. 3415047) [Doctoral dissertation, University of Central Florida]. ProQuest Dissertations and Theses Global.

SchoolDigger. (2023, January 10). *Missouri middle school rankings.* https://www.schooldigger.com/go/MO/schoolrank.aspx?level=2

Shepard, L. A. (2000). The role of assessment in a learning culture. *Educational Researcher*, *29*(7), 4–14. https://doi.org/10.3102/0013189x029007004

Sternberg, R.J. (2003). *Successful intelligence: Finding purpose for your life and work.* Penguin Books.

Terada, Y. (2017, May 22). *How peer pressure undermines success*. Edutopia. https://www.edutopia.org/article/how-peer-pressure-undermines-success-youki-terada/

Tomlinson, C.A. (2001). *Differentiated instruction in the middle grades: Strategies to engage all learners.* Publisher.

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*(1), 82-96. https://doi.org/10.1037/0022-3514.92.1.82

Wells, A. S. (2009). *Stepping over the color line: African-American students in white suburban schools.* Yale University Press.

Welner, K. G. (2013). *Closing the opportunity gap: What America must do to give every child an even chance.* Oxford University Press.

White, M. A., & Waters, L. E. (2014). A case study of "The Good School:" Examples of the use of Peterson's strengths-based approach with students. *The Journal of Positive Psychology, 10*(1), 69–76. https://doi.org/10.1080/17439760.2014.920408

Whiting, E. F., Everson, K. C., & Feinauer, E. (2017). The simple school belonging scale: Working toward a unidimensional measure of student belonging. *Measurement and Evaluation in Counseling and Development, 51*(3), 163–178. https://doi.org/10.1080/07481756.2017.1358057

Appendices

Appendix A. Consent to Conduct Research

Research Checklist and Approval

[redacted]

Date Submitted: April 4, 2024

Research Proposal Title: Exploring School Configuration in Conjunction with the Correlation of Perceived Sense of School Belonging of Students and Achievement

Principal Investigator(s): Kaleb Johnson

Checklist

- Completed "Application to Conduct Research in SJSD".
- Draft copy of "Informed consent" letter to study population/parents, if applicable
- Description of measurements and copies of any surveys
- Other _____

The district must be notified of any substantive changes to the information contained in the application. The district reserves the right to withdraw approval of research if the research is deemed to no longer be in the best interests of [redacted] students, staff, or the district.

Research Application: X Approved __ Denied

Signatures

[redacted] Academic Services Director [redacted] 4.5.2024

Supervisor/Principal of Program or Building_____

Appendix B. Institutional Review Board Approval

BAKER UNIVERSITY
Own Confidence

Baker University Institutional Review Board

April 4, 2024

Dear Kaleb Johnson and James Robins,

The Baker University IRB has reviewed your project application and approved this project under Expedited Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.
6. If this project is not completed within a year, you must renew IRB approval.

If you have any questions, please contact me at skimball@bakeru.edu or 785.594.4563.

Sincerely,

Scott B. Kimball

Scott Kimball, PhD
Chair, Baker University IRB

Baker University IRB Committee
Tim Buzzell, PhD
Steve Massey, EdD
Jiji Osiobe, PhD
Susan Rogers, PhD

Appendix C. Parent/Guardian Letter

Parent/Guardian Notification of A Sense of Belonging Student Questionnaire

Educators are constantly looking at student's school experiences to ensure that the best experience possible is occurring. As an educator, this is something that I am extremely interested in. This letter is to notify parents/guardians of an opportunity for your sixth-grade student to participate in a research project. I am currently enrolled as a doctoral student seeking your student's participation in this research project under the supervision of Dr. James Robins, Associate Professor at Baker University.

Between April 19, 2024 and April 23, 2024 your sixth-grade student will participate in a school sense of belonging questionnaire. Participation is completely voluntary; you may opt your student out by contacting your school's office. As a participant, your student will be asked to answer 15 questions concerning their perceptions about school. This survey will be administered during the school day and will take approximately ten minutes to complete. All students who participate will do so using their individual MOSIS ID so that their names are not attached to the questionnaire. Your student's answers will remain confidential, will not be tied to their name, will not be reported individually, and will not be released to anyone.

This research study has been reviewed and approved by the Baker University Institutional Review Board and the Saint Joseph School District. At the end of the study, it is my hope to have a better understanding of sixth-grade students and their perceived sense of school belonging. With a better understanding of student belonging, I hope to provide methods for improving students' experiences in our schools and understand if there is a stronger sense of school belonging when sixth graders are at an elementary school or middle school. Again, participation is completely voluntary; you may opt your student out by contacting your school's office by April 18, 2024. There are no consequences or penalties if your student does not participate.

Sincerely,

Kaleb K. Johnson
Baker University Doctoral Student