THE IMPACT OF INTERDISCIPLINARY TEACHER TEAMING ON THE ACADEMIC SUCCESS OF HIGH SCHOOL FRESHMEN

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THE IMPACT OF INTERDISCIPLINARY TEACHER TEAMING ON THE ACADEMIC SUCCESS OF HIGH SCHOOL FRESHMEN

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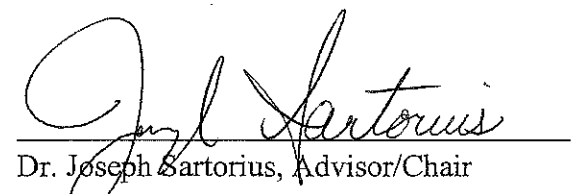

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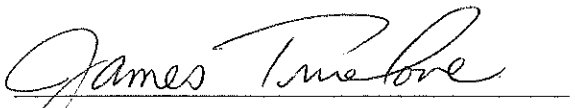

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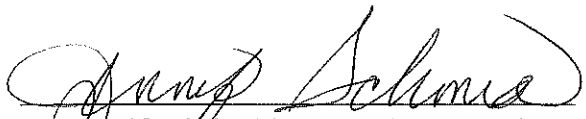

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THE IMPACT OF INTERDISCIPLINARY TEACHER TEAMING ON THE ACADEMIC SUCCESS OF HIGH SCHOOL FRESHMEN

A Dissertation
Presented to
The Faculty of the Graduate Education Department
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Doctor of Education

By

Adam Kealen, B.S., M.S.

Dr. Joseph Sartorius, Dissertation Advisor

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ABSTRACT

The landscape of education is changing. Students in today's society are living in a world where poverty is increasing, broken homes are becoming more common, and safety on their streets is coming into question. With these changing times, is the institution of public education changing? This study focused on the need for schools to become developmentally responsive to the changing needs of students through the personalization of the learning environment, specifically that of the high school setting. This research specifically focused on the use of an interdisciplinary team of teachers as a strategy to monitor the academic success of freshman-aged students in an effort to combat the traditional issues students face as they transition from middle school to high school. Whereas current research and literature does exist in identifying this problem and providing possible solutions, the use of this specific strategy in light of personalizing the environment to meet the developmental needs of students is sparse. To measure the effectiveness of this strategy, the 4-year graduation rates of identified schools were used in a causal-comparative quantitative study. Schools in the states of Missouri and Kansas were electronically surveyed both to identify schools that used this strategy as well as assess their perceptions on how this strategy has impacted the teacher-student relationships within their buildings. The study revealed a statistical significance did exist in schools that utilized this strategy and their 4-year graduation rates as compared to demographically paired schools that did not. In addition, a strong significance was found between the perceived teacher-student relationships and schools that employed this strategy as compared to schools that did not.

CHAPTER ONE

INTRODUCTION

Reducing the rate of academic failure is an ambitious task. Identifying the root causes of that failure has confounded researchers and educational philosophers. In fact, the problem still exists. In a recent report the national high school graduation rate was reported to be 83.2% in 2014-2015, an all-time high (The White House, Office of the Press Secretary, 2016). However, when looking with a broader scope, the United States still remains far behind other nations in secondary education completion. According to the Organisation for Economic Co-operation and Development (2016), the United States ranked 23rd among the 37 participating countries within their co-operative in ability to graduate students from secondary-level education. Over the years, high schools have found themselves creating various strategies to increase graduation rates, including alternative paths to graduation (Caroleo, 2014; Smith & Thomson, 2014). However, for the purpose of this study specific attention was paid to the issues attributed to the transition of freshman students into high school and the concerns associated with this pivotal period in time.

Bottoms and Timberlake (2007) published an article in which they expressed the importance of the freshman year:

> The ninth grade year is the gateway to high school graduation and further education or meaningful employment. It is the make-it or break-it year for students. Those who successfully complete grade nine are substantially more likely to graduate from high school than are students who fail the freshman year. (p. 1)

In fact, there is a direct correlation between the number of failing grades during this same year and 4-year graduation rates (Allensworth & Easton, 2005). Research demonstrates that failure of students to obtain enough credits during their freshman year to be classified as a sophomore the following year is considered the largest contributing risk factor for dropping out of high school (Neild & Balfanz, 2006). In addition, research conducted by Hattie (2012) suggested that retention, no matter the grade level, has a negative impact (ES = -0.13) on student achievement. Current data also support these claims. Nationally, 16.8% of students who entered high school in 2011 did not graduate within 4 years, while Missouri reported 12.2% and Kansas reported 14.3% that year (U.S. Department of Education, 2016b). Despite this increase from an all-time low of 27% nationally (in 2005-2006) and 21.7% (Missouri) and 23.1% (Kansas) more locally (in 2002-2003; Stark & Noel, 2015), the problem still persists and the burden still rests on the educational institution to continue to decrease student dropout numbers.

In recent studies, high schools have been suggested to be organizationally unresponsive to the needs and shortcomings of freshmen transitioning into high school (Eccles & Roeser, 2011; Ellerbrock, 2011). Generally, high schools are characterized as large, departmentalized, and impersonal compared to students' previous middle and elementary school experiences (Beland, 2014; Ellerbrock & Kiefer, 2013; Roybal, Thornton, & Usinger, 2014). These differences have the potential to negatively impact student achievement (Styron & Peasant, 2010). Additionally, as students age the emotional support they receive decreases, coinciding with a decreased sense of attachment to the school setting (DeWit, Karioja, Rye, & Shain, 2011; Eccles & Roeser, 2011). Consequently, a look at structural change at the high school level and the impact it

can have on student transitions into high school deserves increased attention and investigation (Ellerbrock & Kiefer, 2013).

Academies designed within the larger construct of the high school setting are one recent structural response to addressing freshman transition issues (Emmett & McGee, 2012). In these academies, freshmen students are dedicated to a separate section of the building receiving support from teachers who focus solely on these students. Researchers argue that while this is a feasible option for restructuring the learning environment to meet students' transition needs, it is not the only option (Roybal et al., 2014). Of greater need is the personalization of the learning environment. It is here that "small learning communities are created where opportunities to learn and teach are combined with learning supports that enable a school to become positive and developmentally enhancing through the removal of developmentally hazardous conditions" (Felner, Seitsinger, Brand, Burns, & Bolton, 2007, p. 210). This approach reveals signs of not only improving a student's connection to the school and increasing academic achievement (McClure, Yonezawa, & Jones, 2010; Roybal et al., 2014) but also providing the opportunity to develop a deep sense of community, stable relationships, and deep connections with teachers and classmates (Ellerbrock, 2011), while simultaneously reaping the benefits of the traditional high school setting. In light of structural change, the small learning community approach provides opportunities for addressing the freshman transition problem without fundamentally changing the traditional high school setting. It does so while placing emphasis on personalization of the learning environment through the teaming of teachers cross departmentally to collectively monitor the success and well being of the students they teach.

The effectiveness of freshman-level teachers who are teamed within a personalized learning environment should also be addressed; there remains, however, limited current literature on the matter. What is demonstrated through literature is teachers who operate within a personalized learning environment have greater opportunity for collaboration (Yonezawa, McClure, & Jones, 2012) and experience greater support and relationships among this peer group (Ellerbrock, 2011). This increase in collaboration is also evidenced in the improvement in student achievement (Kiefer, Alley, & Ellerbrock, 2015; Ronfeldt, Farmer, McQueen, & Grissom, 2015) and their own self-efficacy (Emmett & McGee, 2012). Based on this evidence and further research, the concept of applying the personalization of the educational setting through interdisciplinary teaming within the freshman year could begin to bridge the gap and attempt to decrease the number of students failing to complete high school (Cox, Hopkins, & Buckman, 2015).

Theoretical Framework

The theory of developing teams of teachers who provide a personalized approach to educating their students is not an uncommon concept, particularly at the elementary and middle school levels (Ellerbrock & Kiefer, 2013; National Middle School Association, 2003). To begin to unravel the benefits of this approach it is important to understand the theoretical underpinnings of effective teacher teams as well as to look at the fundamental shifts away from the traditional high school structure that these teams would have to make. For the purpose of this study the theoretical framework for the teaming of people within an organization was rooted in the theories presented by Senge (1990). The motivation and educational application for how these teams should operate

were situated in the stage-environment fit theory developed by Eccles and Midgley (1989).

In the publication entitled The Fifth Discipline, Senge (1990) outlined his five disciplines for successful organizations and his call to transform them into learning organizations. When the five disciplines (mental models, personal mastery, shared vision, team learning, and systems thinking) are fully developed, each will, as Senge stated, "prove critical to the success of others and will provide a vital dimension in building organizations that can truly learn, that can continually enhance their capacity to realize their highest aspirations" (p. 6). Central to this theory is the development of systems that efficiently identify the important variables within an organization that create a shared understanding to address those variables. Future education-related organizational strategies such as professional learning communities and small learning communities are able to draw their conceptual underpinnings to the theories of Senge.

When examining the school system and the developmentally appropriate learning environment it provides, Eccles (2004) theorized that students that interact within that environment have "changing emotional, cognitive, social needs, and personal goals as they mature and schools must change in developmentally appropriate ways if they are to provide the kind of social context that will continue to meet student's needs as they mature" (pp. 125-126). If this development of both the student and the school did not happen simultaneously, students would become mentally and physically disengaged from their educational environment (Eccles, 2004). DeWit et al. (2011) proposed that a high school student's social and emotional state might be negatively impacted by the structure of the school setting. In fact, a student's basic needs of relatedness, competence, and

autonomy must be met at developmentally appropriate stages for students to demonstrate self-regulation, motivation, and personal well being (Ellerbrock, 2011). These developmental needs are especially necessary as transitions are made from one environment to another (Rutledge, Cohen-Vogel, Osborne-Lampkin, & Roberts, 2015).

The theories of Senge (1990) and Eccles and Midgley (1989) intersect at several points. Senge (1990) stated, "the art of systems thinking illuminates the causes of problems and how they can be remedied in enduring ways" (p. 128). Whereas Eccles and Midgley (1989) expressed concern for the educational systems' inability to meet a student's developmental needs, Senge (1990) suggested that schools must first change their "mental models" before solutions could be formulated. To achieve this, high schools must rid themselves of the traditional views of how high schools should be structured so that insights can emerge and be practiced (Senge, 1990). To do this, Senge (1990) suggested that leaders must shift their thinking about traditional methods from facts to merely assumptions about how high schools should be structured. Once this mental shift takes place only then will one be able to challenge traditional thought and begin meeting the needs of the organization, including the developmental needs of the students. Failure to do this will result in organizations becoming tacit, thus causing mental models to "exist below the level of awareness" (Senge, 1990, p. 176). To accomplish this, Eccles and Roeser (2011) advocated for small learning communities for students transitioning to high school; likewise Senge (1990) suggested the creation of teams that share a vision and where coherence and a common aspiration become natural byproducts of those teams. When shared visions become an extension of personal visions for students,

organizations can truly function as systems of learning and push toward truly addressing those negative variables affecting freshman transition and dropout rates (Senge, 1990).

By combining the thoughts of Senge (1990) and Eccles and Midgley (1989), it became evident there is an emerging solution by which to address transitional issues of the freshman experience. Transformation should begin with reforming the structural makeup of the high school setting with a close inspection of the developmental needs of freshman students. The creation of collaborative interdisciplinary teacher teams that operate systematically under a shared vision and purpose can be the process through which to accomplish this goal. By doing this, opportunities for increased responsiveness to the developmental needs of freshman students have the potential to be generated by increased student awareness through increased teacher-student relationships. Through the development of what Senge called a "learning organization" (p. 14) it becomes easier to address these issues. This theory was applied to the educational environment more in depth throughout the remainder of this study.

Problem Statement

Students who are academically unsuccessful during their freshman year have a higher probability of not graduating (Allensworth & Easton, 2005; Bottoms, 2008; Ellerbrock, 2011). According to the National Center for Education Statistics (NCES) and the United States Department of Education, the national adjusted cohort graduation rate (ACGR) for the 2014-2015 school year was 83.2%, while locally, the state of Missouri reported a rate of 87.8% and Kansas reported 85.7% for this same school year (U.S. Department of Education, 2016a). When looking deeper into the disaggregation of this data, the impact that school size and poverty rate have on graduation rates also provides

cause for additional research. In a recent national study, Egalite and Kisida (2016) found a negative statistical relationship existed between increases in school size and academic achievement outcomes in the areas of math and reading. In a localized study, Steggall (2014) researched each Missouri high school, finding a negative statistical relationship between increases in school size and dropout rates. Additionally, students of poverty are also at a greater risk of dropping out of high school. According to the NCES and the United States Department of Education, 76.1% of economically disadvantaged students graduated from high school during the 2012-2013 school year, with 80.7% graduating locally in Missouri and 77.3% in Kansas (U.S. Department of Education, 2016a).

To combat this, research has revealed high school educators must personalize the educational experience for freshman students (Felner et al., 2007; Rutledge et al., 2015; Yonezawa et al., 2012) through the use of interdisciplinary teacher-teaming monitoring the academic progress of each student and developing interventions for those who are academically struggling (Ellerbrock & Kiefer, 2010; Felner et al., 2007; Nalls, 2011). Research surrounding the restructuring of high schools for addressing the transitional issues of freshman students has predominately focused on the use of the freshmen academy concept (Ellerbrock, 2011; Emmett & McGee, 2012; McCallumore & Sparapani, 2010). In this scenario, freshman students are housed in an isolated portion of the high school setting or even in a stand-alone building separate from the main high school. Students are provided a personalized education tailored to meet their developmental needs; in addition they are supported by dedicated teachers who only teach ninth-grade students. Whereas this is a viable option for addressing this issue, it is not the only possible solution and not always the most successful (Lyons, 2014). Emmett

and McGee (2012), Habeeb, Moore, and Siebert (2009), Roybal et al. (2014) and McCallumore and Sparapani (2010) contested that the separation alone of an academy may create transitional issues by merely shifting them to the sophomore year and that there is no need to physically separate grade levels from the main high school campus. As a result, this study addressed schools that attempted to recreate the personalized environment found within an academy by restructuring the traditional high school setting of Grades 9-12. This restructuring established the use of an interdisciplinary team of ninth-grade teachers. Research on this topic remains minimal and is localized in scope.

Purpose for the Study

Eccles and Roeser (2011) stated that the impact schools could have on student development ranged in scope from their academic performance to their mental well-being. Understanding this potential impact and then implementing systems or programs to support student developmental process is tantamount (Eccles, 2004). One such system was the use of interdisciplinary teams within a personalized educational setting (Felner et al., 2007; Nellis, 2012) in an attempt to address the documented transitional issues of students and their impact on eventual graduation from high school. To this end, the purpose of this causal-comparative nonexperimental quantitative study (in accordance with Gay, Mills, & Airasian, 2009) was to determine if the creation of a personalized school setting through the use of an interdisciplinary teaming approach had a direct impact on academic success of freshman students as measured by the 4-year graduation rates of schools within the states of Missouri and Kansas compared to schools that did not employ this strategy.

Research Questions and Hypotheses

The current study focused on the implementation of ninth-grade interdisciplinary teacher teams. The researcher examined 4-year high school graduation rates among Missouri and Kansas high schools to determine the impact of interdisciplinary teacher teaming on the academic success of ninth-grade students. This research centered on the following primary research questions, with additional subquestions:

1. What impact does an interdisciplinary team of teachers in the high school setting have on the academic achievement of ninth-grade students as measured by the 4-year graduation rates of identified schools?
    a. What impact does an interdisciplinary team of teachers have on the 4-year graduation rates of economically disadvantaged freshman students?
    b. Based on student enrollment size, what impact does an interdisciplinary team of teachers have on the 4-year graduation rates of high school freshmen?
2. What impact does an interdisciplinary team of teachers in the high school setting (regardless of implementation year) have on teacher-student relationships as measured by building principal perception?

In order to answer the above research questions, the researcher made the following correlating null hypothesis statements:

$H_0$1 - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of freshman students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1a - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of freshman students based on enrollment size, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1b -The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of economically disadvantaged freshman students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$2 - The use of an interdisciplinary teaming model (regardless of year of implementation) does not demonstrate a statistically significant impact on the level of teacher-student relationship as measured by building principal perception.

Assumptions, Limitations, and Delimitations

During the research process there were factors that could be controlled by the researcher and those that could not. Assumptions could also be made within this process. The honesty and accuracy of the responses gathered as well as the quality level of the work the identified schools did with their students could be assumed to be at a high level for the purposes of this study. While no method is considered perfect, the attempt to limit the amount of variables within a study was recommended. This study operated no differently and in itself had a set of limitations and delimitations that are outlined below:

Limitations:

1. The number of schools that utilized the use of interdisciplinary teaming at the freshman level was not known prior to the study.
2. The number of interventions and/or programs assisting freshman students beyond interdisciplinary teaming was not determined.
3. The initial year of implementation of the interdisciplinary teacher team model at each identified school was not determined.

Delimitations:

1. Only high schools with Grades 9 through 12 were used.
2. Schools residing within the states of Missouri and Kansas were used in this study.
3. An attempt was made to identify all of the schools in Missouri and Kansas that incorporated an interdisciplinary teacher-teaming model to monitor the academic progress of freshmen.
4. An attempt was made to eliminate the schools implementing a freshman academy model to focus on schools that incorporated interdisciplinary teacher teaming within a traditional academic setting of Grades 9-12.
5. Four-year graduation rate and demographic data were exclusively taken from databases maintained by the Missouri Department of Elementary and Secondary Education and the Kansas State Department of Education.

Design Controls

This quantitative study utilized a demographic questionnaire to identify all public high schools in the states of Missouri and Kansas that utilized an interdisciplinary teacher-teaming model to monitor the academic progress of freshmen. Of special note for this study was the exclusion of schools that incorporated the use of the freshman academy model, where students were physically separated from the main school campus. In addition all ninth- to 12th-grade high schools that operated as alternative, charter, private, online, or magnet schools, as well as schools that were part of treatment facilities or juvenile detention centers were excluded from this study as well. Once identified, schools' 4-year graduation rates and demographic information were retrieved from the Missouri Department of Elementary and Secondary Education and Kansas State Department of Education. These data were analyzed for both the identified schools as well as the corresponding comparative schools that did not incorporate the use of interdisciplinary teacher teams.

Definition of Key Terms

Adjusted Cohort Graduation Rate (ACGR) - Provides information about the percentage of public high school students who graduate, with a diploma, 4 years after starting their ninth-grade year. This rate tracks a cohort of ninth-grade students throughout high school. The ACGR also accounts for students who transfer in or out from a different state, immigrate to another country, or become deceased (Stark & Noel, 2015).

Interdisciplinary Teams - Teams consisting of teachers who teach various subject matters within the school but have common students among them (Ellerbrock,

2011). Teams may also include other staff members such as school counselors, health care workers, and/or administrators. These teams may create cross-curricular lessons for students, but for the sake of this study, the term of interdisciplinary team or teaming is only used within the context of monitoring student academic success.

On-Time Graduation - Completion of high school within 4 years after entering high school (Bornsheuer, Polonyi, Andrews, Fore, & Onwuegbuzie, 2011).

Personalization - A student-centered approach to educating students where students' academic needs are addressed through a strategic development of relationships between staff members and students (Yonezawa et al., 2012).

Professional Learning Communities - A process through which teachers work collaboratively and regularly, within a set structure of inquiry, with the sole aim of improving the educational experience of the students they serve. Teacher teams are determined based on commonalities based on but not limited to content, grade levels, or common students (DuFour & Eaker, 1998).

Small Learning Communities - A term used to describe the dividing of a larger school structure into smaller, more autonomous groups of teachers and students. Also referred to as the "school within a school" concept (Felner et al., 2007).

Stage-Environment Fit Theory - The theory developed by Jacquelynne Eccles and Carol Midgley that states that the developmental needs of students change as they mature; however, the structures of the traditional middle and high schools fail to change at the same developmental rate. According to Eccles (2004), the ramifications of this disconnect result in decreases in student engagement, motivation, and interest in school.

Summary

This chapter contained a presentation for the need to explore the transitional challenges high school freshmen experience. Statistical data were presented indicating the number of students who fail to finish high school in a 4-year period with possible linkage to the failure rate experienced during the freshman year. This chapter also contained an overview of the needs that adolescents at this age require from the school building and the disconnect they experience, as illustrated by the theoretical framework of the stage-environment fit theory. Furthermore, this theoretical framework woven together with that of Senge's (1990) theories on learning organizations provides a lens through which the concept of interdisciplinary teaming can be discussed and solutions can be formed to respond strategically and intentionally to freshman transitional challenges. This study intended to determine the impact high school interdisciplinary teacher teaming has on the academic performance of freshman students, as measured by the 4-year graduation rates of the identified schools within the states of Missouri and Kansas.

Chapter Two of this paper provides a review of the existing literature and theoretical underpinnings of the transitional issues of high school freshmen as well as an exploration into the historical formation and the foundational attributes of the small learning community concept. Emphasis will also be placed on the developmental needs of freshman students and the benefits of creating interdisciplinary teaming within a personalized school environment. Chapter Three will include the method for identifying and selecting school districts that had created this type of learning environment. In addition, it will report on the collection of quantitative data and outcomes to accept or

reject the proposed hypothesis and answer each research question. Chapter Four will present the findings of this study. Chapter Five will conclude with a summary of the research conducted, will provide the educational implications of the findings, and propose recommendations for future studies.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

The goal educational institutions set before all high school students is the attainment of a diploma. Each year, many optimistic freshmen enter high school with this goal. Unfortunately, across the nation not all students complete this 4-year journey. According to researchers at the NCES and the United States Department of Education, the national ACGR for the 2014-2015 school year was 83.2% (U.S. Department of Education, 2016b). Locally, the state of Missouri reported an ACGR rate of 87.8% with Kansas reporting 85.7% for this same school year (U.S. Department of Education, 2016b). In addition, many future societal and economic factors are impacted between those who earn a degree and those who do not. As an example, Bjerk (2012) reported that high school dropouts experience significantly lower earnings and participate in much more crime in their early 20s than those who do graduate. Furthermore, Stark and Noel (2015) reported that the average high school dropout costs the economy approximately $250,000 during their lifetime and are in poorer health when compared to those who gain a diploma. Although Stark and Noel reported a documented increase in the reported ACGR when compared to previous years, the Organisation for Economic Co-operation and Development (2016) reported that the United States ranked 23rd among their 37 participating countries in ability to graduate students from secondary-level education. These factors, among others, provide cause for immediate focus on the improvement of strategies that relate to the graduation rate of students within this country.

The research and literature extensively illustrated causes for student dropout rates. This study approached the concern for the dropout rates through the lens of the ineffective transition of middle school students into high school. To begin discussing this the following chapter is a thematic look at the transitional issues of high school freshman students and the use of a personalized learning experience that utilizes interdisciplinary teacher teaming to address those issues. The review begins with foundational understandings for why freshman students struggle during the transition to high school, with a particular focus on the structure of the high school setting in contrast to the developmental needs of adolescents. Stage-environment fit theory (Eccles & Midgley, 1989) provided the theoretical framework for this study and presented data suggests the need for schools to align a learning environment to the developmentally appropriate needs of freshmen beyond academic expectations. To better understand the benefits of interdisciplinary teacher teaming, a literature review considering a historical look at the development of the small learning community concept was needed. Authors Peter Senge's (1990) as well as Richard DuFour and Robert Eaker's (1998) theoretical approaches are paired with recent research to establish a theoretical framework for small learning communities and the need for increased personalization of a learning environment. Finally, the creation of interdisciplinary teams as an intervention addressing the developmental needs of students is applied and analyzed for the benefits of increased teacher-student relationships and meaningful teacher collaboration. Through this review of literature and subsequent analysis of research data, this study attempted to examine the impact interdisciplinary teacher teaming has on the academic success of freshman students.

Freshman Transition to High School

Students who transition from middle school to high school during their freshman year experience a variety of challenges that can possibly lead to life-changing outcomes. These outcomes could result in the loss of academic credits, thus increasing the likelihood of not completing high school (Ellerbrock, 2011; Ellerbrock & Kiefer, 2013; Emmett & McGee, 2012). It has been noted that students who transition from one educational setting to another often display a myriad of difficulties associated simply with change itself (Allensworth & Easton, 2005; Bottoms, 2008; Ellerbrock, 2011). Often times students are not only academically unprepared for the rigors of high school (Bottoms, 2008; Emmett & McGee, 2012) but also are unequipped to adjust to the differences in the environment, structure, social demands, and culture of the high school experience (Beresford, 2013; Black, 2004; Roybal et al., 2014). Expectantly, in general, change complicates the transitional process to high school. Michael Fullan (2001) supported this notion by coining it the "implementation dip" (p. 41) and stating that a "decrease in performance and confidence occurs as one encounters an innovation that requires new skills and new understandings" (p. 40). Although Fullan related this concept to change within the organizational setting, this same concept can be applied to students transitioning from the middle school to high school. It may be the fundamental mental shifts demanded by the traditional high school structure alone that force students to adjust to new norms and expectations (Ellerbrock & Kiefer, 2013; McCallumore & Sparapani, 2010; Roybal et al., 2014). By contrast, the research conducted by Weiss and Bearman (2007) suggested that the physical changing of buildings is not necessarily a determining factor in the potential academic and/or nonacademic success of freshman students. Weiss

and Bearman stated, “these transitions are a by-product of the organization of American schools, thus necessitating that students make transitions between schools” (p. 397). Therefore, when looking at the struggles of freshman students entering high school, researchers might focus on the structures within the school and the support networks in place to support students during their first year of high school.

Together the structure and climate of the traditional high school and their impact on the students’ transitions from middle school to high school are highlighted in recent research. Egalite and Kisida (2016) suggested “that the self-contained nature of elementary school classrooms serves as a protective factor” (p. 413), while Ellerbrock and Kiefer (2013) suggested “as students advance through the K-12 educational system, schooling often becomes increasingly impersonal and developmentally unresponsive” (p. 170). Echoing this sentiment, Eccles and Roeser (2011) stated, “much of the decline in school-related motivation and engagement reflects developmentally inappropriate changes in the nature of schooling as students move from primary school into secondary school” (p. 236). Factors such as the size of the school population, physical layout, schedule, and the method for grouping of teachers and students (Black, 2004; Eccles & Roeser, 2011; Egalite & Kisida, 2016; Ellerbrock & Kiefer, 2013; Emmett & McGee, 2012; Van Maele & Van Houtte, 2010) all may lead to a feeling of disconnectedness and loss of familiarity (Roybal et al., 2014). In support of this concept of disconnectedness and loss of familiarity, Weiss and Bearman (2007) suggested that this transition causes students’ relationships to be broken that once existed at the middle school level among their peers and trusted adults. Furthermore, Eccles and Roeser (2011) suggested adolescents’ perceptions of emotional support and sense of belonging decrease as

students transition into high school. It is the increased departmentalization of the school structure, resulting in the decrease of contact time between teachers and students that defines this disconnectedness. In this light, the argument could be presented that students become unnoticed and unknowingly allowed to struggle academically, emotionally, and/or socially during their first year of high school, thus increasing the possibility of failing to meet graduation requirements (Eccles & Roeser, 2011).

Societal pressures may also provide a factor in the transitional issues that students face. Neild (2009) suggested, "the entrance of ninth grade may also serve as a social marker, signaling to parents that the young person deserves greater independence and to peers that the student is worthy of inclusion in the social activities of older adolescents" (p. 54). Thus, this social transition to a new social stage in life may contribute to the perceived disconnectedness between the contradictory message students receive from their surroundings and what they developmentally need from that environment. The social differences between middle school and high school (McCallumore & Sparapani, 2010), the instability of friendships (Eccles & Midgley, 1989), and the decrease in emotional supports both in and outside of the school setting (Beland, 2014) complicate this separation between what is presented socially and what is developmentally appropriate. As a result, factors arise that contribute to transitional stresses at this stage of their academic lives.

One suggested method of combating the feeling of disconnectedness is to change the structure of the traditional high school. One step in this direction is the creation of small learning communities within the larger construct of the high school setting (Cox et al., 2015; Ellerbrock, 2011; Ellerbrock & Kiefer, 2013; Roybal et al., 2014). As part of

their research Rutledge et al. (2015) found that higher performing high schools had "strong and deliberate structures, programs, and practices that attended to both students' academic and social needs" (p. 1060). In this type of setting the primary focus becomes increased contact and relationship building between students and teachers. This approach demands a fundamental shift toward a personalized learning environment where academic, emotional, and social needs of all students are met (Hughes, 2012; Steele, 2010; Yonezawa et al., 2012). This is particularly important in situations where students leave a smaller middle school setting to enter a comprehensive high school setting, where the potential for "increased feelings of isolationism, loneliness, and disconnection may occur" (McCallumore & Sparapani, 2010, p. 449).

In summary, the transition from middle school to high school manifests challenges for students and has the potential to impact a student's ability to find success and graduate (Ellerbrock, 2011). Admittedly there are numerous issues caused by this transition, yet it is necessary to consider that some of these challenges may be created because of the current traditional structure of American high schools. Therefore, the structure of the institution must then be addressed in light of the needs of this age group of students. It is only by aligning the needs of the students and the structure of the school can educators begin to formulate solutions to the transitional concerns confronting the high school freshman experience (Eccles & Roeser, 2011). First, it is imperative to identify the developmental needs freshmen require from the school setting. It is through this lens that it becomes possible to determine how high schools might best be structured to maximize success for all freshman students.

Student Developmental Needs

In her qualitative multisite study, Ellerbrock (2011) stated that the "need for a school environment to meet students' developmental needs is especially critical as they make the transition from one school to another" (p. 34). As highlighted previously in this paper, the social and emotional struggles created as students transition are numerous, attributed to their developmental needs, and can be connected to the lack of support traditionally provided them at the high school level. This concept is one that is not new; in fact, it has been a call by educational authors and researchers for decades. Hargreaves, Earl, and Ryan (1996) stated, "one of the most fundamental reforms needed in secondary and high school education is to make schools into better communities of caring and support for young people" (p. 77). If this is not accomplished, students who are disconnected from their school will suffer academically (Roybal et al., 2014); but those schools that have increased levels of personalization experience increased levels of academic success (McClure et al., 2010). When examining the needs of adolescents during this transitional time, it is appropriate to discern the psychological framework of stage-environment fit theory (Eccles, 2004) for a better understanding of why increased personalization of schools truly fits.

As they mature, individuals, regardless of age, have evolving emotional, cognitive, and social needs (Eccles, 2004). Furthermore, high school adolescents display developmental needs in the areas of relatedness, connectedness, and self-efficacy (Beresford, 2013; Ellerbrock, 2011; Hughes, 2012; Purzer, 2011). According to stage-environment fit theory, students who are developing in these areas have negative experiences in schools as they mature because schools do not change accordingly to meet

their needs (Eccles, 2004). Within the context of the school building, the students' development is impacted in various ways due to the experiences that they have at school (Eccles & Roeser, 2011). Going deeper with this concept, person-environment theory (Hunt, 1975) states that "an individual's behavior is jointly determined by characteristics of the person and properties of the immediate environment" (Eccles & Midgley, 1989, p. 174). As a framework for stage-environment theory, person-environment theory recommends that a student's present needs "should be viewed with a need for structure on a developmental continuum along which growth toward independence and less need for structure is the long-term objective" (Hunt, 1975, p. 221). This developmentally focused approach brings warning from Eccles (2004) where, "not only are children and adolescents developing, but so too is the whole nature of the schools they attend" (p. 127). This decline in the synergy between the needs of the student and the developmentally appropriate support of the school adds to the decline of students' feelings of support, motivation, and behavior, but an increase in vulnerability to escalating symptoms of internalizing problems (DeWit et al., 2011; Eccles, 2004).

In the context of the high school setting, students typically enter an impersonal place that is traditionally departmentalized, focused on credit accumulation, and counterproductive to fostering relationships and a sense of belonging (Ellerbrock, 2011; Ellerbrock & Kiefer, 2010; Neild, 2009). In environments such as this, where many academic-related decisions and pressures are pushed to the forefront, students can develop an "unenthusiastic attitude toward high school and fail to remember the importance of graduating" (Styron & Peasant, 2010, p. 3). Furthermore, this lack of fit can impact a students' self-efficacy about their own abilities according to research

conducted by Purzer (2011). To combat the potential decreasing level of self-efficacy in students and the concerns presented within the stage-environment fit theory, students and teachers must begin to exist within the context of a community where care and support are understood and developmentally appropriate (DeWit et al., 2011; Ellerbrock, 2011; Osterman, 2000). In the end, by creating personalized learning environments educators remove developmentally counterproductive barriers due to the traditional context of the high school setting and provide learning opportunities that are positive, developmentally responsive, and centered on the needs of the whole student (Felner et al., 2007).

In addition, the world outside of the school building provides its own set of challenges for adolescents. “Changing family configurations, poverty, and other social forces conspire to burden young people with stress and despair” (Bernstein-Yamashiro & Noam, 2013, p. 15), which can be carried into the school building, impacting academic performance. In 2015, 20.3% of school-aged children lived in poverty (U.S. Census Bureau, 2016) while in the same year only 65% of children lived in households with both parents (Interagency Forum on Child and Family Statistics, 2016). In regard to poverty and grade-level promotion, Cox, et al. (2015) stated that “poverty is the single most significant variable that influences 10th grade promotion” (p. 122), whereas school enrollment and the availability of transitional programs for freshman-aged students had slightly less of an impact. These additional societal pressures compound the experiences of crisis, anxiety, and even depression for many teenagers (Bernstein-Yamashiro & Noam, 2013). The concern there is that students who struggle academically perceive themselves as academically inadequate. They are also characterized as at risk by societal standards, viewed as the segment of the student population most negatively impacted by a

developmentally unresponsive school system (Eccles & Midgley, 1989). Thus, the case for a personalized and a developmentally appropriate approach to secondary education is crucial to the well-being of the nation's most needy students.

Students within today's world have an ever-changing set of needs that schools must begin to not only account for, but also provide structures of support for as well. Both are paramount in the quest to create a learning environment most conducive for student success. In part, the transition of students from one environment to another is negatively influenced by the structure of the institution for which they enter, which may also be developmentally unresponsive (Ellerbrock & Kiefer, 2013). In understanding the relationship between student needs and school structure, the next step in determining the appropriate school structure to maximize student transitional success begins with the personalization of the learning environment through the use of small learning communities.

Learning Communities

When examining the development of the learning community concept, it is important to take a historical look at the major philosophical changes in education that directly influenced the emergence of this concept. The call to restructure the educational environment to meet the needs of students is not a new idea, and is characterized by one that emerged into conversations about educational reform within this country just prior to the turn of the 21st century. In 1997, educational author Phillip Schlechty wrote,

> Change in schools is much more urgently needed than most teachers and school administrators seem to realize. Indeed, I believe that if schools are not changed in

> dramatic ways very soon, public schools will not be a vital component of America's system of education in the 21st century. (p. xi)

Schlechty (1990) proposed the critical need to change the secondary school model from a ridged, procedure-driven environment rooted in traditional methodology to a structure that is flexible and responsive to the needs of the student. With the goal of increasing student success, this idea consisted of embracing the concept of changing the way that students and staff are grouped while changing the roles of the individuals and the structure of the establishment (Schlechty, 1990).

This sentiment, however, was not his alone. A reform movement prompted by the 1983 publication of *A Nation at Risk* (The National Commission on Excellence in Education, 1983) brought to light the vastness of deficiencies contained within the American education system and the paces at which America was behind other nations. This movement, however, was short lived and deemed a failure by the United States Department of Education through a published report in 1990, which stated, "stagnation at relatively low levels appears to describe the level of performance of American students" (Ogle & Alsalam, 1990, p. 26). This era, which became known as the Excellence Movement, gave way to what became known as the Restructuring Movement, where a pairing of national goals and local school district autonomy were simultaneously encouraged (DuFour & Eaker, 1998). A major portion of this movement became focused on "shared decision making, staff teams with frequent shared planning time, and shared responsibility for student instruction" (DuFour & Eaker, 1998, p. 7).

The spurring of the learning community concept into the mainstream educational arena by the Restructuring Movement inspired many authors during this time period.

Along with Schlechty, Peter Senge (1990) introduced his ideas regarding learning organizations through his landmark book The Fifth Discipline, which emphasized the needed shift from an authoritarian hierarchical approach of organizational structure to a movement toward promoting learning and collaboration. In setting the stage for his theoretical framework, Senge stated, "organizations that will truly excel in the future will be those that discover how to tap people's commitment and capacity to learn at all levels in the organization" (p. 4). Senge's ideas of "disciplines" incorporated five themes that compose an effective learning organization: systems thinking, personal mastery, mental models, building shared vision, and team learning. Through collaboration and the development of a structure that promotes discussion and dialog, centered on a common purpose, organizations will experience growth and potentially accomplish higher aspirations (Senge, 1990).

The five disciplines illustrated by Senge (1990) are vital and interwoven in the creation of a true learning system; however, the ideas of a "shared vision" and "team learning" are key attributes drawn from Senge's view of organizational structures and connected to the field of education. Senge stated that a shared vision is something that connects people and provides a focus and energy for learning together to benefit their organization, while Dufour and Eaker (1998) added that a shared vision creates motivation by appealing to a vision of the future. This intersection of theoretical ideas reveals opportunity for progress toward a common goal and fuels aspirations that can drive an organization toward its projected outcomes, even when difficulties arise. To support and create sustainability for this shared vision and increased commitment to the

organization, clear action steps must be generated to frame and establish a shared vision (Bolman & Deal, 2008; Kotter, 2007).

There are two key factors to consider when cultivating a shared vision and moving a teacher team toward collective commitment and productivity. First is the role of the school administrator. Principals are key to establishing a culture within their buildings that promotes a culture of learning that effectively creates improved student learning (Curtis & Wurtzel, 2010). Research conducted by Myers and Kline (2001) suggested that the principal or building leader's support of teacher teams had the greatest positive impact over all other organizational support factors studied. Allison et al. (2011) reported that the "principal is second only to the classroom teacher as an influence on student achievement" (p. 189). Through his meta-analytic studies, Hattie (2012) stated that the principal or building leader had an overall effect size of .39, indicating leaders can have a positive impact on the instructional practices of their school. The effect size, however, increases (ES = .89) when specifically looking at the impact an instructional leader, "one who attends to the quality and impact of all in the school regarding student learning" (Hattie, 2012, p. 154), has when a focus is placed on promoting and participating in teacher learning and development.

In addition to the level of impact principals have on teacher teams and the development of a shared vision, teachers must be systematically assigned to teams that work together on substantive issues and within a construct of a common purpose. Allison et al. (2011) stated, "whatever the impetus, the common factor is one's school leader's ability to move an organization that is replete with individuals, all of which possess a variety of opinions, many of which may not concur with those of the leader" (p. 44).

Whether staff members should be chosen based on their specific skill set and potential (Emmett & McGee, 2012; Katzenbach & Smith, 1993), the diversity of their opinions and beliefs (Myers & Kline, 2001), or by common grade levels, subject matter, or common students (Dufour & Eaker, 1998), teams should operate with a common purpose (Allison et al., 2011). Senge (1990), however, warned that the "fundamental characteristic of the unaligned team is wasted energy, however, when a team becomes more aligned, a commonality of direction emerges and individuals' energies harmonize" (p. 234). Putting people together and expecting them to be productive based only on how they are constructed does not alone ensure productivity. To this end, Katzenbach and Smith (1993) theorized that teams evolve through a theoretical framework called the "team performance curve" (p. 91). Within this curve, teams progress through the stages of working groups, pseudo-teams, potential teams, real teams, and high-performing teams, with each having specific characteristics that build and support each other. To reach the apex of a team's evolutionary process, a high-performing team must first be "equally committed to a common purpose and goals, but also must contain members who are deeply committed to one another's personal growth and success" (Katzenbach & Smith, 1993, p. 92).

Once the collective commitment is made within a team or organization through the cultivation of a shared vision, the next step must be developing a systematic method for achieving that vision. This step was illustrated by Senge (1990) as "Team Learning." Senge added that creating a system of shared learning within the premise of a shared vision can be powerful in moving an organization forward through the alignment of the collective efforts of its members to achieve the results that they desire. In support,

DuFour, DuFour, Eaker, and Karhanek (2004) stated that students would only achieve the desired outcomes of schools that envision high academic outcomes if teachers work collectively to both clarify their vision and commit to the potential outcomes as well. Members must have what Senge (1990) stated as an "operational trust" (p. 236), where members operate consciously and complementary to one another through a clear understanding of the practices of discussion and dialog. Through this collaborative process, teachers are pulled out of the isolationism that dominated the 20th-century educational environment and placed in teams that work interdependently to achieve common goals and collectively to improve the school's ability to help students achieve at high levels (Eaker, DuFour, & DuFour, 2002).

One emerging concept related to the learning communities model has been the call for the personalization of the learning environment. One such attempt was defined by the development of the Smaller Learning Communities Program by the Elementary and Secondary Education Act of 1965, which was reauthorized as part of the No Child Left Behind Act (NCLB) of 2001 (NCLB, 2003). To provide for a more personalized learning environment for students and as part of this legislative action, schools that enrolled a student population over 1,000 students were offered grants to develop smaller learning environments within their current larger environment (Steele, 2010). This concept is also widely labeled as the school within a school philosophy. To this end, Egalite and Kisida (2016) suggested "it is possible that individual secondary schools could develop strategies to address the negative potential of increased school size, such as a school within a school model" (p. 413). In recent research, Cox et al. (2015) suggested, "there is a growing consensus that such programs that include smaller school sizes, smaller

learning groups, and higher levels of personalization offer the greatest possibilities for improving graduation rates" (p. 111). Whereas the making of a school environment "smaller" can be accomplished in various ways, the underlying principle of personalization of the learning environment has generated additional research and discussion regarding the positive contributions it can have on the transition of students to high school.

Emmett and McGee (2012) along with Roybal et al. (2014) and Yonezawa et al. (2012) stated that through the use of the smaller learning community approach, students experienced a higher level of academic achievement due in part to the increased level of personalization they received through a smaller, more intimate structure of learning. Peters (2011) found that increases in student attendance and graduation rates could also be attributed to smaller learning environments. This positive correlation was attributed to "students becoming more engaged and by having at least one adult advocate actively monitoring their well-being at school" (Peters, 2011, p. 91). Expounding on this, Yonezawa et al. (2012) defined the purpose of a small learning environment or "small school" as "building up and enriching the connections of multiple adults to individual students" (p. 45). Due to this increased connection and purpose, teachers feel a greater sense of empowerment and effectiveness both in their classrooms and within their learning communities (Felner et al., 2007). With the combination of increased teacher efficacy through meaningful collaboration, coupled with the potential for an increase in subsequent teacher-student relationships, the smaller learning community model appears to provide a vessel to meet the needs of freshman students struggling with the high school transition (Ellerbrock, 2011; Lounsbury, 1996).

Within the last 3 decades, the development of learning communities has gone through an evolutionary process. Central to this concept is the idea that gathering teachers together with a common purpose and with a shared vision is a powerful agent for change within the school environment, tapping into a fundamental need that all human beings possess. As Senge (1990) stated, "shared visions derive their power from a common caring. In fact, we have to come to believe that one of the reasons people seek to build shared visions is their desire to be connected in an important undertaking" (p. 206) as well as to "a larger purpose *and* one another" (p. 230). This connection created between teachers is one fostered through this process and is a byproduct of the personalization of the learning environment. When applied to the teacher-student relationship dynamic, however, it also fulfills some of the developmental needs of high school freshmen (Ellerbrock & Kiefer, 2013).

Personalizing the Learning Environment

Ellerbrock and Kiefer (2013) found that ninth-grade students "yearned for a sense of personalization and connectedness within the high school setting similar to that which was experienced at the middle level" (p. 189). Likewise, Rutledge et al. (2015) provided recent research that concluded that the "differences between higher and lower performing schools were not in instruction but rather in ways in which they built personal connections and school cultures that set high expectations for students and staff" (p. 1072). This connectedness can be characterized as an increase in teacher-student relationships, which has been identified as the central component to the personalization of schools and serves as the solution to combat the feelings of isolation, irrelevance, and disengagement so often felt among students entering high school (Yonezawa et al.,

2012). In the creation of the relationship between students and teachers, teachers play a crucial role (Roybal et al., 2014). When this connection is characterized not only as emotionally warm and accepting (Hughes, 2012) but also as one with high teacher expectations coupled with a strong belief that students can achieve, higher academic achievement is evident (Emmett & McGee, 2012; Hughes, 2012; Rutledge et al., 2015; Van Maele & Van Houtte, 2010). Hughes (2012) stated the relationship with the teacher may also "reduce the poorly regulated child's level of stress reactivity, increase the child's sense of academic efficacy, or improve their peer reputation in the classroom, all of which may result in more productive classroom engagement" (p. 322).

In productive schools that focus on the personalization of the educational environment, a key tenet is the engagement of both teachers and students in both the learning of the classroom material along with gaining an understanding of each other through increased opportunities for communication (Felner et al., 2007). Furthermore, Felner et al. (2007) advocated that when schools are personalized, students become active participants within their learning experiences and shape their own experiences due to the relationships developed with their teachers. To support this, DeWit et al. (2011) conducted research among 2,616 high school freshmen in 23 different schools and found the support received from teachers "fulfilled certain functions or met particular student needs that are different from those met by having close interpersonal ties with classmates regardless of student age" (p. 566). Expounding on this research, Hazel, Pfaff, Albanes, and Gallagher (2014) found regardless of their level of risk or ability as they entered high school, the perception of the teacher caring about the student as a whole person was critical to student success. To accomplish this, schools must develop a structure within

the construct of the educational environment that fosters high-quality teacher-student relationships where students' needs are met on all levels. Simultaneously school leaders must increase the learning engagement and provide systems of assistance when students transfer to a new learning environment (Kiefer et al., 2015).

The concept of modifying the school environment to both fit the developmental needs of students through the personalization of the learning experience and promotion of relationships between teachers and students has been discussed in this review and supported by various researchers (Bernstein-Yamashiro & Noam, 2013; Eccles, 2004; Eccles & Roeser, 2011; Ellerbrock, 2011; Emmett & McGee, 2012; Hazel et al., 2014; Rutledge et al., 2015; Yonezawa et al., 2012). What has not been discussed is the structure through which this happens. Eccles (2004) emphasized that there is "little opportunity [in high schools] for students and teachers to get to know each other" and are "likely to undermine further the motivation and involvement of many students" (p. 143). Rutledge et al. (2015) added that "one explanation for the lack of focus on the social emotional side of schooling is the lack of understanding of how it works as a system within schools" (p. 1081). Consequently, authors such as Roybal et al. (2014) advocated for the creation of roles for educators and structures within the school setting designed to perpetuate a sense of connection for students and aid in the successful transition of students. As a recent strategy, Ellerbrock and Kiefer (2013) reported that in conjunction with smaller learning communities, schools have implemented interdisciplinary teams and academies in an attempt to personalize and create positive associations between students and the institution.

Felner et al. (2007) suggested that the creation of interdisciplinary teams is part of the process for creating systems that are personalized, while Ellerbrock (2011) added that the implementation of interdisciplinary teaming, with the aim of providing a supportive learning environment for both students and teachers, is imperative to achieve this goal (Ellerbrock, 2011). In an attempt to create the personalized environment needed for students in transition, a popular response in education, within this context, is the creation of freshman academies. In this scenario, students are separated logistically from the remainder of the school building and educated by a dedicated teaching and support staff (Ellerbrock, 2011; Emmett & McGee, 2012). Emmett and McGee (2012) along with Roybal et al. (2014) contested that the separation alone of an academy may create transitional issues in and of itself and that there is no need to physically separate teams such as this from the school. For example, McCallumore and Sparapani (2010) stated that schools who employ this type of strategy found that freshman transitional issues only shifted to the period from the freshman year to the sophomore year, and it also created unhealthy relationships between teachers who started to become committed only to the grade level they served, not the entire school as a whole.

Nellis (2012) defined the term *team* as a "group of two or more persons who share responsibility in decision making for the purpose of achieving a particular outcome" (p. 246), while Ellerbrock (2011) defined the term *interdisciplinary team* as "one that consists of a group of teachers from various subject areas and the students that they share" (p. 35). Furthermore, when applied within the context of professional learning communities, DuFour and Eaker (1998) stated that teams should be created around those who share students; these teams should focus on the needs of a shared group of students

and a common curricular content. The application of the interdisciplinary team concept initially had its roots as a bedrock component within the middle school teaming concept and has recently (according to Ellerbrock, 2011) become a high school reform effort attempting to replace the departmentalization defining high schools for decades. Within this construct, a system is established where students are grouped together with similar teachers in order to create a system of accountability and monitoring for and of the student's academic, behavior, and emotional well-being (Ellerbrock, 2011; Montgomery, 2015). Teaming within this structure has the potential to enrich connections of several adults to individual students (Yonezawa et al., 2012) as well as create a more supportive and individualized educational learning experience for students and teachers (Ellerbrock, 2011).

As stated previously in this chapter, to be effective the right teachers need to be assembled to maximize the effectiveness of any student-centered program. To support this, Nellis (2012) stated that "ensuring that teachers have the necessary knowledge and skill is important for implementation integrity and intervention design reasons" (p. 252). Kohn (1999) also argues that "simply putting people in groups does not ensure cooperation and that considerable effort and organizational commitment is required to turn groups into a team" (p. 188). Team members vary based on the needs of the students and the interventions dictated by the circumstances for creating the team in the first place (Nellis, 2012); however, teachers are a vital component to establishing an effective team because of their unique ability to "provide a bridge between the school and the individual student" (Ellerbrock & Kiefer, 2010, p. 394). To accomplish this, dedicated collaboration time must be established for teachers to communicate and plan with one another (DuFour

& Eaker, 1998; Ellerbrock, 2011; Emmett & McGee, 2012). For some teachers or high schools, this may require a shift from the traditional mindset. The times where the sole focus was about the delivery of content knowledge through instructional strategies to a shift to a holistic approach of creating a learning environment that is equally focused on instructional content as well as on relationship building with the individual child has become more of a need within the current educational landscape (Beland, 2014).

Educational research identifies barriers to the success of the teaming concept within schools. Nellis (2012) listed barriers to the development of teams as the following: lack of time to participate in team meetings, lack of a clear purpose, lack of a trust and respect between members, and lack of training and resources. Katzenbach and Smith (1993) echoed that, "groups that fail to become teams rarely develop a common purpose that can be translated into specific and actionable goals" (p. 52). Myers and Kline (2001) added that perceptually, "intervention teams are viewed as an elementary-level strategy or intervention and are often seen as a prereferral process for special education consideration" (p. 36). To combat this, leaders must first identify these barriers and then remove them before true team success can be achieved. According to Kotter (2007), people within the team or even the structure of the organization itself can act as a barrier to achieving success. Thus, Senge (1990) suggested that leaders focus on aligning the shared vision within the team as an "extension of their personal vision" (p. 235) in order to "harmonize the energies of the individuals within the team" (p. 234) to accomplish their desired outcomes. In the end, leaders must provide teachers the support they need to effectively work within the team structure by removing obstacles as well as provide the

necessary training in order to experience collective success (DuFour & Eaker, 1998; Emmett & McGee, 2012; Kotter, 2007; Myers & Kline, 2001).

When the learning environment is personalized, the student and teacher not only enter into an environment where the teacher becomes more in tune with the developmental needs of the student, but also enter into collaborative teacher relationships that foster learning and cohesiveness. Senge (1990) stated, "one of the deepest desires underlying shared vision is the desire to be connected to a larger purpose and to one another" (p. 230). This shared vision and common purpose creates cohesion through the meeting of a teacher's basic psychological needs for relatedness, competence, and autonomy (Ellerbrock, 2011). Through collaborative efforts within a team, teachers feel more competent to meet the needs of their students, and feel better equipped because of the support felt among their peers; it is the creation of a collective will to improve both the educational experience of their students and their own professional effectiveness that sustains the team (Ellerbrock, 2011; Emmett & McGee, 2012). Senge (1990) concurred, saying that this "vision becomes a living force only when people truly believe they can shape their future" (p. 231). Through the development of collaborative teams, teachers increase their own self-efficacy and create a vessel through which to create an exchange of effective strategies and offer moral support (Emmett & McGee, 2012; Felner et al., 2007). When this self-efficacy increases and the collaborative process is supportive, Ronfeldt et al. (2015) determined through their research of 9,000 teachers in 336 public schools that when teachers gain useful knowledge through collaboration there is a direct relationship to the increase in student achievement, regardless of whether the teachers around them collaborate at a high level or not. In other words, the achievement of the

students researched increased as the teachers' involvement in collaboration increased, thus providing a direct correlation between the participation in professional collaboration by the teacher and the achievement of students in the classroom (Ronfeldt et al., 2015). In disagreement, Reeves (2009) theorized that teachers, by nature, do not necessarily seek out or have the desire to collaborate because "true collaboration requires time, practice, and accountability" (p. 46). The leader, Reeves continued, has the power to create the right situation for effective collaboration to occur through the "communication of measurable expectations, defined adult actions, and through providing evidence of effectiveness" (p. 49). In support, Curtis and Wurtzel (2010) stated, "structures must be built for teachers to collaborate, to improve their practice, and to create a culture of continuous learning and improvement in order to find success" (p. 91). Thus, while the benefits of teacher collaboration extend to the fulfillment of both the personal and professional needs of the teachers involved, the vital component to creating this environment is the school leader (Curtis & Wurtzel, 2010; Reeves, 2009).

In summary, the creation of an interdisciplinary team of teachers that operates with a shared vision for increased student achievement, and more importantly a desire to meet the needs of students in transition, can become a powerful force within a high school. When such teams are formed, students do not go unnoticed, they feel cared for, and their basic and developmental needs are met (Ellerbrock, 2011). Because teachers share common students, the opportunity for professional discussions regarding strategies for struggling students occurs; it is this established structure and system that promotes a heightened sense of awareness of student academic progress (Emmett & McGee, 2012; Ronfeldt et al., 2015). Ellerbrock (2011) also added that this structure affords

opportunities to foster positive relations with students, to create individualized student attention, to establish early identification of at-risk students, and to see the whole student instead of just the student academically underperforming in the isolation of a teacher's classroom. In the end, Senge (1990) articulated that in order to create a shared sense of understanding within a group or team construct, educators must find ways to "know what is important and what is not important, what variables to focus on and which to pay less attention to" (p. 128). Through the creation of a systematic approach of establishing a personalized learning environment, by way of interdisciplinary teaming, the variables surrounding the effectiveness of the transition of high school freshmen can be identified and appropriately addressed.

Summary

This chapter has provided cause and a possible process for addressing the transitional issues found as students transfer into their freshman year of high school. The chapter began with the identification of the possible causes for the transitional issues surrounding this age group of students as well as provided the foundational groundwork for the remainder of the chapter and subsequent study. This chapter also provided a brief historical context of the development of the small learning community concept through the understanding of the fundamental thoughts of Peter Senge regarding organizational learning and applied that to the concept of professional learning communities. These fundamental understandings led to the discussion for the need to personalize the school setting and the importance of aligning this approach with the developmental needs of adolescents. Lastly, when applying these concepts to the transitional needs of high school freshmen, a possible solution emerges: a fundamental shift to the personalization

of the high school setting through the development of interdisciplinary teams; the solution was discussed and research was provided in its defense. The benefits to both the student and teacher were also discussed; however, what was limited in discussion was the empirical evidence related to the impact that an educational structure such as interdisciplinary teacher teaming could have on the academic achievement of high school freshmen, specifically the impact that it can have on the on-time graduation rate of high school students. This study attempted to look at the impact that the proposed teacher collaboration model, a personalized interdisciplinary teaming structure, has on the academic success of freshmen as they transition to high school.

CHAPTER THREE

METHODOLOGY

Introduction

Measured through the 4-year graduation rates of high schools within the states of Missouri and Kansas, the purpose of this quantitative study was to determine if the use of interdisciplinary teacher teaming had a direct impact on the academic success of freshman students. Schools were identified through an electronic demographic questionnaire distributed to all high schools in Missouri and Kansas. Four-year graduation rates were obtained through public records from the Missouri Department of Elementary and Secondary Education's Missouri Comprehensive Data System (MCDS) and well as the Kansas State Department of Education Data Central (KSDE Data Central). In addition, data were collected from the same sources in regard to the free and reduced lunch rates and school enrollments of all schools used within this study. The intention of disaggregating the data further provided another layer to explore demographically when looking into the effectiveness of interdisciplinary teacher teaming on the academic success of freshman students.

Evidence in literature suggests a need to focus on students entering their freshmen year of high school. High school-aged students who are academically unsuccessful during their freshman year of high school have a higher probability of not graduating from high school (Allensworth & Easton, 2005; Bottoms, 2008; Ellerbrock, 2011). In response, personalizing the educational experience for freshman students has become a topical focus of recent research (Felner et al., 2007; Neild, 2009; Warren, Fazekas, Rennie-Hill, Fancsali, & Jaffe-Walters, 2011; Yonezawa et al., 2012). To achieve this,

the idea of interdisciplinary teaming can be used to monitor the academic progress of and develop interventions for academically struggling freshman-aged students (Ellerbrock & Kiefer, 2010; Felner et al., 2007; Hazel et al., 2014; Nalls, 2011). This study was an attempt to demonstrate a potential impact through a detailed and carefully defined research process narrated within this chapter and analyzed in subsequent chapters.

Research Questions

Research centered on the following primary research questions with additional subquestions:

1. What impact does an interdisciplinary team of teachers in the high school setting have on the academic achievement of ninth-grade students as measured by the 4-year graduation rates of identified schools?
    a. What impact does an interdisciplinary team of teachers have on the 4-year graduation rates of economically disadvantaged freshman students?
    b. Based on student enrollment size, what impact does an interdisciplinary team of teachers have on the 4-year graduation rates of high school freshmen?
2. What impact does an interdisciplinary team of teachers in the high school setting (regardless of implementation year) have on teacher-student relationships as measured by building principal perception?

In order to answer the above research questions, the researcher made the following correlating null hypothesis statements:

$H_0$1 - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of freshman

students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1a - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of freshman students based on enrollment size, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1b - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of economically disadvantaged freshman students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$2 - The use of an interdisciplinary teaming model (regardless of year of implementation) does not demonstrate a statistically significant impact on the level of teacher-student relationship as measured by building principal perception.

Participants (Selection/Sampling)

In an attempt to avoid sampling error and bias, a researcher-developed initial questionnaire (see Appendix A) was sent to all public high school principals within the states of Missouri (n = 292) and Kansas (n = 205) contained within an e-mail introducing the researcher and the intent of the survey (see Appendix B). A comprehensive list of e-mail addresses was generated through the school district directories located on the Web sites maintained by the Missouri Department of Elementary and Secondary Education

and the Kansas State Department of Education. For the purposes of this study the researcher chose to eliminate all ninth- to 12th-grade high schools that operated as alternative, charter, private, online, or magnet schools. In addition, schools that were part of treatment facilities or juvenile detention centers were not used for this study as well. Schools that did not respond via e-mail were contacted electronically a second time. Schools within Missouri were contacted two additional times via e-mail in order to gather the needed information for initial identification purposes. The initial questionnaire was developed to identify schools that had the unique characteristics needed to satisfy the research questions described above. Two additional questions were asked at the end of the survey to provide additional insight into the methods used to build student-teacher relationships within each responding school. The distribution of the e-mail communication was conducted through a Google Sheets add-on entitled Yet Another Mail Merge with data collected within Goggle Forms. Within this questionnaire, the following information was gathered:

1. School district name
2. High school name
3. High school grade configuration
4. The type of integration of ninth-grade students within the school setting
5. Determination if interdisciplinary teacher teaming was used
6. Initial implementation year of interdisciplinary teacher teaming (if applicable)
7. Information regarding methods used to build student-teacher relationships

8. Rating of the level of impact these methods have on student-teacher relationships

Compatibility for this study was determined based on answering "Yes" on Questions 3 and 5, "No" on Question 4, and "On or prior to the 2012-2013 school year" on Question 6 of the questionnaire. In total, responses were received from 252 schools with a return rate of 50.7% of the surveyed schools. All information remained within the Google Cloud system and was password protected by the researcher.

After a sufficient return rate of the demographic questionnaire was reached, two distinctive categories of schools were determined. The first group was identified as schools that incorporated the use of interdisciplinary teacher teaming to monitor the academic progress of freshman students. The conditions used to become categorized within this group included the use of a dedicated group of teachers who met on a minimum of a monthly basis to discuss the academic progress of freshman students within a structure where ninth-grade students were fully immersed in a ninth through 12^{th}-grade school building. For the purposes of this study the schools that fit these criteria will be furthermore referenced as "interdisciplinary teaming schools." Based upon the responses gathered, a total of 47 schools were identified as interdisciplinary teaming schools. A purposive sampling of schools was also made and defined as schools that did not meet the criteria for being considered interdisciplinary teaming schools. This group met the demographic criteria that best matched each of the interdisciplinary teaming schools. These criteria are defined in subsequent sections within this chapter.

In accordance with the guidelines of Southwest Baptist University regarding the protection of human participants, a request for review was submitted to the Research

Review Board (RRB) for approval on March 29, 2017 to survey participants for this study. After receiving RRB approval, the demographic questionnaire was distributed and data collection began. In an effort to protect the identity of the school districts used for this study, the specific names of both the high schools and the school districts in which they resided were withheld and only referred to with an identifying letter and number (ex. A1). In addition, all information collected through the initial questionnaire was maintained on a password protected cloud-based database accessed through the researcher's computer.

Research Setting

The breadth of this study attempted to include as many high schools as possible in the states of Missouri and Kansas that utilized interdisciplinary teaming to determine the impact this strategy had on the academic success of high school freshmen. This success was measured through the analysis of 4-year graduation rates of the identified schools. Graduation rates were obtained through public records located on the Missouri Department of Elementary and Secondary Education's Web page through the MCDS as well as the KSDE Data Central. The origin of this data originated from the local school district level. In Missouri, pertinent school data were collected and disseminated through the Missouri School Information System (MOSIS). While in Kansas, data were collected through the Kansas Individual Data on Students (KIDS) system. The data for each public high school in both states were provided historically for the previous 5 school years from the latest reported date. Thus, the obtained data encompassed the graduation years of 2012 through 2016. In addition, each year's data were disaggregated demographically into various measurable subgroups. For the purposes of this study, the researcher chose to

use data from the 2016 graduating class so as to eliminate unknown variables that could be attributed to using data from various points in time. This same control and collection procedure not only was used for the collection of data pertaining to the ninth- through 12th-grade student enrollments but also used when collecting data pertaining to the economically disadvantaged students of the identified high schools.

Research Design

A demographic questionnaire was created and distributed to discern key characteristics of Missouri and Kansas high schools for the purpose of this study. Questions were designed to identify high schools that serviced ninth- through 12th-grades within the same facility as well as those that incorporated the use of an interdisciplinary team of teachers to monitor the academic progress of freshman students. Due to the established nature of the identified groups, a causal-comparative design was used to determine whether a relationship existed between schools that utilized this strategy and the 4-year graduation rates of their students. A causal-comparative nonexperimental study is one that attempts to determine the cause for existing differences in two established groups (Gay et al., 2009). For this study the two groups were defined as interdisciplinary teaming schools as one group and schools that did not incorporate this strategy as the second group. The researcher identified schools that did and did not incorporate interdisciplinary teacher teaming for freshman-aged students as the independent variables of this study and the 4-year graduation rate as the dependent variable. Once schools were identified as meeting the criteria for utilizing interdisciplinary teacher teaming to monitor the academic progress of freshman students,

4-year graduation data for each school were retrieved along with demographic data for the aforementioned subgroups.

Due to the nonexperimental nature of this study, relationships could only be suggested and not exclusively identified. This research design allowed for an inquiry into the effect interdisciplinary teacher teaming had on the outcome of 4-year high school graduation rates. Limitations of this research design existed and must be addressed. To begin, the identified test subjects used in this study were already determined and could not be manipulated. In the same light, the impact on the dependent variable had already occurred. As a result it was impossible to isolate the potential for additional variables that may have impacted the outcome of the independent variable since it already occurred. To begin to compensate for these limitations, the researcher surveyed all high schools within the states of Missouri and Kansas in an attempt to eliminate the possibility of sampling error and bias. In creating a comparative group of schools, parameters were established to effectively match a school with each of the identified schools. These parameters were also used to reduce sampling error and bias, and were illustrated in subsequent sections of this chapter.

Lastly, after all schools were identified and comparable schools were established, additional dependent variables were added to the study. These variables included ninth- through 12^{th}-grade student enrollment and the free and reduced lunch rates of each of the interdisciplinary teaming schools and comparable schools. An analysis of the 4-year graduation rates from these schools in relation to the additional independent variables was statistically analyzed and reported.

Instrumentation

The data instrument in this study used to measure student academic success was the 4-year graduation rate of high schools within the state of Missouri. These data were reported though the MCDS from the Missouri Department of Elementary and Secondary Education. Data collection occurred through the MOSIS at prescribed times (or cycles) throughout a calendar year as defined by the Missouri Department of Elementary and Secondary Education. MOSIS collected data from the local school district level and derived, standardized, and disseminated the data for public and institutional reporting and use. Once uploaded into MOSIS, the information was checked for errors and sent back to school district representatives for corrections (Missouri Department of Elementary and Secondary Education, 2016). At the local level the Superintendent or their designee was responsible for the data entry and certification of its accuracy. Of particular interest to this study, student enrollment and free and reduced numbers were also entered as part of the October and February cycle submissions while graduate information was included as part of the June cycle submission. In order to assure an accurate account of students within the state, each student was issued a unique MOSIS number. This number was used to individually track each student within the public school system and was used during all submissions of student-related data. This process of ensuring a student was only accounted for once exhibited an attempt to create validity and reliability of the MOSIS data collection system; however, validity and reliability of this data could not be statistically proven nor provided.

Similarly, the data instrument in this study used to measure student academic success was the 4-year graduation rate of high schools within the state of Kansas. These

data were reported though the KIDS system from the Kansas State Department of Education. Collection of the End of Year Accountability (EOYA) data pertaining to graduation occurred through the KIDS system in a prescribed period between the months of May and June after the school year of record as determined by the Kansas State Department of Education (2016). KIDS collected data from the local school district level and derived, standardized, and disseminated the data for public and institutional reporting and use through the KSDE Data Central. At the local level the Superintendent or their designee was responsible for the data entry and certification of its accuracy. Of particular interest to this study, student enrollment and free and reduced numbers were also entered and could be submitted to KIDS at any time throughout a school year (Kansas State Department of Education, 2016). In order to accurately account for students within the state, each student was issued a unique State Student Identifier (SSID) number (Kansas State Department of Education, 2017). This number was used to individually track each student within the public school system and was used during all submissions of student-related data. This process of ensuring that a student was only accounted for once exhibited an attempt to create validity and reliability of the KIDS data collection system; however, validity and reliability of this data could not be statistically proven nor provided. It could be argued that graduation rate, enrollment, and free and reduced lunch rates nationwide were data that could never be validated due to the reliance on local school districts to report it accurately and truthfully. For the purposes of this study the assumption that the data used were true and accurate was made; however, it did remain a potential limitation to the statistical portion of the study.

To create a comparative group of schools against which to test the stated hypothesis, specific criteria were established to identify the most comparable schools to those that were identified as utilizing the interdisciplinary teacher-teaming approach. These data were obtained from the MCDS and KSDE Data Central and were limited for the purposes of this study to the following demographic characteristics:

1. geographic region of the states of Missouri and Kansas;
2. ninth- through 12th-grade student enrollment; and
3. percentage of ninth- through 12th-grade students who were considered economically disadvantaged (free and reduced lunch percentage).

Based on the data points established from the criteria listed above, comparative schools were chosen by using qualifying parameters for each data point (see Appendix C). Parameters for the geographic region were limited to the designated supervisory areas as established by the Missouri Department of Elementary and Secondary Education (2017) and designated state board districts by the Kansas Legislative Research Department (2016). Student enrollment parameters were established at a plus or minus 400 students from the identified ninth- through 12th-grade student enrollment of the identified schools. This parameter was patterned after the resource standards established for identifying the quantity of school administrators needed within a school building as part of the Missouri School Improvement Program (2013). This established parameter represented the need for an additional 1 Full-Time Educator (FTE) recommended for a school building to operate efficiently per each additional 400 enrolled students. This standard was also applied to schools in Kansas to maintain consistency between both states used within this study. Lastly for the criteria of the free and reduced lunch percentages, a plus or minus

15% parameter was established and researcher-defined. After using the established parameters, a list of possible comparable schools was identified. The number of schools per identified interdisciplinary teaming school is noted in Table 1.

Table 1

Identified Schools and the Number of Eligible Comparable Schools

Identified School	Geographic Region	9th - 12th Grade Enrollment	Free and Reduced Lunch Rate	Eligible Comparable Schools
School A1	A	1,902	34.4%	6
School B1	A	1,370	13.6%	4
School C1	A	1,369	17%	4
School D1	A	418	48.1%	5
School E1	B	1,190	18.4%	1
School F1	B	1,106	17%	1
School G1	C	1,463	55%	2
School H1	C	1,429	50.3%	3
School I1	C	1,174	58.6%	1
School J1	C	700	32.1%	8
School K1	C	589	51%	15
School L1	C	491	64.4%	9
School M1	C	425	55.6%	14
School N1	C	421	63.5%	9
School O1	D	1,991	33.4%	2
School P1	E	1,479	57.2%	2
School Q1	E	320	65.1%	4
School R1	F	932	30.5%	1

Table 1 (Continued)

School S1	F	396	29.9%	2
School T1	F	273	39%	4
School U1	G	1,091	53.9%	1
School V1	G	690	44.3%	9
School W1	G	402	62.7%	9
School X1	G	212	46.1%	9
School Y1	H	784	61.8%	2
School Z1	H	354	47.2%	4
School AA1	H	240	20.8%	1
School AB1	H	69	25%	1
School AC1	A	949	29.1%	5
School AD1	B	2,548	28%	1
School AE1	1	1,081	91.97%	1
School AF1	1	225	40.89%	4
School AG1	3	869	0%	1
School AH1	3	908	0%	1
School AI1	3	2,110	16.92%	1
School AJ1	4	1,225	32.33%	1
School AK1	5	262	43.13%	8
School AL1	5	82	51.22%	6
School AM1	5	238	43.28%	6
School AN1	5	197	49.24%	6
School AO1	6	246	49.19%	4
School AP1	7	771	32.94%	1
School AQ1	8	792	10.61%	3
School AR1	9	521	52.4%	7

Table 1 (Continued)

School AS1	9	364	58.52%	9
School AT1	10	224	26.79%	4
School AU1	10	203	0%	1

A randomizer (www.randomizer.org) was used to select one school from the list of schools that were identified as suitable comparison schools for this study based on the established parameters. The randomizer online tool generated a series of random numbers or customized sets of random numbers for use in research. Through this process one school was identified to use in a comparable relationship with each interdisciplinary teaming school as identified through the demographic questionnaire. By using this process of randomized selection, the researcher attempted to eliminate the possibility of bias. The schools that were selected for this group and the correlating demographic data are represented in Table 2.

Table 2

Demographic Data for Interdisciplinary Teaming Schools and Comparable School

School	Student Enrollment	F/R Lunch Rate	School	Student Enrollment	F/R Lunch Rate
School A1	1,902	34.4	School A2	1,810	22.7
School B1	1,370	13.6	School B2	1,739	16.4
School C1	1,369	17	School C2	1,550	14.7
School D1	418	48.1	School D2	773	38.4
School E1	1,190	18.4	School E2	841	13.2
School F1	1,106	17	School F2	841	13.2

Table 2 (Continued)

School G1	1,463	55	School G2	1,748	54.2
School H1	1,429	50.3	School H2	1,389	37.6
School I1	1,174	58.6	School I2	1,356	51.4
School J1	700	32.1	School J2	475	41.6
School K1	589	51	School K2	207	45
School L1	491	64.4	School L2	260	60.4
School M1	425	55.6	School M2	442	44.2
School N1	421	63.5	School N2	205	59.2
School O1	1,991	33.4	School O2	1,866	21.2
School P1	1,479	57.2	School P2	1,100	55.6
School Q1	320	65.1	School Q2	311	70.6
School R1	932	30.5	School R2	590	46.4
School S1	396	29.9	School S2	381	18.2
School T1	273	39	School T2	114	51
School U1	1,091	53.9	School U2	750	49.1
School V1	690	44.3	School V2	750	49.1
School W1	402	62.7	School W2	198	52.5
School X1	212	46.1	School X2	169	31.5
School Y1	784	61.8	School Y2	435	47.4
School Z1	354	47.2	School Z2	571	39.9
School AA1	240	20.8	School AA2	228	29.9
School AB1	69	25	School AB2	1,900	22.4
School AC1	949	29.1	School AC2	773	38.4
School AD1	2,548	28	School AD2	228	29.9

Table 2 (Continued)

School AE1	1,081	91.97	School AE2	1,255	86.37
School AF1	225	40.89	School AF2	420	25.95
School AG1	869	0	School AG2[a]	699	24.61
School AH1	908	0	School AH2[a]	699	24.61
School AI1	2,110	16.92	School AI2[a]	2,415	41.28
School AJ1	1,225	32.33	School AJ2	1,164	34.79
School AK1	262	43.13	School AK2	38	65.79
School AL1	82	51.22	School AL2	139	54.68
School AM1	238	43.28	School AM2	545	55.23
School AN1	197	49.24	School AN2	545	55.23
School AO1	246	49.19	School AO2	64	50
School AP1	771	32.94	School AP2	412	32.77
School AQ1	792	10.61	School AQ2	1,401	21.98
School AR1	521	52.4	School AR2	548	59.67
School AS1	364	58.52	School AS2	162	67.9
School AT1	224	26.79	School AT2	570	25.61
School AU1	203	0	School AU2[b]	906	21.63

[a]An exact pairing was not possible based on responses. Pairs were made based on matching two of three criteria. [b]An exact pairing was not possible based on responses. Pairs were made based on matching one of three criteria.

Lastly, the graduation year of 2016 was used in all data comparisons. By isolating the year in which the data were both collected and analyzed, the potential for reducing any unknown variables associated with using data from various points of reference was increased.

Data Analysis

This causal comparative nonexperimental quantitative study was developed to determine if the use of interdisciplinary teaming in the high school setting had a significant statistical impact on the academic success of freshman students as measured by the 4-year graduation rates of the identified schools. Schools meeting the criteria as interdisciplinary teaming schools were given an identifying letter and number (ex. School A1) in order to be efficiently matched to schools that did not employ this strategy, but did have similar demographic characteristics (ex. School A2). To identify and determine compatibility, demographic data were retrieved from the MCDS and KSDE Data Central. Lastly, 4-year graduation rates were then retrieved from the same online databases.

Once the data were compiled and schools were matched in order to create statistically comparable paired grouping, a paired *t* test was completed to test for statistical significance between the two identified paired groupings. This statistical test was conducted through the administration of the Statistical Package for the Social Sciences (SPSS) software to test for significance between schools that utilized interdisciplinary teacher teaming to monitor the academic progress of freshman students and those that did not based on the 4-year graduation rates of each of the identified schools. The alpha level of .05 was used to determine significance for this test.

In order to answer the research subquestions stated in this report, the researcher also ran a two-way analysis of variance (ANOVA) to determine if within the interdisciplinary teaming group of schools there existed a statistical significance when additional independent variables (or factors) were introduced (student enrollment and free and reduced lunch rate). To use these variables categorically, ranges for the values of

student enrollment and free and reduced lunch rate were determined by the researcher. Student enrollment was divided into three categories – Small (1–450 students), Medium (451–1,000 students), and Large (1,001 or more students). Free and reduced lunch percentages were divided into two categories – Low (0%-40%) and High (41% - 100%). Once concluded, a post hoc test (Tukey's test) was conducted to determine between which groups a significance occurred.

Lastly, to isolate the perceived effectiveness of the interdisciplinary strategy upon teacher-student relationships, additional testing occurred between identified schools versus schools that do not employ this strategy. A *t* test was used by creating two unpaired groupings based on the reporting school's use of the interdisciplinary teaming strategy. For this test, the implementation year was not used as a factor in determining the categorization of the data. Measurement occurred in the form of a Likert-scaled response by surveyed high school principals in the states of Missouri and Kansas based on a 0- to 4-point scale.

Summary

This chapter outlined the process and methodology for this causal-comparative nonexperimental quantitative study. An initial demographic questionnaire was sent with the intent of identifying schools that met the requirements for this study. Once identified, comparable schools were found by using a defined set of criteria with set parameters. Additional demographic data along with the 4-year graduation rates of each school identified were gathered from the MCSD that was maintained by the Missouri Department of Elementary and Secondary Education as well as the Kansas State Department of Education Data Central. The instrument through which all schools were

identified was discussed. In addition, the plan for analyzing the data was outlined. Various tests were discussed in order to accept or reject the null hypothesis.

Chapter One addressed the need for concern over the dropout rate of high school students in the United States and provided a theoretical framework that may point to the cause for student dropout starting the freshman year. Chapter Two provided a literature review of the causes of the freshmen transition issue along with a theoretical discussion on the stage-environment fit theory. Chapter Four will provide an analysis of 4-year graduation rates for schools that incorporated interdisciplinary teams that monitored the academic progress of freshman-aged students versus demographically comparable schools that did not employ this strategy. Chapter Five will provide a summary of this project and the educational implications and significance of these findings for the educational environment and future studies.

CHAPTER FOUR

ANALYSIS OF DATA

Introduction

Research suggests a need for a reorganization of the high school setting by placing a higher priority on the need for developmentally responsive school structures and programs by personalizing the environment in order to meet the unique needs of adolescents (DeWit et al., 2011; Ellerbrock, 2011). Furthermore, Hazel et al. (2014) stated in research "how well the environment met students' needs greatly predicted their 9th grade success" (p. 417). One such approach to accomplishing this goal is the use of interdisciplinary teaming at the freshmen level to aid in the successful transition of these students from middle school to high school. Research, however, is sparse in determining the impact this approach has on the 4-year graduation rates of high school students. Thus, the intent of this study was to determine if the creation of a personalized school setting through the use of an interdisciplinary teaming approach had a direct impact on the academic success of freshman students as measured by 4-year graduation rates. High schools within the states of Missouri and Kansas that employed this strategy were identified and then statistically compared to schools that did not employ this strategy. Demographic characteristics such as geographic region within the state, student enrollment, and free and reduced lunch percentages were used to determine comparable schools for testing purposes. The demographics of student enrollment and free and reduced lunch percentages were studied as well. In addition, the researcher also examined the impact this strategy had on teacher-student relationships as measured by the perception of the building principal.

In this chapter, data will be reported to provide insight into the impact that this strategy has on the academic success of freshman students. The following research questions and subquestions were used to guide this research and will be analyzed throughout this chapter:

1. What impact does an interdisciplinary team of teachers in the high school setting have on the academic achievement of ninth-grade students as measured by the 4-year graduation rates of identified schools?
    a. What impact does an interdisciplinary team of teachers have on the 4-year graduation rates of economically disadvantaged freshman students?
    b. Based on student enrollment size, what impact does an interdisciplinary team of teachers have on the 4-year graduation rates of high school freshmen?
2. What impact does an interdisciplinary team of teachers in the high school setting (regardless of implementation year) have on teacher-student relationships as measured by building principal perception?

In order to answer the above research questions, the researcher made the following correlating null hypothesis statements:

$H_0$1 - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of freshman students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1a - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement

of freshman students based on enrollment size, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$1b - The use of an interdisciplinary teacher-teaming model does not demonstrate a statistically significant impact on the academic achievement of economically disadvantaged freshman students, as measured by the 4-year graduation rate of identified schools compared to schools of corresponding demographic characteristics.

$H_0$2 - The use of an interdisciplinary teaming model (regardless of year of implementation) does not demonstrate a statistically significant impact on the level of teacher-student relationship as measured by building principal perception.

The data were collected using an electronic survey (See Appendix A) administered to all ninth- to 12th-grade high school principals within the states of Missouri and Kansas. For the purposes of this study the researcher chose to eliminate all ninth- to 12th-grade high schools that operated as alternative, charter, private, online, or magnet schools. In addition, schools that were part of treatment facilities or juvenile detention centers were not used for this study as well. In total, 497 schools were identified as possible participants with 252 schools responding to the survey, resulting in 50.7% return rate. Within the returned surveys, 47 high schools were identified as having implemented the strategy of interdisciplinary teaming prior to the 2012-2013 school year. These results were used in quantitative analysis to address the research questions. To accomplish this, a paired *t* test was utilized to test for significance between schools that

employed this strategy and their 4-year graduation rates as compared to schools that did not use this strategy. In addition, a two-way ANOVA as well as a multiple linear regression was used to analyze significance and the predictability of the demographic characteristics addressed in the subquestions. Finally, to analyze the perceived relationship rating of principals of schools who employed the strategy of interdisciplinary teaming, a *t* test was used to determine if significance existed.

Interdisciplinary Teaming and 4-Year Graduation Rates

To answer Research Question 1, the researcher used a paired *t* test to determine if statistical significance existed between schools that used interdisciplinary teaming to monitor the academic progress of freshman-aged students and those that did not use this strategy. Each school's 4-year graduation rate was used as the measurement to determine academic success in the statistical analysis. Based on the survey results, 47 schools were identified as using interdisciplinary teaming on or before the 2012-2013 school year. The 2012-2013 school year was used as the cutoff year since the 4-year graduation rates of 2016 were used in this study, thus ensuring that the graduating class of 2016 (at minimum) was subjected to the interdisciplinary teaming strategy during its freshman year. In order to determine a paired school for each identified school, demographic qualifying criteria were used and applied to all responding schools that did not use interdisciplinary teaming on or prior to the 2012-2013 school year. These criteria consisted of geographic region within the state, school enrollment, and free and reduced lunch percentage. Parameters were set for each of the three criteria items in order to create the closest demographic match possible for each identified school (see Appendix C).

When determining a comparable school for each interdisciplinary teaming identified school, 32 of the 47 identified schools had more than one eligible comparable school. Consequently, four schools did not have a comparable school based on the identified criteria and established parameters. Three of these schools were matched with another school by using 2 of the 3 established criteria with the remaining school matched based on 1 of 3 established criteria points. To avoid potential researcher bias and to fully explore this research question, six separate random pairings of schools were created. These pairings were created through random selection through the use of an online tool (www.randomizer.org). A paired *t* test was used to determine a statistical significance for each set of paired groupings at the $p < .05$ level. When analyzing the *p* value of each set of paired groupings, as shown in Table 3, the results indicated that a strong statistical significance occurred between schools that employed the strategy of interdisciplinary teaming and their school's 4-year graduation rates when compared to schools that did not use interdisciplinary teaming.

Table 3

p Value for Each Set of Paired Grouping

Paired Grouping Set Number	*p*
1	.001*
2	.023*
3	.028*
4	.257*
5	.001*
6	.038*

*$p < .05$.

In addition, the mean differential between schools that used interdisciplinary teaming as compared to their paired schools can provide additional insight. For each set of paired groupings (1-6) the mean differentials were as follows: 3.37, 3.51, 2.57, 3.02, 2.80, and 2.05, respectively. These differentials indicated that interdisciplinary teaming high schools had 4-year graduation rates that were on average between 2.57 and 3.51 percentage points higher than non-interdisciplinary schools of similar demographic criteria.

Based on these results, the null hypothesis ($H_0 1$) was rejected. It is worth noting that Data Pairing 4 did not show significance ($p = .257$). Whereas this data pairing did not fall under the established threshold to indicate significance ($p < .05$), it did result in a mean differential of 3.02, indicating that even though significance was not found, schools that used an interdisciplinary approach resulted in a higher 4-year graduation rate than comparable schools used within this data set. Coupling this information with the significance results from the other five sets of paired groupings, it could then be assumed that the result from Data Pair 4 may merely have been an outlier.

Looking specifically at schools that employed the strategy of interdisciplinary teaming prior to the 2012-2013 school year ($N = 47$), the researcher desired to understand the impact of demographic factors such as student enrollment and free and reduced lunch percentages have on the effectiveness of this strategy. In order to answer subquestions 1a and 1b, statistical significance was determined both between these two factors as well as within the factors themselves. To accomplish this, a two-way (ANOVA) was used to determine if within the interdisciplinary teaming group of schools a statistical significance upon the 4-year graduation rates of schools existed when these additional

independent variables (or factors) were introduced. To use these variables categorically, ranges for the values of student enrollment and free and reduced lunch percentage were determined by the researcher. Student enrollment was divided into three categories – Small (1–450 students; $N = 16$), Medium (451 – 1000 students; $N = 16$), and Large (1,001 or more students; $N = 15$). Free and reduced lunch percentages were divided into two categories – Low (0%-40%; $N = 22$) and High (41%-100%; $N = 25$).

In analysis, all factors were tested at a significance level of $p < .05$. When comparing 4-year graduation rates with school enrollment size, no significant statistical interaction was determined, $F(2,41) = 2.477$, $p = .096$, and when compared to free and reduced lunch percentages a statistical significance was also not found, $F(1,41) = 3.653$, $p = .063$. Likewise, when both factors were compared together in association to the 4-year graduation rates of the identified schools, no statistical significance was found, $F(2,41) = .358$, $p = .701$. Due to these results a post hoc test was not necessary; however, further analysis of the between and within grouping data did provide a platform for additional discussion when the mean values of these pairings were analyzed. Comparing student enrollment and 4-year graduation rates of high schools that utilized interdisciplinary teaming, the mean for schools that were medium in size ($M = 95.747$) was marginally larger than that of small-sized schools ($M = 94.747$) but was even larger as compared to schools that were larger in size ($M = 91.804$). This mean difference of 3.943 percentage points indicated that this strategy may be more effective at schools that have populations that are between 451–1,000 students as compared to schools that are greater than 1,000 students and to a smaller degree, less than 450. Additionally, when comparing free and reduced lunch percentages and 4-year graduation rates, the mean difference between

schools with a low percentage of free and reduced lunch students (M = 95.521) was 2.851 percentage points greater than that of schools with a high percentage of free and reduced lunch students (M = 92.521). Combining both factors in comparison to 4-year graduation rates, it was revealed that schools that are small in size and low in free and reduced lunch percentages have a higher mean 4-year graduation rate (M = 96.695) while schools that were large in size and high in free and reduced lunch rates have the lowest mean (M = 90.025) of any other combination of factors analyzed.

To explore this data further, the researcher calculated a multiple linear regression to determine if the possibility of using this data to predict 4-year graduation rates based on student enrollment size and free and reduced lunch percentages among the identified schools existed. A significant regression equation was found ($F(2, 44) = 4.037$, $p < .025$), with an R^2 of .155, with the identified school's predicted 4-year graduation rate equal to 99.472 - .093 (F/R lunch percentage) - .002 (Student Enrollment). Identified school's 4-year graduation rates decreased .093 units as each unit of free and reduced lunch percentage increased, while 4-year graduation rates decreased .002 units as each unit of student enrollment increased. It can then be concluded that free and reduced lunch percentages can be classified as a significant predictor ($p = .016$; $p < .05$); however student enrollment was not found as a significant predictor ($p = .080$; $p < .05$).

In summation, the results produced from the 2-way ANOVA analysis indicated that the impact of the independent variables (factors) on the dependent variable, at various levels, was not statistically significant. Furthermore, the same independent variables were tested for their ability to predict the dependent variable in a linear regression model. Whereas one independent variable (free and reduced lunch

percentage) showed significance in predicting the dependent variable, the negative correlation only supported current research and data on all high schools regardless of what strategies are employed at the freshman level (Cox et al., 2015; U.S. Department of Education, 2016a). Based on these results the research accepted Null Hypothesis $H_0$1a and Null Hypothesis $H_0$1b.

Perceived Impact on Teacher-Student Relationships

Data used in answering Research Question 2 were gathered from responses to Question 8 on the Identification Survey (see Appendix A) sent and collected from responding Missouri and Kansas public high school principals. This question asked principals to rate, in their opinion, the impact their freshman transition efforts have had on teacher-student relationships. Results were reported on a 0- to 4-point Likert scale with 0 representing *not applicable* (*no formalized program in place at the time*) to 4 representing *significant impact*. All responses were separated into two groups by using the responses from Question 5 within the Identification Survey. This question asked if the school in question used an established team of interdisciplinary teachers and/or staff members who meet on at least a monthly (minimum) basis to monitor the academic, emotional, and behavioral progress of ninth-grade students? Those responding yes (N = 91) and those responding no (N = 141) were placed into two categories. A t test was then conducted to identify the level of significance between the use of interdisciplinary teaming within high schools and their perceived relationship rating. With a significance level set at $p < .05$, the results indicated a p-value of < .001 when comparing the means and standard deviations of schools that use interdisciplinary teaming (M = 3.52, SD = 1.129) and those that did not employ this strategy (M = 2.70, SD = 1.492). With the

reported *p*-value well below the threshold of $p < .05$, it could be determined that significance existed and relationship ratings in schools that employed an interdisciplinary teaming strategy were higher than those schools that did not employ the same strategy, thus the null hypothesis ($H_0 2$) could be rejected. From these results it could be determined that schools who employed the use of interdisciplinary teaming at the high school level developed stronger relationships with their students due to increased interaction and awareness of their academic progress and needs.

Summary

The purpose of this study was to determine if the creation of a personalized school setting through the use of an interdisciplinary teaming approach had a direct impact on academic success of freshman students as measured by the 4-year graduation rates of schools within the states of Missouri and Kansas compared to schools that did not employ this strategy. The data were collected in a causal-comparative nonexperimental quantitative study using an electronic identification survey sent to all public high school principals in the identified states, resulting in 252 responses (50.7% return rate) and 47 identified schools that employ the strategy involved in this study. The data were analyzed by using a paired *t* test, 2-way ANOVA, multiple linear regression analysis, and an independent *t* test to test for significance within the data gathered as well as analyze additional demographic factors. Whereas significance was found between schools that employed this strategy and their 4-year graduation rates as well as their perceived teacher-student relationships, it was not conclusively determined that demographic factors had an impact on the effectiveness of this strategy. The following chapter will

draw this study to a close by providing an analysis and conclusions drawn from the study as well as recommendations for future study within this topic.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

On-time graduation rates of high schools within this country have steadily increased since the 2010-2011 school year (The White House, Office of the Press Secretary, 2016). Whereas this was also the first year graduation rates of all states were consistently reported using the same 4-year adjusted measure for high school completion, the ability to graduate students from secondary-level education still fell well below those of other countries (Organisation for Economic Co-operation and Development, 2016). Coupled with the well documented struggles of high school freshman students during their transition from middle school to high school (Allensworth & Easton, 2005; Beresford, 2013; Black, 2004; Bottoms, 2008; Ellerbrock, 2011; Ellerbrock & Kiefer, 2013; Emmett & McGee, 2012; Felner et al., 2007; Roybal et al., 2014; Rutledge et al., 2015), a point of origin begins to manifest itself when discussing how to boost the this country's on-time high school graduation rates.

Many researchers suggest that a process of personalizing the traditional high school learning environment would be a step in the right direction (Felner et al., 2007; Rutledge et al., 2015; Yonezawa et al., 2012). To accomplish this, schools should use an interdisciplinary teacher-teaming model to monitor the academic progress of each student while developing interventions for those who are academically struggling (Ellerbrock & Kiefer, 2010; Felner et al., 2007; Nalls, 2011). The fundamental shift, however, would require the development of an educational environment more in tune with the developmental needs of the students where the promotion of increased relational bonds

between teacher and student are present (Eccles & Midgley, 1989) versus the traditional high school environment characterized by departmentalization and credit accumulation (Ellerbrock, 2011; Ellerbrock & Kiefer, 2010; Neild, 2009). To emphasize this, Rutledge et al. (2015) stated, "learning in schools is a social process in which both adults and students benefit from environments that cultivate and encourage their social and emotional well-being" (p. 1061). To measure the effectiveness of this approach, quantified statistical research is limited. Thus, the researcher attempted to explore the use of an interdisciplinary team of teachers to monitor the academic progress of freshman students on the 4-year graduation rates of schools within the states of Missouri and Kansas through a quantitative approach.

Summary of Methods

Principals from all ninth- to 12th-grade high schools within the states of Missouri and Kansas were electronically surveyed in order to gain identification information and quantifiable insight into their perceptions on the impact interdisciplinary teaming strategies had on the teacher-student relationships within their buildings. The distribution of the e-mail communication was disseminated through a Google Sheets add-on entitled Yet Another Mail Merge with data collected within Goggle Forms. For the purposes of this causal-comparative nonexperimental study the researcher chose to eliminate all ninth- to 12th-grade high schools that operated as alternative, charter, private, online, or magnet schools. In addition, schools that were part of treatment facilities or juvenile detention centers were not used for this study as well. In total, 497 schools were identified as possible participants, with 252 schools responding to the survey, resulting in a 50.7% return rate. Among the returned surveys, 47 high schools were identified as

having implemented the strategy of interdisciplinary teaming prior to the 2012-2013 school year, allowing for the use of 4-year graduation rates from the 2016 graduating class as the measurement data for this study.

Analysis of the collected data necessitated a need to create pairings for each identified school. In order to create a statistical pairing, comparative schools were chosen through researcher-defined qualifying criteria (see Appendix C). Due to the nonexperimental nature of this study, however, relationships could only be suggested and not exclusively identified. These criteria consisted of geographic region, school enrollment, and free and reduced lunch percentages. Parameters were set for each criterion in order to establish the closest demographic match possible for each identified school. All demographic data were collected through publicly accessed databases maintained by the respective departments of education in the states of Missouri and Kansas. Data were analyzed using the SPSS software.

Conclusions

The purpose of this study was to determine if the creation of a personalized school setting through the use of an interdisciplinary teaming approach had a direct impact on academic success of freshman students as measured by their 4-year graduation rates. High schools within the states of Missouri and Kansas were identified for use within this study through a survey (see Appendix A) electronically distributed to all ninth- to 12th-grade principals. From this study, the researcher desired to illustrate the importance of personalizing the high school experience for freshman students in order to combat the transitional issues associated with students moving from the middle to high school

setting. To guide this study, research questions were developed and an analysis of these questions, in light of the statistical findings, is provided below.

Impact of interdisciplinary teaming on student academic success and the personalization of the learning environment. The first research question stated, what impact does an interdisciplinary team of teachers in the high school setting have on the academic achievement of ninth-grade students as measured by the 4-year graduation rates of identified schools? To ascertain if an impact existed, comparable schools were identified through researcher-defined qualifying criteria (see Appendix C). Once matched, a paired *t* test was run to determine if a statistical significance could be identified. Results from this test indicated that statistical significance ($p < .05$) was found between schools that had employed the use of interdisciplinary teams of teachers to monitor the academic progress of freshman students versus similar schools that did not employ this strategy. When examining the data further, the researcher found that the 4-year graduation rate mean of schools that used this strategy was not only higher than the mean of schools that did not use this strategy but was also significantly higher than the national and local averages during the same time frame. Of the six sets of paired groupings, the largest mean differential proved to be 3.51 percentage points (Set 2) greater than the mean of compared schools ($M = 90.555$) used for this study. On a broader scale, the mean of the identified schools ($M = 94.0687$) was 10.87 percentage points greater than the national average (83.2%) and 6.27 and 8.37 percentage points greater than the averages of Missouri (87.8%) and Kansas (85.7%), respectively (U.S. Department of Education, 2016b). Based on these results, the use of interdisciplinary teaming could be confirmed as displaying a positive impact on the academic success of

freshmen students within the states of Missouri and Kansas when using 4-year graduation rates as the measurement of success. This result allowed the researcher to reject the associated null hypothesis ($H_0 1$).

Furthermore, this study also illustrated the positive impact the use of interdisciplinary teaming of teachers can have on the personalization of the learning environment. In literature, Yonezawa et al. (2012) reported the product of personalizing the learning environment was an increased level of teacher-student relationships. To determine this, the second research question asked, what impact does an interdisciplinary team of teachers in the high school setting (regardless of implementation year) have on teacher-student relationships as measured by building principal perception? Results from collected surveys identified 91 schools that employed the use of interdisciplinary teams to monitor freshman student academic progress and 141 schools that did not employ this strategy. Data were collected from participating high school principals in the form of a survey question asking them to rate their perceived level of teacher-student relationships as a result of their efforts to combat the commonly understood transitional issues of freshman students. Results were reported on a 0- to 4-point Likert scale. The researcher chose not to consider the year of implementation during statistical analysis due to the desire to assess the perception of the teacher–student relationship within the context of the present; thus a rating scale was used in lieu of 4-year graduation data that were more time bound. Perception ratings were gathered from collected surveys and statistically analyzed using a *t* test. Results from this test indicated that a statistical significance ($p < .05$) existed when comparing the ratings from schools identified as using the interdisciplinary teaming strategy versus schools that indicated they did not use this

strategy. This result was congruent with current literature and research, resulting in a rejection of the associated null hypothesis ($H_0$2).

Conclusions drawn from these data can come concurrently from this research as well as find support in the literature and research of other educational authors. Based on the results of this study, the researcher can state the use of interdisciplinary teaming at the high school level to monitor the academic progress of freshman students had a positive impact on their academic success through the promotion of a personalized environment where teacher-student relationships were present and positive. In support, literature suggests that when these teams are created a more intimate structure of learning evolves, resulting in improvements in achievement, attendance, and graduation rates, but most importantly, an advocacy for the student's well-being at school emerges as well (Cox et al., 2015; Emmet & McGee, 2012; Peters, 2011; Roybal et al., 2014; Yonezawa et al., 2012). Furthermore, Yonezawa et al. (2012) identified increased relationships as the central component to the personalization of schools and serves as the solution to combat many of the emotional barriers that are often felt as students transition to high school. Teams of this nature also reduce instances where students go unnoticed (Ellerbrock, 2011), due to the increased opportunity for collaboration resulting in a heightened sense of awareness of student academic progress (Emmet & McGee, 2012; Ronfeldt et al., 2015). Relationships between teachers and students have a chance to flourish since conversations include consideration to the social and emotional needs of the student, going beyond the narrow focus of academic progress that is associated with the traditional method of education as a result of this approach (Ellerbrock, 2011). Expounding further, the researcher can suggest teacher efficacy increased due to the

existence of a collaborative structure centered on student needs. Teachers feel a greater sense of empowerment and effectiveness due to the connections formed within collaborative groups both in their classrooms and within their learning communities (Felner et al., 2007) due to a connection to a larger purpose and the development of a collective will (Emmett & McGee, 2012; Senge, 1990). Whereas these factors were not measured within this study, additional research states when self-efficacy increases and the collaborative process is supported, a direct relationship between the increase in student achievement and teacher knowledge gained through collaboration exists (Ronfeldt et al., 2015).

Demographic factors' impact on interdisciplinary teaming. The researcher attempted to dive deeper into the information gathered for Research Question 1 by looking at the demographic characteristics of each of the reporting schools in relation to the identified strategy and coinciding 4-year graduation rates. The researcher posed the following research subquestions: (a)What impact does an interdisciplinary team of teachers have on the 4-year graduation rates of economically disadvantaged freshman students? and (b) Based on student enrollment size, what impact does an interdisciplinary team of teachers have on the 4-year graduation rates of high school freshmen? Consequently, return rates for a proper analysis of these data were not large enough to identify a statistical significance between the use of the interdisciplinary teaming strategy and 4-year graduation rates based on the demographic factors used. Whereas a sample size was large enough to detect significance when using all responses, for the purposes of analyzing the data demographically, data were divided into smaller segments in order to create categorical factors for analysis. Therefore the researcher cannot claim statistical

significance was found, accepting the null hypotheses for both proposed subquestions of Research Question 1 ($H_0$1a and $H_0$1b).

Conclusions, however, can still be drawn from this data. A comparison of means revealed that schools that are medium in size (451-1000 students) have the greatest 4-year graduation rate mean (95.747), while schools that have a low free and reduced lunch percentage also have the largest 4-year graduation rate mean (95.521). When both factors are compared concurrently while keeping the 4-year graduation rate as the dependent variable, the combination of schools that were small in size (less than 450 students) and had a lower free and reduced lunch percentage (less than 40%) had the highest overall 4-year graduation rate mean (96.695). Taking this into consideration, the researcher could make connections between literature and the data gathered. Understanding that significance was not found when running the 2-way ANOVA analysis, a multiple linear regression analysis was also run to determine if either demographic criteria used (student enrollment and free and reduced lunch percentage) could be a predictor of 4-year graduation rates in schools that used interdisciplinary teaming. From the findings it was determined that free and reduced lunch percentages could be classified as a significant predictor of 4-year graduation rates (B = -.093; p = .016; p < .05); however, student enrollment was not found as a significant predictor (B = -.002; p = .080; p < .05). These findings are consistent with current research and literature. Statistically, 4-year graduation rates nationwide are significantly lower among students of lower income when compared to overall rates (U.S. Department of Education, 2016a). Researchers Bernstein-Yamashiro and Noam (2013) along with Cox et al. (2015) concluded that poverty causes increased stress and despair on young people and is a significant factor in

student promotion from the ninth to the 10th grade, where size of school enrollment had slightly less of an impact. Thus, it can be theorized that if a larger sample size could be used by the researcher it may also yield similar results.

What is not known is the impact interdisciplinary teaming, when used to monitor the academic progress of freshmen-aged students, can have in order to combat the identified demographic factors that negatively impact 4-year high school graduation rates. Whereas the researcher was unable to come to this conclusion statistically, what is known is that schools that employ this strategy have higher 4-year graduation rates than comparable schools of similar demographics. Furthermore, schools that are smaller in size and have a lower free and reduced lunch percentage have a higher average 4-year graduation rate as compared to other combinations of high school demographics used in this study. In the end, conclusions can then be loosely developed to suggest if a larger sample size was used the possibility of reversing the findings of other researchers may exist; however, based on the findings of the researcher the data collected confirms that of previous research on this topic.

Educational Implications

In this study the researcher attempted to take the concept of interdisciplinary teaming and apply it to the high school environment. Whereas this concept is common at the elementary and middle school levels (Ellerbrock & Kiefer, 2013; National Middle School Association, 2003) the researcher attempted to assess its effectiveness at the high school level in providing a personalized learning environment that addressed the social and emotional needs of students while benefitting them academically as well. Research on this topic remains minimal and localized in scope, particularly when looking at the

long-ranging impacts of this type of strategy. Thus, the researcher chose to use 4-year graduation rates as a measurement of success. By doing this, implications surrounding the impact of a successful transition to high school can have on the remainder of a student's high school career can be developed and analyzed.

The struggles that students experience when transitioning from middle school to high school are well documented in research (Allensworth & Easton, 2005; Beresford, 2013; Black, 2004; Bottoms, 2008; Ellerbrock, 2011; Ellerbrock & Kiefer, 2013; Emmett & McGee, 2012; Roybal et al., 2014). In an attempt to understand why students struggle during this transition, the theory of Eccles and Midgley (1989), known as stage-environment fit, was used to analyze this topic through the lens of the social and emotional needs of adolescents as they progressed through their years of schooling. Authors Rutledge et al. (2015) stated, "When adults in schools provide positive personalized experiences, they include not only instructional approaches that target students' interests, experiences, and learning needs but also a personalized school environment that reflects 'an ethic of caring'" (p. 1081). Eccles and Midgley (1989) along with Ellerbrock and Kiefer (2013) contended this "ethic of caring" is not translated into the practices of schools as students become older, especially when they reach high school age. To combat this documented problem within education, this study provides an avenue that can be explored in hopes to address the unresponsiveness of the current high school structure. Through the use of interdisciplinary teaming at the high school level to monitor freshman students, the results of this study give credence that this strategy can have both a positive impact on the academic success of freshman students as well as the quality of the relationships students can have with their teachers. Other current research

does offer ideas and theories to combat this problem in the form of freshmen academies (Ellerbrock, 2011; Emmett & McGee, 2012; McCallumore & Sparapani, 2010), or the generalized concept of the personalization of the educational environment (Felner et al., 2007; Rutledge et al., 2015; Yonezawa et al., 2012); however the issues associated with the concept of an academy are well documented as well (Emmett & McGee, 2012; Habeeb, et al., 2009; Lyons, 2014; McCallumore & Sparapani, 2010; Roybal et al., 2014). Thus, this approach to personalization of the school environment provides a strategy for further exploration by current high school educators and researchers in their attempt to combat the documented struggles freshman students face as they transition from middle to high school.

An approach of this nature also has potential to create a smaller learning environment within a much larger construct. By increasing the contact between teacher and student beyond the instructional interaction that occurs within the classroom, the potential for positive connections to be made within an interdisciplinary teaming structure is also supported by the results of this study. Therefore, potential exists for the elimination of the isolationism, irrelevance, and disengagement that is experienced by many incoming freshman students (McCallumore & Sparapani, 2010; Yonezawa et al., 2012). Recent research also agrees, stating higher performing schools were not necessarily productive due to instructional reasons but rather in their ability to build personal connections between teacher and student (Rutledge et al., 2015). Teachers play a vital role in the creation of the relationships between themselves and students that can not only have a positive impact on the academic achievement of the student but on the

elimination of some of the emotional barriers that students face as well (Hughes, 2012; Roybal et al., 2014).

Going deeper into the social and emotional needs of students as they enter high school, this study reveals that a strategy such as teacher teaming, whose goal is to monitor freshmen students' academic success, has potential to have an impact on their nonacademic needs as well. Coupling the significance found in the impact this strategy has on 4-year graduation rates with the significance reported in the perceived teacher-student relationships, this study adds to this niche of research. On a larger scale, this is a growing need within all levels of education nationwide. As stated earlier in this study, in 2015, 20.3% of school-aged children lived in poverty (U.S. Census Bureau, 2016) while in the same year only 65% of children lived in households with both parents (Interagency Forum on Child and Family Statistics, 2016). Poverty can be characterized as a significant factor that influences a student's ability to graduate from high school (Cox et al., 2015), where statistically only 76.1% of economically disadvantages students graduated from high school during the 2012-2013 school year (U.S. Department of Education, 2016a). Poverty, however, is not the only societal pressure that students face. The evolving emotional, cognitive, and social needs of children (Eccles, 2004) along with the high school adolescents' developmental needs in the areas of relatedness, connectedness, and self-efficacy (Beresford, 2013; Ellerbrock, 2011; Hughes, 2012; Purzer, 2011) all create additional societal pressures compounding the experiences of crisis, anxiety, and even depression for many teenagers (Bernstein-Yamashiro & Noam, 2013). An attempt was made within this study to assess the impact that interdisciplinary teaming can have on the demographic characteristics of poverty and enrollment size;

however, the results were not conclusive. The trends that this data revealed, however, do provide some insight. Schools with smaller enrollment sizes and lower free and reduced lunch rates reported higher 4-year graduation rate averages than schools of all other combinations of these demographic characteristics. While this result is congruent with other research, it does reveal the need for additional analysis. With this said, high schools have the responsibility to take care of all students who walk through their doors. A shift from credit acquisition to addressing the whole student is a needed mental shift to address the societal needs of today. This study provides a strategy to begin addressing this issue and allows for a platform for additional research and conversation.

Recommendations for Further Research

The following recommendations will add to the current body of research examining strategies to combat the documented struggles that freshman-aged students experience as they transition from the middle school to high school. This additional research can attempt to address this issue but can also allow for a deeper understanding on meeting the social and emotional needs of students as well. It is suggested that further research be expanded to encompass a larger sample size of surveyed high schools. The researcher used a large enough sample size to address the primary research questions; however, subquestions could not be fully answered due to a small sample size. To avoid potential Type I and Type II errors, expanding the radius of the geographic scope of the study would be necessary in order to explore the impact demographic factors have on student success and the effectiveness of the use of interdisciplinary teaming at the freshmen level of high school.

Additionally, the researcher recommends expanding the concept of interdisciplinary teaming to additional high school grade levels. Longevity of this strategy and the impact it has on the overall academic, social, and emotional development of students at all grade levels could provide insight into the impact a developmentally responsive high school can have on the success of students at this developmental stage. Sustainability and feasibility of this type of system would have to be explored.

The perceptions of teachers and students within this process can provide for additional research material and insight into the effectiveness of this strategy. Whereas the relationship between the teacher and student is a documented, powerful factor in the success of students at any grade level, understanding though the lenses of these participants can create a well rounded picture of the current needs of students as they transition to high school. In addition areas such as teacher perceptions on efficacy, value of collaboration on and for students, and perceived effectiveness can be explored as well as students' perceptions on work ethic, motivation, and meeting of their individual needs can add to current research.

Lastly, the area of this study not fully addressed was the understanding of the impact this strategy had on the demographic elements that potentially cause struggles and additional stressors on high school students. As stated, an expansion of the geographic scope of this study would need to take place to amass a useable sample size. Demographic categorizations such as poverty, minority rates, and student enrollment sizes are examples of factors that can be used to dive deeper into the research and begin to flesh out potential solutions for these research-supported barriers to student achievement.

Summary

Change is an inevitable part of life. Those who choose not to adapt, run the risk of finding failure where they once found success. In regard to the field of education, Schlechty (1997) elegantly states,

> To change the system, we must alter the rules, roles, and relationships that define it. To make lasting change in the structure, corresponding changes must occur in the shared beliefs, commitments, meanings, values, lore, and traditions in which structure is embedded and from which it gains its permanence and stability (p. 135).

Even though this statement was made 20 years previous to this study, it still holds heavy meaning and application in today's educational world. Whether documented by multiple researchers and authors decades ago or stated in current literature, school change is needed in order to maintain an educational environment that is both academically productive but also responsive to the needs of the students who walk though their halls. To this end, this causal-comparative nonexperimental quantitative study proposed the use of interdisciplinary teaming, most common at the middle school level, to combat the documented struggles that freshman-aged students face as they transition from middle school to the high school.

This study identified high schools within the states of Missouri and Kansas that employed this strategy and further identified those schools that used this strategy for a minimum of 4 years, thus allowing the researcher to use 4-year graduation rates to measure effectiveness. As a result, it was found that a statistical significance did exist between schools that employed this strategy and their 4-year graduation rates as

compared to demographically identified comparison schools. Furthermore, the perception of the teacher-student relationship developed as a result of this strategy was significantly higher as compared to schools that did not employ this strategy regardless of year of implementation. What was not determined was the impact this strategy had on certain demographic factors that added additional stressors or barriers to the learning process in high school. As societal pressures continue to shape the developmental needs of students, the need for schools to adjust in tandem is vital. This study may provide value for future educational leaders and researchers to continue the conversation around transforming the traditional high school setting into one that is developmentally appropriate and ultimately helps all students thrive regardless of their level of need.

REFERENCES

Allensworth, E., & Easton, J. (2005). The on-track indicator as a predictor of high school graduation. Chicago, IL: Consortium on Chicago School Research.

Allison, E., Clinton, J., Hattie, J., Kamm, C., Lassiter, C., McNulty, B., . . . White, S. (2011). *Activate: A leader's guide to people, practices, processes*. Englewood, CO: Lead and Learn Press.

Beland, K. K. (2014, January). Easing the transition to middle adolescence. *Journal of Character Education, 10*(1), 61-67.

Beresford, M. J. (2013). *The high school freshman transition* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global database. (UMI No. 3590409)

Bernstein-Yamashiro, B., & Noam, G. G. (2013). Teacher-student relationships: A growing field of study. *New Directions for Youth Development, 2013*(137), 15-26. doi:10.1002/yd.20045

Bjerk, D. (2012). Re-examining the impact of dropping out on criminal and labor outcomes in early adulthood. *Economics of Education Review, 31*(1), 110-122. doi:10.1016/j.econedurev.2011.09.003

Black, S. (2004, February). The pivotal year. *American School Board Journal, 191*(2), 42-44.

Bolman, L. G., & Deal, T. E. (2008). *Reframing organizations: Artistry, choice, and leadership*. Hoboken, NJ: John Wiley and Sons.

Bornsheuer, J. N., Polonyi, M. A., Andrews, M., Fore, B., & Onwuegbuzie, A. J. (2011). The relationship between ninth-grade retention and on-time graduation in a Southeast Texas high school. *Journal of At-Risk Issues, 16*(2), 9-16.

Bottoms, G. (2008). *Redesigning the ninth-grade experience.* Atlanta, GA: Southern Regional Education Board.

Bottoms, G., & Timberlake, A. (2007). *Giving students a chance to achieve: Getting off to a fast and successful start in grade nine*. Atlanta, GA: Southern Regional Education Board.

Caroleo, M. (2014). An examination of the risks and benefits of alternative education. *Relational Child & Youth Care Practice, 27*(1), 35-46.

Cox, E., Hopkins, M., & Buckman, D. G. (2015). The impact of poverty, school enrollment, and ninth-grade transition programs on promotion. *Journal of School Public Relations, 36*(1), 110-124.

Curtis, R., & Wurtzel, J. (Eds.). (2010). *Teaching talent: A visionary framework for human capital in education.* Cambridge, MA: Harvard Education Press.

DeWit, D. J., Karioja, K., Rye, B. J., & Shain, M. (2011, July). Perceptions of declining classmate and teacher support following the transition to high school: Potential correlates of increasing student mental health difficulties. *Psychology in the Schools, 48*(6), 556-572. doi:10.1002/pits.20576

DuFour, R., DuFour, R. B., Eaker, R. E., & Karhanek, G. (2004). *Whatever it takes: How professional learning communities respond when kids don't learn*. Bloomington, IN: Solution Tree Press.

DuFour, R., & Eaker, R. E. (1998). *Professional learning communities at work: Best*

practices for enhancing student achievement. Bloomington, IN: National Educational Service.

Eaker, R. E., DuFour, R., & DuFour, R. B. (2002). *Getting started: Reculturing schools to become professional learning communities*. Bloomington, IN: National Educational Service.

Eccles, J. S. (2004). Schools, academic motivation, and stage-environment fit. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 125-153). Hoboken, NJ: John Wiley & Sons.

Eccles, J. S., & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In R. E. Ames & C. Ames (Eds.), *Research on motivation and education* (Vol. 3, pp. 139-186). New York, NY: Academic Press.

Eccles, J. S., & Roeser, R. W. (2011, February). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence, 21*(1), 225-241. doi:10.1111/j.1532-7795.2010.00725.x

Egalite, A. J., & Kisida, B. (2016). School size and student achievement: A longitudinal analysis. *School Effectiveness & School Improvement, 27* (3), 406-417. doi:10.1080/09243453.2016.1190385

Ellerbrock, C. R. (2011, December). Creating a family-like ninth-grade environment through interdisciplinary teaming. *Urban Education, 47*(1), 32-64. doi:10.1177/0042085911427736

Ellerbrock, C. R., & Kiefer, S. M. (2010, August). Creating a ninth-grade community of care. *Journal of Educational Research, 103*(6), 393-406.

Ellerbrock, C. R., & Kiefer, S. M. (2013, February). The interplay between adolescent

needs and secondary school structures: Fostering developmentally responsive middle and high school environments across the transition. *High School Journal, 96*(3), 170-194.

Emmett, J., & McGee, D. (2012, March). A farewell to freshmen. *Clearing House, 85*(2), 74-79. doi:10.1080/00098655.2011.619592

Felner, R. D., Seitsinger, A. M., Brand, S., Burns, A., & Bolton, N. (2007). Creating small learning communities: Lessons from the project on high-performing learning communities about "what works" in creating productive, developmentally enhancing, learning contexts. *Educational Psychologist, 42*(4), 209-221.

Fullan, M. (2001). *Leading in a culture of change.* San Francisco, CA: Jossey-Bass.

Gay, L.R., Mills, G. E., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications*. Upper Saddle River, NJ: Pearson.

Habeeb, S., Moore, R., & Siebert, A. (2009). *Ninth grade opportunity: Transforming schools from the bottom up*. Bloomington, IN: iUniverse.

Hargreaves, A., Earl, L. M., & Ryan, J. (1996). Schooling for change: Reinventing education for early adolescents. London, England: Falmer Press.

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning.* London, England: Routledge.

Hazel, C. E., Pfaff, K., Albanes, J., & Gallagher, J. (2014). Multi-level consultation with an urban school district to promote 9th grade supports for on-time graduation. *Psychology in the Schools, 51*(4), 395-420.

Hughes, J. N. (2012, May). Teacher–student relationships and school adjustment:

Progress and remaining challenges. *Attachment & Human Development, 14*(3), 319-327. doi:10.1080/14616734.2012.672288

Hunt, D. (1975). Person-environment interaction: A challenge found wanting before it was tried. *Review of Educational Research, 45*(2), 209-230. Retrieved from http://www.jstor.org/stable/1170054

Interagency Forum on Child and Family Statistics. (2016). America's children in brief: Key national indicators of well-being, 2016. Retrieved from http://www.childstats.gov/americaschildren/glance.asp

Kansas Legislative Research Department. (2016). *Kansas unified school districts by Kansas State Board of Education districts.* Retrieved from http://www.ksde.org/Portals/0/Board/Documents/USDs%20by%20State%20Bd%20Dist%202016%20PH.pdf

Kansas State Department of Education. (2016). *Records submission calendar*. Retrieved from http://kidsweb.ksde.org/Portals/0/Records%20Submission%20Calendar%2016-17%20v1.00.pdf?ver=2016-09-21-100024-907

Kansas State Department of Education. (2017). *KIDS 2016-2017 submission details document: ASGT*. Retrieved from http://kidsweb.ksde.org/Portals/0/resource_documents/Submission%20Details%20Document-ASGT%20v11.00.pdf?ver=2016-07-15-114758-573

Katzenbach, J. R., & Smith, D. K. (1993). *The wisdom of teams: Creating the high-performance organization*. Boston, MA: Harvard Business School Press.

Kiefer, S. M., Alley, K. M., & Ellerbrock, C. R. (2015, July). Teacher and peer support

for young adolescents' motivation, engagement, and school belonging. *Research in Middle Level Education Online, 38*(8), 1-18.

Kohn, A. (1999). *Punished by reward: The trouble with gold starts, incentive plans, A's, praise, and other bribes.* Boston, MA: Houghton-Mifflin.

Kotter, J. (2007, January). Leading change: Why transformation efforts fail. *Harvard Business Review*, 92-107.

Lounsbury, J. H. (1996, December). Personalizing the high school: Lessons learned in the middle. *NASSP Bulletin, 80*(584), 17-24.

Lyons, G. K. (2014). *A quantitative comparative analysis of ninth grade academies and graduation rates in Texas high schools (*Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global database. (UMI No. 3620829)

McCallumore, K. M., & Sparapani, E. F. (2010). The importance of the ninth grade on high school graduation rates and student success in high school. *Education, 130*(3), 447-456.

McClure, L., Yonezawa, S., & Jones, M. (2010, July 30). Can school structures improve teacher-student relationships? The relationship between advisory programs, personalization and students' academic achievement. *Education Policy Analysis Archives, 18,* 17.

Missouri Department of Elementary and Secondary Education. (2016). Core *data & Missouri student information system reference manual*. Retrieved from https://dese.mo.gov/sites/default/files/cd-mosis-manual.pdf

Missouri Department of Elementary and Secondary Education. (2017). *School*

building list [Data file]. Retrieved from https://mcds.dese.mo.gov/guidedinquiry/District%20and%20School%20Information/School%20Building%20List.aspx

Missouri School Improvement Program. (2013, April 1). *Resource standards for Missouri public school districts.* Retrieved from http://dese.mo.gov/sites/default/files/MSIP_5_Resource_and_Process_Standards.pdf#page=3

Montgomery, R. J. (2015). *What effect does a freshman transition program have on attendance, discipline, and grades for ninth grade students at a rural midwestern high school?* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global database. (UMI No. 3708152)

Myers, V. M., & Kline, C. E. (2001). Secondary school intervention assistance teams: Can they be effective? *High School Journal, 85*(2), 33-42.

Nalls, M. A. (2011). *The influence of teaming on the academic achievement of ninth grade students in a comprehensive suburban high school* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global database. (UMI No. 3457178)

The National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: Author.

National Middle School Association. (2003). *This we believe: Successful schools for young adolescents: A position paper of the National Middle School Association.* Westerville, OH: Author.

Neild, R. (2009). Falling off track during the transition to high school: What we know and what can be done. *Future of Children, 19*(1), 53-76.

Neild, R. C., & Balfanz, R. (2006). *Unfulfilled promise: The dimensions and characteristics of Philadelphia's dropout crisis, 2000-2005.* Philadelphia, PA: Philadelphia Youth Network.

Nellis, L. M. (2012, March). Maximizing the effectiveness of building teams in response to intervention implementation. *Psychology in the Schools, 49*(3), 245-256. doi:10.1002/pits.21594

No Child Left Behind Act of 2001, 20 U.S.C.A. § 6301 *et seq*. (West 2003).

Ogle, L. T., & Alsalam, N. (Eds). (1990). *The Condition of Education: Vol. 1. Elementary and secondary education*. Washington, DC: National Center for Education Statistics.

Organisation for Economic Co-operation and Development. (2016). *Education at a glance 2016: OECD indicators.* Paris, France: Author.

Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research, 70*(3), 323-367. doi:10.3102/00346543070003323

Peters, A. (2011). Small urban high school success: A case study. *Journal of Education for Students Placed at Risk, 16*(2), 89-99.

Purzer, S. (2011, October). The relationship between team discourse, self-efficacy, and individual achievement: A sequential mixed-methods study. *Journal of Engineering Education, 100*(4), 655-679.

Reeves, D. B. (2009). *Leading change in your school: How to conquer myths, build*

commitment, and get results. Alexandria, VA: Association for Supervision and Curriculum Development.

Ronfeldt, M., Farmer, S. O., McQueen, K., & Grissom, J. A. (2015, May). Teacher collaboration in instructional teams and student achievement. *American Educational Research Journal, 52*(3), 475-514. doi:10.3102/0002831215585562

Roybal, V., Thornton, B., & Usinger, J. (2014). Effective ninth-grade transition programs can promote student success. *Education, 134*(4), 475-487.

Rutledge, S. A., Cohen-Vogel, L., Osborne-Lampkin, L., & Roberts, R. L. (2015). Understanding effective high schools: Evidence for personalization for academic and social emotional learning. *American Educational Research Journal, 52*(6), 1060-1092.

Schlechty, P. C. (1990). *Schools for the twenty-first century: Leadership imperatives for educational reform*. San Francisco, CA: Jossey-Bass.

Schlechty, P. C. (1997). *Inventing better schools: An action plan for educational reform*. San Francisco, CA: Jossey-Bass.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday/Currency.

Smith, A., & Thomson, M. M. (2014, April). Alternative education programmes: Synthesis and psychological perspectives. *Educational Psychology in Practice, 30*(2), 111-119. doi:10.1080/02667363.2014.891101

Stark, P., & Noel, A.M. (2015) *Trends in high school dropout and completion rates in the United States: 1972-2012* (NCES 2015-015).Washington, DC: National Center for Educational Statistics. Retrieved from http://nces.ed.gov/pubsearch

Steele, K. M. (2010). *The focus on freshman transition programs within a smaller learning community: Preparing students for the long and often rocky road to high school graduation* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global database. (UMI No. 3455633)

Steggall, S. B. (2014). *The relationship between school size and the number of high school dropouts* (Doctoral dissertation). Retrieved from http://www.bakeru.edu/images/pdf/SOE/EdD_Theses/Steggall_Sandy.pdf

Styron, R. A., & Peasant, E. J. (2010). Improving student achievement: Can 9th grade academies make a difference? *International Journal of Education Policy & Leadership, 5*(3), 1-9.

U.S. Census Bureau. (2016). Selected economic characteristics: 2011-2015 American community survey 5-year estimates. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_DP03&src=pt

U.S. Department of Education. (2016a). *Public high school 4-year adjusted cohort graduation rate (ACGR), by race/ethnicity and selected demographics for the United States, the 50 states, and the District of Columbia: School year 2014–15*. Washington, DC: EDFacts. Retrieved from https://nces.ed.gov/ccd/tables/ACGR_RE_and_characteristics_2014-15.asp

U.S. Department of Education. (2016b). *Regulatory four-year adjusted-cohort graduation rates school year 2014-15.*Washington, DC: EDFacts. Retrieved from http://www2.ed.gov/about/inits/ed/edfacts/data-files/acgr-sy2014-15-public-file-documentation.doc

Van Maele, D. D., & Van Houtte, M. (2010, April). The quality of school life: Teacher-student trust relationships and the organizational school context. *Social Indicators Research, 100*(1), 85-100. doi:10.1007/s11205-010-9605-8

Warren, C., Fazekas, A., Rennie-Hill, C., Fancsali, L., & Jaffe-Walters, R. (2011). *Final report on the study of promising ninth grade transition strategies: A study of six high schools*. Washington, DC: U.S. Department of Education.

Weiss, C. C., & Bearman, P. S. (2007, May). Fresh starts: Reinvestigating the effects of the transition to high school on student outcomes. *American Journal of Education, 113*(3), 395-421.

The White House, Office of the Press Secretary. (2016, October 17). *Fact sheet: President Obama announces high school graduation rate has reached new high* [Press release]. Retrieved from https://www.whitehouse.gov/the-press-office/2016/10/17/fact-sheet-president-obama-announces-high-school-graduation-rate-has

Yonezawa, S., McClure, L., & Jones, M. (2012, October). Personalization in schools. *Education Digest, 78*(2), 41-47.

APPENDIX A

INITIAL QUESTIONNAIRE

Disclaimer: The identifiable information collected through this survey will not be used within the study's findings. Pseudo names will be used for each high school used within the process. School district and school building names are only being collected for the purpose of collecting additional public information available from DESE. Please note that completion of this survey will act as your consent to participate within this study.

1. School District Name (Fill in the blank)
2. High School Name (Fill in the blank)
3. Do your ninth-grade students reside within the main campus of your high school?
4. Do your ninth-grade students attend a freshman academy or ninth-grade center type of setting where students are kept separated from Grades 10-12 while still remaining on your high school campus? Yes/No
5. Do you use an established team of interdisciplinary teachers and/or staff members who meet on at least a monthly (minimum) basis with the purpose of monitoring the academic, emotional, and behavioral progress of ninth-grade students? *(Common names of these types of groups include: care team, student assistance team, transition team, RtI team, data team, etc.)* Yes/No
6. If you answered YES to Question 5, when did you **begin** this type of intervention program?
    a. On or prior to the 2012-2013 school year
    b. After the 2012-2013 school year
7. What structures or programs do you have in place at your school that help foster positive relationships between freshmen students and their teachers? (Select all that apply)

c. Advisory Programs
d. Homerooms
e. Interdisciplinary Teaching Teams
f. Intramural Sports Programs
g. Other _____ (Please specify)

8. In your opinion, how have your freshmen transition efforts impacted your teacher-student relationships?

Not Applicable (No formalized program in place at this time)
1 – Minimal Impact
2
3
4
5 – Significant Impact

APPENDIX B

PRINCIPAL LETTER (E-MAIL)

Dear (Name of High School Principal),

As a fellow high school administrator, I am writing to you seeking your help. Currently I am the Assistant Principal at Sullivan High School (Sullivan, MO) as well as a doctoral student at Southwest Baptist University in Bolivar, MO. As part of the final part of my degree process, I am writing my dissertation over data that I can hopefully collect from you. In short, my topic centers on the use of an interdisciplinary team of teachers that monitors the academic progress of freshmen students. The study will focus on the use of this type of teacher-teaming process to create a more personalized environment within the high school setting for freshman students without having to utilize a freshmen academy or other similar types of strategies. I am asking that you please use the link below and take the less than 3-minute survey. By providing the requested information, I will be able to accurately identify schools that do and do not use this type of strategy.

Your participation in this survey is voluntary; however, identifiable data will be collected in the form of the name of your school district. This information will only be used by me when accessing data from DESE that is pertinent to my study. Pseudo names will be used within my dissertation if your school is used during the analysis of my collected data.

Thank you, in advance, for your help with this endeavor of mine. If you have any questions, please do not hesitate to contact me at any time. If desired, the results of my study can be shared with you upon request.

Link to Survey (less than 3 minutes): <<Link Here>>

Please note that completion of this survey will act as your consent to participate within this study.

Mr. Adam Kealen
Assistant Principal, Sullivan High School
Doctoral Student, Southwest Baptist University, Bolivar, MO

THIS PROJECT HAS BEEN REVIEWED BY THE SOUTHWEST BAPTIST UNIVERSITY RESEARCH REVIEW BOARD FOR RESEARCH AND RESEARCH-RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS (417) 326-1659.

APPENDIX C

CRITERIA AND PARAMETERS FOR DETERMINING COMPARABLE HIGH SCHOOLS

Criteria	Parameters
Geographic region	Must match the geographically designated supervisory areas (A-H) as established by the Missouri Department of Elementary and Secondary Education and designated state board districts as established by the Kansas State Department of Education.
Student enrollment	+/- 400 students as compared to identified school
Free and reduced lunch percentage	+/- 15 percentage points from the reported percentage of the identified school