THE RELATIONSHIP BETWEEN CLASSROOM ARRANGEMENT DECISIONS AND STUDENT ENGAGEMENT: A CASE STUDY

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Abstract

Skillful management of a classroom is integral to student success, and teacher decisions regarding classroom arrangement are a critical component of classroom management. The engagement of students in a classroom impacts the levels of achievement. This qualitative case study analyzed the relationship between classroom management best practices and student engagement in a particular high school. The researcher chose three classroom teachers with a growth mindset and analyzed student engagement and classroom arrangement data collected from interviews, observations, and focus groups. The teachers taught English, math, and biology and used circular, modular, and horseshoe arrangements. This study described the changes teachers made in their classroom arrangements to increase student engagement. All three teachers made changes following the initial observation and focus group. The levels of student engagement increased in each classroom, and teachers reported the reasoning behind the changes they made. Although the purposeful changes in arrangement increased engagement, greater engagement was achieved when arrangement changes were combined with the addition of effective teaching strategies. The data also indicated that classroom arrangement decisions should be made with teacher goals for the lesson in mind as no single type of arrangement was “best.” Future research should be expanded to include achievement data and a greater variety of arrangements.

Keywords: classroom arrangement, student engagement, growth mindset
Dedication

For my grandmother—Ruth G. Wesson believed in me emphatically and made me feel that I could do anything. She left an indelible imprint on my soul, and I miss her every single day.
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CHAPTER ONE: Introduction

Background of the Study

A highly effective teacher performed many functions in the classroom. Three of the most important were choosing effective instructional strategies, designing classroom curriculum, and managing the classroom. No meaningful learning took place without all three of these components (Marzano, Marzano, & Pickering, 2003). Teachers, who set up structured learning environments to promote desirable behaviors and discourage undesirable ones, created the foundation for successful classroom management. Classroom management was the foundational piece that set the stage for all student learning, and as such, its skillful implementation was critical to the success of both the teacher and the student in the classroom (Johnson, 2016). The most engaging and well-planned lessons were useless without this basic component. If classroom management was critical to student learning, then relationships were recognized as a foundational component of classroom management. They laid the groundwork for high expectations and rigor in learning (Johnson, 2016). Mulvahill (2018) stated that the value of an educator’s skill in this area even outweighs that of his or her content knowledge. Despite the integral importance of this skill, there was not a simple protocol recommendation for use in all classrooms and in all situations that guaranteed success. Classroom management was the wide variety of skills and techniques that teachers use to ensure their classrooms run smoothly without disruptive behavior from students (Mulvahill, 2018). It included factors such as classroom arrangement, modeling, preparation, and consistency. Successful teachers observed student behavior and performance and made adjustments based on the information they gathered. For example, if a teacher noticed that a student sitting in the rear of the classroom was distracted and struggling to participate in the lesson, she adjusted the student’s location to bring him closer to
the center of the action, or she placed him in proximity to other students who helped increase his engagement.

Student engagement was another significant influence on student achievement. Engagement was a general term that referred to what degree a student participated during classroom instruction (Greenwood, Horton, & Utley, 2002). It was comprised of both active and passive behaviors and formed the best mediating variable between instruction and academic achievement (Greenwood, Terry, Marquis, & Walker, 1994). Authentic student engagement occurred when students connected to learning. The learning experience consumed their mind and cultivated intrinsic motivation (Korber, 2011). Skilled educators learned to distinguish between truly engaged students and those who were merely on task or compliant. Teachers facilitated authentic engagement through qualities such as clear expectations, social interaction, a culture of safety, and authenticity of activity (Schwartz, 2016).

Teachers made classroom management decisions every day that directly impacted the levels of student engagement in their classrooms. Two such decisions were the physical arrangement of the classroom and the actual location of students. Some teachers allowed students to choose their seats, while others preferred to assign students to a particular location. As the semester progressed, some students found themselves more or less engaged as a result of this location or based upon the influence of other students around them. Teachers who noticed a negative impact on student engagement often made changes to increase the likelihood of student academic success.

Although there were distinct differences between the content of elementary and secondary school, solid educational practices remained consistent. Students at all levels benefitted from engagement in learning. If teachers wanted the learning to remain long after the
class was over, these teachers needed to possess the ability to manage their classes skillfully. When teachers believed in the capability of students for improvement and the possibility of improvement in their craft, they made classroom management decisions that reflected this belief. They evaluated the efficacy of current practices based on the results they were seeing and made changes in practice to address any of their concerns.

The researcher spent considerable time observing in classrooms and discussing practices with teachers. Teachers analyzed student progress and made decisions to change practices based on this progress. They also participated in conversations concerning their classrooms and the changes they made. They examined possible reasons for student engagement or the lack of evidence of it and listened to suggestions for ways to increase the levels of engagement of the students.

**Statement of the Problem**

Federal and state governments have placed high expectations on schools. Governmental initiatives, such as Race to the Top (RTTT), No Child Left Behind (NCLB), and the Every Student Succeeds Act (ESSA), have created more accountability measures than ever before. Schools demonstrated high levels of growth and achievement while meeting the needs of all student subgroups. With the high levels of pressure on student achievement, teachers needed to critically examine the instructional environment and make judicious decisions to increase the learning of the entire class, as well as particular students. Teachers who operated within the block schedule had even less time to waste on poor classroom management. With only a semester in which to prepare students for end-of-course assessments, they quickly identified and made the necessary modifications to maximize their instructional time and secured the most advantage for students.
Existing literature addressed the benefits of student engagement in the classroom and its benefits for student achievement (Bender, 2017; Greenwood et al., 1994). It also studied various aspects of classroom management and the impact of effective classroom management on student achievement. There was also considerable research on growth mindset and its impact on student success (Bender, 2017; Dweck, 2006, 2015; Ming-Tak, 2008). However, fewer studies addressed the actual teacher response to a lack of achievement. This study sought to apply the knowledge teachers have about the benefits of student engagement to their actual classroom practices. It focused on one particular high school in Tennessee and studied teacher choices concerning student seating when faced with less than desirable student achievement.

**Purpose and Significance of the Study**

The purpose of this study was to analyze the relationship between classroom management best practices and student engagement in a particular high school. State testing measured high and low levels of student achievement, but teachers needed to take the steps necessary to increase the likelihood of student success. The mindset of the teachers had an impact on the choices they made and whether or not they were open to discussing possible changes in their methods. The researcher sought to determine if those teachers adjusted their management of the classroom in response to the impact on engagement.

This study was significant in that it added support to existing research regarding the connection between classroom management strategies, such as classroom arrangement, and the level of engagement demonstrated by students. There was considerable research about classroom management and its relationship to student engagement (Almarode, 2018; Angaran, 2016; Danielson, 2007; Jablon & Wilkinson, 2006; Peterson-Deluca, 2016; Shaukat, 2012), but not much connected both of these concepts to the theory of growth mindset. This study also
provided information to local school district personnel about student engagement in a district high school. Student engagement had been a district-wide focus for two years, and this information gave a thorough update on the status of this initiative in this particular school. It also served as data for comparison with another district high school and provided valuable information for use in PLCs with teachers as they developed a game plan for this and subsequent school years. The researcher planned to use this data at a later time, alongside standardized test scores, to look for patterns between levels of engagement and achievement on state tests.

**Theoretical Foundation**

The rationale for this study hinged on the sociocultural theory which stated that learning was based on interactions with other people and was mostly a social process. Sociocultural theory was established on work by the Russian psychologist Lev Vygotsky. Vygotsky believed that caregivers, parents, peers, and the culture in general developed higher-order functions in humans. Learning depended on interactions with other people (Cherry, 2019). Vygotsky also believed that social interactions from guided learning within the zone of proximal development propelled cognitive development (McLeod, 2018). The sociocultural theory focused on how adults and peers influenced learning. Teachers, as a part of the social environment of students, had a significant influence on the learning that took place in their classrooms. They developed mentoring relationships with students, made decisions about instruction that directly impacted the learning, and orchestrated classroom interactions between students. Through this process, they helped to develop the higher-order processes that students used for the remainder of their lives.

Another theory that heavily influenced this study was Carol Dweck’s mindset theory. Mindset theory described the beliefs individuals held regarding the nature of intelligent behavior.
Dweck asserted that individuals believe intelligence was either immovable or “fixed,” or it was based on learning, effort, training, and “growth.” Teachers with a growth mindset made adjustments to classroom management in order to increase the engagement of students. These individuals believed the intelligence of students could be increased based on the experiences and training they provided students, and teacher efforts to increase engagement increased student learning. Teachers who had a growth mindset also believed that skill for managing students and fostering learning could grow and improve given effort on their part. They were willing to examine practices, look at data, and make changes to practice based on this data.

**Research Question**

How do teachers with a growth mindset arrange their classrooms for increasing student engagement?

**Rationale for the Study**

The teachers’ behaviors in the classroom had more of an impact on student achievement than school policies that addressed this same issue (Wright, Horn, & Sanders, 1997). Teachers did many things in an attempt to increase student achievement, but classroom management was one of the most critical (Brophy & Everson, 1976; Marzano, Marzano, & Pickering, 2003). Marzano espoused that all successful classroom management began with a relationship between the teacher and the student (Marzano, 2003). Teachers avoided many barriers to student learning in the classroom by laying a solid foundation of caring and mutual respect. Meticulous planning served to eliminate many opportunities for behavioral difficulties. When students were actively engaged in interesting subject matter with little downtime, they had limited opportunity to entertain themselves (Evertson, 1994; Simonsen et al., 2008).
There was considerable research in support of strong levels of classroom management (Wong & Wong, 2018; Sugai & Horner, 2006; Canter, 2009). Harry Wong believed that teachers must have a specific plan for routines and procedures in the classroom (Wong & Wong, 2018). He stated that teachers should begin the year by explicitly teaching these routines, modeling appropriate behavior, and reteaching when necessary. George Sugai and Lee Canter also supported these ideas (Sugai & Horner, 2006; Canter, 2009). Lee Canter’s Assertive Discipline stated that no student should be allowed to stop the teacher from teaching or stop another student from learning. Canter also believed that teachers should consistently enforce class rules and reward positive behavior. George Sugai’s plan of Positive Behavioral Interventions and Supports (PBIS) also supported the concept that clear expectations from the outset improve outcomes (Sugai & Horner, 2006).

Classroom arrangement was one aspect of classroom management. It included the location of the teacher’s desk, seating chart, arrangement of student desks, etc. (Kelly, 2019). When teachers believed in growth for themselves and their students, they made changes to facilitate this growth. If teachers observed a student who was not performing to meet the benchmark and believed that the educational environment might have some bearing on this, they adjusted aspects of the environment to improve achievement. If student engagement was lacking due to that student’s location negatively affecting the learning, a teacher with a growth mindset made adjustments to improve the student’s achievement.

The presence of student engagement in a classroom was a multi-dimensional question and not merely a question of whether or not students were engaged. There were levels and degrees of engagement. For example, passive engagement included behaviors such as listening to a teacher, while active engagement might have been writing or answering a question.
(Greenwood et al., 2002). Other researchers identified low, mixed, and high levels of engagement. At the lowest level, students were passive or compliant, and the classroom was primarily teacher-centered. Level two contained mixed degrees of teacher and student-centeredness, and level three was mainly student-driven, with teachers most often serving as coaches in the classroom (Seif, 2018).

Studies in neuroscience informed us that emotion drives cognition. However, if a student was not actively making meaning out of information, he or she was not actively engaged regardless of the positive emotions present (Schwartz, 2016). There were many strategies teachers used to build engagement among their students, such as increasing opportunities to respond, utilizing direct instruction techniques, implementing peer tutoring, providing guided notes, and utilizing technology in the classroom (Simonsen, et al., 2008). They also learned to ascertain the impact of this engagement on their achievement. Discussion was one way to determine whether students were authentically engaged or compliant, and it also helped teachers formatively assess student understanding (DeWitt, 2016).

When teachers were aware of student achievement and the lack thereof, they focused on making changes to improve performance or using high performing individuals strategically with peers. When they knew how to judge student engagement and how to promote it further, they examined their class practices for the impact on student engagement. The improved classroom management practices led to greater student engagement, and greater student engagement led to higher achievement (Jablon & Wilkinson, 2006; Marzano, Marzano, & Pickering, 2003; Simonsen et al., 2008).
**Researcher Positionality Statement**

The researcher was an educator with eighteen years of experience as a classroom teacher and an instructional coach in the elementary setting. She had taught four tested grade levels in three different schools and had seen the benefits of making changes in the educational environment for improving a student’s participation and performance. As the newly appointed instructional coach at one of the high schools in the district, the researcher received an imperative from the director of schools to work with teachers to increase the levels of student engagement and achievement in the high school. This directive and her desire to improve student performance led to her interest in this study. Because she collected data related to these topics during observations of all teachers—and school administrators had been clear about the need to improve engagement—those chosen for the study felt less defensive regarding the process.

There was a possibility of bias regarding the expectations for engagement. The researcher had experience in a school with extremely high levels of engagement, so the particular parameters set for engagement in this study were likely influenced by this experience. The researcher assigned numerical values to the engagement data and focused on improvement to reduce the possibility of bias.

The researcher’s role in this study was to observe and identify student engagement, share the results, lead discussions with teachers, and document improvements that arose. The researcher gathered and organized data to measure the changes made by teachers when they were made aware of student engagement issues in their classrooms. This information was shared with administrators on the school and district levels and used as a tool in the process of improving the achievement of the school.
Definitions of Terms

**Action zone.** This study defined the action zone as a triangular-shaped area that extended across the front row and ended at the middle seat of the back row. Most verbal interactions from students occurred in this zone (Koneya, 1976).

**Classroom arrangement.** This study identified classroom arrangement as factors including (but not limited to) location of the teacher’s desk, the arrangement of student desks, and the existence of a seating chart (Kelly, 2019).

**Classroom management.** This study utilized the definition of classroom management as the wide variety of skills and techniques that teachers use to ensure their classrooms run smoothly without disruptive behavior from students (Mulvahill, 2018).

**Fixed mindset.** Carol Dweck defined a fixed mindset as being the belief that each individual had been given a certain amount of intelligence, a particular personality, and a specific moral character (Dweck, 2012).

**Growth mindset.** Carol Dweck defined the growth mindset as being the belief that an individual’s basic qualities were a starting point for development. A person’s intelligence, personality, and character could be cultivated and increased through their efforts (Dweck, 2012).

**Student engagement.** This study utilized the definition of student engagement as the degree of passion, attention, and interest students show when learning or being taught. Students who were engaged were attracted to their work, persisted in their work despite challenges, and took visible delight in accomplishing their tasks (Schlecty, 1994).

Organization of the Study

This case study focused on a particular high school and sought to analyze the practices currently being utilized in classrooms. The researcher set out to accumulate data about the
practices at this site, in particular, and worked alongside teachers with the primary goal of increasing engagement and achievement. The research directly impacted this task by providing a foundation of understanding regarding teacher-moves that increased engagement and the power of this increase. Chapter Two focused on a review of the literature specific to this topic. It contained a historical overview and significant research on the topic. Chapter Three described the participants of the study and the specific procedures utilized in the research, including the coding process. Chapter Four contained the presentation of the data as well as the findings of the study. Chapter Five contained the conclusions, implications, and recommendations of the study. It also assembled inferences and conclusions about the topic. The references and appendices followed Chapter Five.

**Summary**

Student engagement was an essential aspect of raising student achievement. Teachers, who believed in growth for themselves and their students, made changes based on data in the effort to facilitate higher levels of learning for their students. When issues related to classroom management arose, such as the seating location of students, teachers adjusted their practices to meet this need. This study focused on the relationship of classroom management best practices, such as room arrangement, on student engagement in a high school setting. The research considered changes that teachers with a growth mindset made when faced with information about student engagement, and whether these teachers adjusted their room arrangement to improve it.
CHAPTER TWO: Review of the Literature

One of the primary purposes of education was to facilitate growth in students (Sloan, 2012). The needs of society had driven the evolution from a focus on religious doctrine to preparation for an industrialized workforce. Educators typically identified student growth as cognitive, but it may also have been emotional, social, moral, or physical. Researchers conducted various studies in an attempt to quantify a classroom teacher’s impact on the achievement of students in the classroom (Almarode, 2018; Angaran, 2016; Danielson, 2007; Jablon & Wilkinson, 2006; Peterson-Deluca, 2016; Shaukat, 2012). Identifying the variables that generated improved achievement was not simple.

Effective teachers performed three significant roles in the classroom (Marzano, Marzano, & Pickering, 2003). They consistently chose the most effective instructional strategies. They also realized when these strategies would be most useful with particular students and appropriate content. Secondly, teachers devised a classroom curriculum to promote student learning. They identified the most appropriate sequence and pacing of content by considering the needs of students both individually and as a group. The third role of effective teachers was the skillful use of powerful classroom management techniques. Excellence in any of these three roles did not eliminate the need for the others. None of the roles produced student learning by itself, but poor execution of any one of them almost ensured that student learning became a struggle (Marzano, Marzano, & Pickering, 2003).

Individuals and organizations that sought to evaluate teacher effectiveness and analyze student growth looked for ways to measure the progress. Standardized testing was one method used to assess the cognitive or academic growth occurring in students. Naturally, when researchers and practitioners identified growth, they attempted to identify the catalysts for this
growth in the hope of replicating it in other academic environments. One crucial factor associated with increased student achievement was the decisions that teachers make in the classroom to support the delivery of the academic content. Management of both the learning environment and the students themselves had shown to have a significant impact on the levels of student achievement. Daily lesson plans, the pacing of instruction, behavior management strategies, classroom organization, seating layouts, and organizational procedures were a few of the decisions under a teacher’s oversight that had a direct impact on the results they generated. Teachers and administrators concerned with a lack of progress often looked at these factors when contemplating changes to propose.

Students generally preferred one type of seating arrangement over another based on their personality types and desire to be involved. Studies had examined why students chose to sit in the back of the room and further away from the teacher or other students. Students with high self-esteem perceived themselves as having the ability to manage challenging and unpredictable situations. This self-perception may have contributed to their feelings of confidence about becoming involved in classroom activities and interactions. Those with low self-esteem were more likely to view the classroom as a threatening environment. They chose to distance themselves and limited their contact with others (Dykman & Reis, 1979). Research indicated that the academic task and the desired behavior should be the determining factors for seating arrangement (Wannarka & Ruhl, 2008). Shin-Ike (2019) focused on the seating of particular students beside one another. He used a generic algorithm based on a questionnaire and observational analysis. He found that students were more satisfied with the new arrangement of seats than they were with the previous method of random seat assignments based on ID numbers.
He believed that the relationships of these students improved the learning experience of each of them.

**Historical Context**

The study of classroom management practices and student engagement was not a new one. In the early 1900s, William Bagley (1907) wrote a treatise on the subject drawing from his observations of teachers, textbooks of the time, his teaching experience, and tested psychological principles. Although some of the descriptions such as “slowly transforming the child from a little savage into a creature of law and order, fit for the life of civilized society” (Bagley, 1907, p. 35) were quite different from terminology that educators use today, many of the basic principles were entirely familiar. For example, Bagley referred to the importance of preparing students for life beyond school and the inappropriateness of overly punitive methods or strategies that produce anxiety in students. He also made a distinction between routine factors, that students could handle on their own, and judgment factors, that would require the attention of the teacher. Bagley gave guidance for the first day of school, stating that teachers should concentrate on work that was familiar to the students but choose real teaching instead of busywork to establish a seriousness of purpose. He believed that teachers should be prepared each day and have a particular plan for handling hats and coats. Bagley also advocated for the teacher providing direct instruction and practice with procedures, and the assignment of student helpers to distribute supplies as needed. He drew comparisons between authoritarian, authoritative, and laissez-faire discipline approaches. He championed the idea that teachers should minimize behavioral problems by keeping students engrossed in constructive activities and implementing incentives for desirable performance. Punishment should be a last resort with a preference for
natural consequences. The best penalties were specific to the undesirable behavior, successful in stopping it, and no more severe than necessary (Bagley, 1907).

Following Bagley’s treatise, the focus shifted to curriculum, instruction, and school administration. There was little research on the topic of classroom management until the 1950s. Books written during that interim gave little reference to empirical studies, drawing instead on textbooks for evidence (Breed, 1933; Brown, 1952). In the middle of the 20th century, systematic studies relevant to classroom management began to increase. The studies began with contrasting punishment/reward or blame/praise. For managing behavior, researchers generally found reward or praise to be preferable to punishment or blame. However, some studies found that punishment or blame was successful with extroverts or underachievers, which they attributed to those students’ previous experiences with blame (McDonald, 1965).

Some researchers began to extend the application of the findings to the classroom setting. They determined that a non-punitive approach to behavior management helped students develop values and understand the reasons behind rules (Kounin & Gump, 1961). Other studies focused on leadership style and classroom climate (Anderson, Brewer, & Reed, 1946). They compared what was described as “dominating” teachers with “leading” teachers. Those teachers who were more forceful (dominating) tended to cultivate conforming students who were dependent on the teacher or who exhibited high resistance and conflict within the classroom setting. Those who worked with their students (leading) found that students returned this collaboration and demonstrated higher levels of engagement and spontaneity.

In the 1960s, the focus shifted to teacher leadership style (Withall and Lewis, 1963) followed by studies on classroom observation systems (Flanders, 1970; Simon & Boyer, 1970). There was little correlation between achievement gains, but researchers generally found that
more integrative teachers experienced increased positive student attitudes and motivation. Other researchers noticed that studies were typically confined to frequency counts of teacher behaviors such as lecturing, questioning, praising, or criticizing (Flanders, 1970; Simon & Boyer, 1970). These researchers were bothered by the single dimension of this collection method because they recognized that classroom management was an interactive experience. They saw a need for studying the sequences of classroom interactions and advocated a shift to data collection that retained the connection between teacher behaviors and appropriate student behaviors.

Up to this point, most research on classroom management had centered on the benefits of reward-oriented techniques over negative ones and balanced authoritative leadership over authoritarian or laissez-faire approaches (Baumrind, 1971). In the 1970s, behaviorists and ecological researchers began to move toward more specific aspects of managing classes. Behaviorists tended to favor experimental research methods to activate stimulus control. They typically used a four-stage sequence consisting of baseline documentation of rates and causes of occurrence, the introduction of treatment, removal of treatment, and reinstitution of treatment to test hypotheses. As researchers began to implement behavioral techniques in the classroom, they mainly worked to shape behavior through reinforcement (Evertson & Weinstein, 2011).

Jacob Kounin conducted the first high-profile, systematic study of classroom management in 1970. Kounin dissected almost 50 videos of first and second-grade classrooms by coding the activity of both teachers and students. He developed a theory that concentrated on preventing unwanted behavior through the use of specific teacher moves. Kounin believed there were several basic skills necessary for teachers to manage their classrooms effectively. One skill he referred to as “withitness” was the awareness that effective teachers have about potentially disruptive behavior and their immediate response to that potential. He believed this skill to be
the one that most often differentiated between average and excellent classroom managers. Another skill he noted described the smoothness and momentum with which effective teachers present lesson materials. A third dimension was the practice of explicitly communicating with the students the expected behavior throughout the day. He also identified the variety and rigor of classroom assignments utilized in the classroom (Kounin, 1970).

In 1976, Jere Brophy and Carolyn Everton wrote a book entitled *Learning from Teaching: A Developmental Perspective*, which described a study that compared 30 elementary teachers with above-average academic achievement gains to 38 teachers with typical academic achievement. The study described many different teaching behaviors, but classroom management emerged as an integral part of effective teaching (Brophy & Everton, 1976).

In the early and mid-1980s several studies were conducted that emphasized the importance of attention given to classroom management early in the school year (Emmer, Evertson, & Anderson, 1980, Evert & Emmer, 1982, Sanford & Evertson, 1981, Doyle, 1986). Other studies during the same period focused on the value of teacher training in effective classroom management techniques.

Jere Brophy and Mary McCaslin (1992) wrote the next extensive study on classroom management. It focused on 98 classroom teachers of varying levels of management skill and included both observations of the classrooms and interviews with the teachers themselves. This study found that teachers who successfully managed their classes used different strategies with different types of students. Those teachers who were less successful tended to use the same strategies repeatedly, regardless of the situation.
Margaret Wang, Geneva Haertel, and Herbert Walberg (1993) conducted another study entitled *Toward a Knowledge Base for School Learning*. They identified classroom management as the factor with the most significant influence on student achievement.

Carolyn Evertson, Edmund Emmer, and Murray Worsham (2003) released two books on classroom management that drew heavily from the research conducted in the 1980s and 1990s. Educators and administrators considered *Classroom Management for Elementary Teachers* and *Classroom Management for Middle and High School Teachers* to be essential tools for teachers who wanted to apply the research principles in their classrooms.

Evertsen and Weinstein (2006) found that teachers should maintain a balance between supporting, challenging, and demanding effort from students. Friedman (2006) found that teacher frustration and burnout increased when they were unable to develop relationships with students. Lewis (2008) stated that an inability to manage behavior problems in the classroom was one of the primary reasons for work dissatisfaction in teachers.

According to Stronge et al. (2011), teachers had a significant influence on learning. They studied the factors that made a teacher “good” and found that teachers’ management of classes and development of relationships with students were the most critical factors in the increase of learning in the school. This conclusion was supported by the research of Hattie (2009) and Nordenbo et al. (2008).

Additional research supported the idea that teachers who struggle with classroom management had lower levels of self-efficacy and higher levels of burnout (Aloe, Amo, & Shanahan, 2013). Other researchers also examined the link between the interactions of parents and teachers and the impact of those interactions on student behavior and success (Savas & Karakus, 2012).
Classroom Management

Educational scholars have conducted considerable research on the subject of classroom management. Studies identified classroom management as a necessary condition for effective teaching and learning to take place (Doyle, 1986; Ming-tak, Li, & Wai-shing, 2008; Strong et al., 2011). It was an anticipatory way to promote the personal, social, and emotional growth of students. Researchers first began to address this topic in the early 1900s, with more aspects and nuances capturing their attention as time passed. Historical research leaned heavily on descriptive or correlational methods and noted practices common to effective teachers. Rooted in a behaviorist philosophy and focused on pupil behavior and discipline (Doyle, 1986; Postholm, 2013), these studies formed the foundation for many textbooks that became common in teacher preparation programs or teacher development programs (Kounin, Friesen, & Norton, 1966). As time passed, some educators continued to follow the recommendations of these early studies, many of which lacked an established evidence base.

Some studies attempted to isolate particular aspects of classroom management to test the influence on student outcomes (Brekelmans et al., 2000; Brok, et al., 2004; Nordenbo et al., 2008; Hattie, 2009). Other studies looked at classroom management from the perspective of pre-service teachers or for staff development for new teachers (Emmer & Stough, 2001; Mitchell et al., 2009; Tulley & Chiu, 2010). Others attempted to quantify observable phenomena that occurred in the classrooms of experienced teachers thus tracing teachers’ daily decision-making (Borko & Cadwell, 1982; Emmer et al., 1994; Evertson, et al., 1994; Tulley & Chiu, 2010). Due to the wide variety of components, many studies narrowed the scope into the particular aspects researchers identified as “best practice” or “research-based” strategies (Marzano, et al., 2001;
More studies made frequent use of the terminology that referred to “evidence-based” practices. An EBSCO Academic Research Database search of the term “evidence-based classroom management” from the years 1980-2000 found 983 articles using this verbiage somewhere in the text. However, an adjustment of the dates to cover 2001-2020 found 9,591 articles, many of which included this phrase in the title of the article. Researchers had become much more aware of the need to include empirically-derived practices with practitioners often insisting on this designation before making adjustments to their methodology.

The phrase “evidence-based” was somewhat difficult to predicate as there were no set criteria for its characterization. However, many organizations, such as the Council for Exceptional Children, American Federation of Teachers, What Works Clearinghouse, and Institute of Educational Sciences, agreed on general principles, such as the use of a sound experimental or evaluation design, appropriate analytical procedures, empirical validation of effects, clear implementation, replication of outcomes across implementation sites, and evidence of sustainability (Kerr & Nelson, 2006). These studies often identified the physical arrangement of the classroom as one of the main categories of classroom management studies (Ahrentzen & Evans, 1984; Burgess & Fordyce, 1989; Maxwell, 1996; Weinstein, 1977). The physical arrangement of a classroom included any fixtures of a permanent structure, the placement of furniture, and visual displays (Simonsen et al., 2008). Weinstein (1977) found that changes in classroom design impacted negative behaviors and increased engagement and appropriate behaviors. This finding was significant in that it was one of the main focuses of the study.
Classroom management had two purposes. First, it was to establish an environment conducive to learning. Second, it contributed to students’ academic and social development (Postholm, 2013). The teacher was the single most important factor over which educators had control (Marzano, Marzano, & Pickering, 2003). The teacher’s management of the class, personal qualities, and relationships with students were the most critical factors in the work of learning (Nordenbo et al., 2008; Hattie, 2009; Stronge, Ward, & Grant, 2011).

Student Engagement

The power of student engagement had been established often through years of empirical research. According to Simonsen, et al. (2008), one of the critical features of effective classroom management was a teacher’s ability to actively engage students in observable ways. Studies demonstrated that schools and teachers were capable of improving the levels of engagement of students which resulted in considerable interest around the factors that fostered its development (Wigfield, et al., 2006). Educational research showed that intrinsic motivation and enjoyment of school declined throughout a student’s academic career with more dramatic losses during the transitions to middle and high school.

Experienced teachers were aware that if a student was not engaged with the content, he would not learn it. In the beginning stages of formal research, researchers identified student engagement by quantifying eye contact (Bender, 1985). If a student looked in the general direction of the lesson materials, whether it be in a textbook or on the board at the front of the classroom, the researcher categorized the behavior as an indication of the student’s engagement with the academic content (Bender, 1985). Other researchers quickly discredited this methodology because students could easily stare at a book without being engaged (Bender, 2017). Learning was an active process. When learning occurred, students energetically invested
and involved themselves in the process. They made a cognitive and emotional investment in what was occurring in their class. Engagement was not the primary goal of education, but it led to higher levels of student achievement. It was difficult to measure, so most research documented how a particular strategy impacted student achievement instead of student engagement (Bender, 2017).

According to Greenwood, Horton, and Utley (2002), engagement was a broad term that referred to the ways a student participated during classroom instruction. It involved both active and passive behaviors. Another study found engagement to be the best mediating variable between academic achievement and instruction (Greenwood, Terry, Marquis, & Walker, 1994). Students who were actively engaged in classroom instruction found it difficult to engage in undesirable behaviors. They also displayed more recall of classroom information. Teachers working to maximize their effectiveness looked for ways to increase the levels of engagement in their classrooms (Simonsen et al., 2008). Increasing the rate of student opportunities to respond had a positive effect on both student achievement and behavior (Sutherland et al., 2003). Long before the students entered the classroom, teachers planned for these opportunities to respond.

Engagement was often characterized by multiple components. Even early descriptions separated it into behavioral and affective factors (Finn, 1989; Newmann, Wehlage, & Lamborn, 1992; Marks, 2000). Later research identified three subtypes of student engagement (Fredericks et al., 2004). Behavioral engagement involved student participation during activities in the classroom, being on-task, following the teacher’s directions, and participating in classroom discussions. Emotional engagement was the students’ emotive reactions to teachers, students, learning, and school, including their sense of belonging and identity, as well as their level of interest, boredom, and anxiety.
Cognitive or academic engagement occurred when students thoughtfully solved problems in academic tasks. It also referred to the self-regulation strategies used by students in their learning process (Fredericks et al., 2004; Jimerson, Campos, & Greif, 2003; Gregory et al., 2014; Lei, Cui, & Zhou, 2018). Academic engagement was inversely related to disruptive behavior. As the academic engagement of a student increased, his or her disruptive behavior decreased (Downer, Rimm-Kaufman, & Pianta, 2007; Lane et al., 2007). Academic engagement was also related to achievement (Finn, Pannozzo, & Voclkl, 1995) and school attendance (Connell, Spencer, & Aber, 1994). Although these types had unique characteristics that distinguished them from one another, they were likely interrelated (Fredericks et al., 2004). “When students actively participate in assignments, their cognitive exertion and positive emotional responses to teachers may increase,” (Gregory et al., 2014). Engagement was a relational process that hinged on teachers’ ability to synch with students’ developmental needs (Pianta, Hamre, & Allen, 2012).

Several research-based strategies had a positive influence on student achievement (Simonsen et al., 2008; Trussel, 2008). Choral responding, response cards, direct instruction, class-wide peer tutoring, computer-assisted instruction, and guided notes were a few of the research-based engagement methods that showed great impact. Choral responding occurred when students were asked to answer a question in unison. More students were engaged than when a single student was called upon to respond. Response cards were used when all students wrote individual responses and held them up to be seen by the teacher. They were also used on marker boards with dry-erase markers. Direct instruction involved three phases that included teacher modeling, a teacher leading students through content, and testing student knowledge. In class-wide peer tutoring, students were given a partner and either served as the tutor or the tutee. They gave one another immediate feedback and corrections while the teacher moved from group
to group and assisted those with greater need. Computer-assisted instruction gave students one-on-one technology instruction. Guided notes were outlines created by the teacher with blanks for students to fill in notes as discussion takes place in the classroom. Each of these methods showed evidence of improved academic achievement. Economically-disadvantaged students showed the greatest improvement with direct instruction techniques (Simonsen et al., 2008). Another study found that whole-group response systems, integration of movement, visual strategies, and creative opportunities for students to choose increased levels of student engagement (Nagro, Fraser, & Hooks, 2018).

Other studies focused on aspects of increasing student engagement other than classroom instruction strategies (Furrer, Skinner, & Pitzer, 2014; Roorda et al., 2017). Relationships between teachers and students were found to foster higher levels of student engagement. Subsequent studies focused on teacher actions to increase students’ feelings of belonging in classrooms and their behavioral engagement (Farrington, et al., 2012; Fredericks & McCloskey, 2012). According to a study by Keyes (2019), fostering relationships with students and encouraging them in their relationships with one another were excellent ways to increase behavioral engagement. Another way was using specific teaching practices that encouraged students to participate in class work. Teachers were most successful when they listened to students, provided relevant lessons, created seating arrangements that facilitated pair and group work, and supported students. In a meta-analysis of 189 studies including almost 250,000 students, the mediating role of engagement between teacher-student relationships and student achievement was analyzed (Roorda et al., 2017). Effective relationships were directly associated with student engagement and achievement. This study also provided evidence of the role of engagement in explaining the link between teacher-student relationships and achievement and
that this mediating role of engagement held over time. The association was more influential in
secondary school than in primary school.

Other studies have sought to offer evidence to address whether or not student engagement
positively predicts academic achievement (Lei, Cui, & Zhou, 2018; Lee, 2014). In one example,
Lei, Cui, and Zhou performed a meta-analysis of 69 studies containing almost 200,000
participants. They found a moderately strong and positive correlation between academic
achievement and overall student engagement. They focused on the behavioral, cognitive, and
emotional dimensions of engagement and found a positive correlation with student academic
achievement in almost all areas.

In another study, Lee used U.S. data from the 2014 Program for International Student
Assessment to examine the relationship between academic performance and student engagement.
He pointed to the lack of data firmly connecting student engagement with academic
performance. The data showed that behavioral and emotional engagement significantly
predicted reading performance. He recommended that educators and policymakers spend more
time researching student engagement and ways to increase it.

However, not all studies have shown a positive relationship between student engagement
and academic achievement. Appleton, et al. (2006) concentrated on cognitive and psychological
engagement to determine correlation with expected educational outcomes. The study found a
correlation between cognitive engagement and academic achievement to be weak. As
researchers attempted to explain racial and ethnic differences in achievement, the role of student
engagement became a focus of analysis.

In a study by Shernoff and Schmidt (2008), students with high levels of engagement and
motivation displayed lower levels of academic achievement as measured by grade point average.
This disparity between engagement and academic achievement was particularly true among African-American students and students from low socio-economic communities. However, this study showed differences in the relationship between engagement and on-task behavior. Being on-task in classrooms and being in school as opposed to at home or in public had a positive effect on the engagement of African-American students.

Shernoff (2010) studied student engagement related to outcomes in after-school programming. He found a significant correlation between participation in the program and in math and English scores, but no significant correlation between engagement and those same achievement scores. He did find higher social competence associated with engagement, despite the lack of correlation with achievement. This study showed both positive and negative effects that canceled a significant direct effect.

Chen, Yang, Bear, and Zhen (2013) observed a similar outcome when they attempted to apply the research on the influence of school climate and school engagement on student outcomes. The study attempted to test whether there would be significant differences in results in non-Western cultures. They found no significant correlation between student engagement and academic achievement.

Researchers attempted to analyze the reasons for the lack of connection shown in studies such as these (Lei, Cui, & Zhou, 2018). One possibility was that students who struggled in class lacked the foundation of skills that promoted learning. The researchers speculated that improved achievement might have continued to be an obstacle for those students regardless of their engagement. High achieving students might not have required the same level of engagement to secure those high scores. Another influence might have been the small sample sizes of some of the studies. Other researchers pointed out the influence of the method of reporting, as well as
cultural and gender influences (Fredericks, Blumenfeld, & Paris, 2004; Marks, 2000; Shernoff & Schmidt, 2008).

Lei, Cui, and Zhou (2018) attempted to account for some of these factors in a meta-analysis that statistically integrated the results of 69 independent studies. They considered the influence of student-reported behavioral engagement as opposed to teacher-reported behavioral engagement. They also quantitatively analyzed the data from all of the selected studies to detect the relationship between academic achievement and the various facets of student engagement. They attempted to explain the influence of potential moderators, such as the reporting method, gender, and cultural influences. Overall, they found that a higher level of behavioral, emotional, and cognitive engagement was associated with higher achievement. This association was expressed as a medium-positive correlation. The highest effect existed between behavioral engagement and academic achievement. The lowest effect occurred between emotional engagement and academic achievement.

Most studies treated student engagement as a predictor, or at least a significant contributor, to academic achievement (Boulton et al., 2019; Lee, 2014; Reinke, 2019; Wang & Degol, 2014). However, the relationship between student engagement and academic achievement was made even more complicated by the assertion in some research that poor academic achievement caused low levels of student engagement (Bloom, 1976). They believed that as children became accustomed to evidence of their ineptitude and the lack of positive reinforcement by teachers and parents, they became less engaged in the educational process, and active involvement became more difficult to achieve. Child development experts asserted that there were risk factors present in some students upon their entry into school. Some of these risks were poverty, learning disabilities, cognitive challenges, mood disorders, and physical
handicaps. Without purposeful intervention, these children were susceptible to intense struggle. These risk factors carried on into their lives beyond school and reduced the likelihood of healthy and productive lives (Willms, 2003). Reading challenges were common with these students, and by the middle grades they often displayed a lack of commitment to school activities. These issues continued to worsen through the secondary years, and these students were at a higher risk for behavior issues and school drop-out (Cole & Jacobs, 1993).

A few studies proposed the idea that student engagement was a dependent variable and examined the differences in levels of student engagement in particular schools (Finn & Voelkl, 1993; Fredricks & McColskey, 2011; Johnson et al., 2001; Willms, 2003). Studies in the early 1990s found minor improvements with school restructuring (Lee & Smith, 1993). Schools began the shift to strategies such as team teaching, heterogeneous grouping, and less subject-area grouping. These approaches made slight improvements to the levels of student engagement.

According to findings by Willms (2003), when researchers studied a student’s sense of belonging as an aspect of student engagement, the results showed that it was not related to literacy skills or participation. Students who had a low sense of belonging were usually either high academic performers or those with low literacy abilities. They also exhibited a wide range of socioeconomic status. Students’ participation was also weakly related to literacy achievement. Although school attendance was a factor for some struggling students, most students with low literacy skills did not exhibit attendance problems. Practitioners should not view engagement as a forerunner to academic achievement. Student engagement in the classroom showed benefits in and of itself and improved outcomes of belonging and participation in school.
Impact of relationships on student engagement. Relationships had an extraordinary power to impact student engagement. An extensive body of research existed in support of high-quality peer relationships, as well as close, caring teacher-student relationships (Juvonen, Espinoza, & Knifsend, 2012; Pianta, Hamre, & Allen, 2012). Students who experienced rejection, social isolation, or low-quality peer interactions were more likely to lack engagement with their school experience and to drop out. Although teachers recognized the importance of dedicating time to foster these quality relationships, they felt forced to spend time on activities that interfered with good teaching. The current educational landscape placed expectations and pressures for accountability and high-stakes testing on teachers. Instruction had been primarily standardized to incorporate evidence-based practices. Many educators believed this had undermined the teacher’s expertise and professional skillset. Teachers spent a great deal of time on deficit-driven instruction en lieu of time that was previously spent building one-on-one rapport with students (Valli & Buese, 2007).

Quality classroom relationships were easily recognizable by anyone who spent time in the classroom. They supported each individual’s need for competence, relatedness, and autonomy (Skinner, 1995). Skinner described competence as the human need to feel capable in interactions. Environmental structure increased competence, but chaos crippled it. Skinner defined relatedness as the basic need to be connected and belong to a larger social body. Warmth in the classroom promoted relatedness, whereas rejection eroded it. All humans had a need to authentically express themselves and to be the origin of action. This need was defined as autonomy. Support from the teacher increased autonomy, while intimidation impeded it. When the classroom environment met the basic needs of a student, he was much more likely to engage in classroom interactions and learning (Skinner, et al., 2008).
Students felt a sense of belonging through the teacher’s expression of involvement and warmth (Martin & Dowson, 2009). Teachers who proved to be dependable sources of support for students and showed pleasure in student classroom presence gave students a basis for connection and feelings of security in the school environment. Students also benefitted from a structure in which teachers expressed consistently high expectations, as well as reasonable limits for behavior and classroom performance. Students became aware of the teacher’s confidence in their abilities as students, and they learned to trust that the teacher would help them to reach high levels of achievement (Stipek, 2002). These quality teacher-student interactions helped shape students’ feelings about their ability to perform and the capability of meeting expectations.

When teachers supported a student’s autonomy, it forged a student’s motivation. Students responded to teachers who sought out and listened to their input, valued their experience, and provided them with options about how to approach the learning (Reeve & Jang, 2006). Teachers who engaged with students and explained the relevance of unpleasant tasks built trust, and students internalized the significance of learning.

Relationships with peers were strengthened when teachers provided students with opportunities to talk and listen to one another, furnished emotional encouragement, and participated together in learning endeavors. Peers contributed to a student’s feelings of autonomy by attempting to understand other viewpoints. Greater feelings of autonomy encouraged student cooperation with one another on projects, engagement in self-exploration, and sharing of unique ideas. All of these things worked together to increase the levels of student engagement (Wentzel, 2009).

When teachers and peers failed to meet the basic relational needs of students, they became alienated and discontented in the classroom. These poor relationships became liabilities,
and the likelihood of constructive interactions or re-engagement in the learning process faded. These students found themselves falling further and further behind (Roeser, Eccles, & Sameroff, 1998; Furrer, Skinner, & Pitzer, 2014).

**On task or engaged?** Danielson (2011) made the distinction between students who were engaged in the lesson and those who were simply on task. When students were genuinely engaged in their learning, they were more than just busy. They were cognitively attempting to incorporate new knowledge (Angaran, 2016). Students only remembered what they thought about (Almarode & Miller, 2017). Researchers observed behaviors they considered to be evidence of engagement, but the kind of engagement that led to deep learning was a three-dimensional concept. Often teachers and observers looked at engagement as a checklist or simply a “yes” or “no” question (Schwartz, 2016). According to Almarode (2018), on-task behavior was not a reliable measure of learning. Even the use of technological devices did not ensure student engagement in learning.

Often when teachers described a student whom they believed to be engaged, they mentioned behaviors such as looking at the teacher, taking notes, and discussing the learning topic with peers. The key was to look for behavioral, emotional, and cognitive engagements at work simultaneously. Danielson (2011) described the importance of including quality activities, thoughtful grouping of students, purposeful instructional materials, and appropriate structure and pacing. To encourage engagement, she also suggested varying the format of the lessons, maximizing opportunities for students to respond, using peer-tutors on challenging assignments, allowing students lots of opportunities for choice, encouraging students to revise unsatisfactory work, and reducing the length of specific assignments for struggling students.
Engaged students were often positive about their learning experiences. Neuroscience asserted that emotion drives cognition, but happy students were still not engaged at the highest levels. Antonetti and Garver (2015) outlined eight features of classroom tasks and strategies aligned with sustained, quality engagement. They asserted that teachers who wished to have their students actively engaged provided opportunities for a personal response. Students had the chance to participate in learning by incorporating their own experiences. The way they responded to the task allowed for the inclusion of their background and ability. Teachers were clear about their expectations and modeled what success entailed. The researchers suggested that they do this through the use of exemplars, rubrics, or modeling. Teachers created a sense of audience. The students understood that their work mattered to someone other than the teacher in the classroom.

Allowing students to work in groups with assigned roles or to complete community-service projects were ways to make the work meaningful. Teachers made sure to include plenty of opportunities for social interaction. Talking was identified as a brain activity that helped individuals to think and make sense of things around them. Encouraging and even expecting students to talk to one another in productive ways was a path to enhanced educational outcomes.

Teachers also ensured the emotional safety of their classrooms. Students were free to make mistakes and interact. Vulnerable students would not engage. Students also had choices about how they attempted and demonstrated learning. Classroom learning should not be boring. In an attempt to add interest, teachers thought of unique ways to present their material. Finally, the learning was authentic and relevant. In a lesson about habitats, asking students to create an imaginary animal and describe his habitat was not authentic learning. A better plan was to have
them research animals on the verge of extinction and make suggestions for changes to their habitat that might save them (Antonetti & Garver, 2015).

It was virtually impossible to include all eight features in every lesson, but Antonetti (2015) found that in classrooms that made use of at least three in each lesson, students sustained engagement 84-86% of the time. When two characteristics were present, they were engaged 16% of the time, and when one characteristic was present, the level of engagement dropped to less than 4% (Antonetti & Garver, 2015). Quality student engagement did not occur without conscious effort. Teachers needed to consider what kinds of student engagement characteristics they wanted to incorporate when they were in the planning stages of their lessons.

**Classroom Arrangement**

Teachers had two distinct functions in the classroom. One function was an authoritative role. They managed the social network of the classroom directly. Another function was a facilitative role. In this capacity, they assisted students in creating their roles, groups, and cultures among their peers. Arrangement of the seating in the classroom was one way that teachers fulfilled their facilitative role (Gest & Rodkin, 2011; Gremmen et al., 2016). The physical arrangement of the classroom environment impacted the teacher’s movement among students and increased her contact with students. Increased teacher contact had the potential to intensify the levels of student engagement in the classroom (Guardino & Antia, 2012).

Classroom arrangements impacted thinking (Cheryan, Ziegler, Plaut, & Meltzoff, 2014; Suleman & Hussain, 2014). In the early years of educational research, most guidance was based on theories or a teacher’s personal experience or recommendations. Much of this information was incorrect or inconsistent, which led struggling teachers to believe that successful
management of a classroom was purely an art. By the mid-1980s, this trend had changed due to careful research that increased the amount of specific, detailed information available.

Highly-functioning classrooms began well before the first day of school (Nash, 1981). Teachers thoughtfully arranged their classrooms for smooth procedures, expedient paper flow, and quality student engagement (Brophy, 1983). Researchers studied the physical aspects of classrooms, such as student seating, positioning of the teacher’s desk, the use of materials, lighting, and classroom noise (Cheryan, Ziegler, Plaut, & Meltzoff, 2014; Fullerton & Guardino, 2010; Guardino & Antia, 2012; Suleman & Hussain, 2014). Students spent a great deal of time in a classroom arranged by the teacher. Studies demonstrated the importance of the classroom arrangement on student learning and behavior (Denton, 1992). Classroom arrangement influenced the way students and teachers felt about school and largely determined the efficiency of teaching.

Studies about the location of the teacher’s desk indicated that when the desk was in a central location, the teacher spent more time at her desk instead of interacting with students (Reeve et al., 2004; Middlecamp, 2005; Ezrailson et al., 2006). Increased teacher-engagement time with students increased student achievement. Classrooms with the skillful organization of materials in locations easily accessible to students saw fewer interruptions and discipline difficulties (Trussel, 2008). Too much or too little lighting in the classroom also impacted student behaviors and engagement. Lighting was especially problematic for students with emotional disturbances (Visser, 2001). A noisy environment made it difficult for students to engage with the teacher and focus on the assigned work (Robinshaw, 2007).

Adjustments to classroom seating arrangements were usually quite simple changes for a teacher to make. Teachers used the classroom seating arrangement as a tool to improve peer
relations and reduce problem behaviors (van den Berg, Sergers, & Cillessen, 2011; Denton, 1992; McKeown, Stringer, & Cairns, 2016; Zifferblatt, 1972). Classrooms also benefitted from areas dedicated to distinct purposes (Guardino & Fullerton, 2010). When choosing an organizational style for a classroom, often the teacher’s philosophy and methods of teaching played a pivotal role. The particular methodologies of teachers influenced the spatial arrangements they chose. Some teachers preferred sparse furnishings, while a more invigorating environment for students captivated others.

Diversity in teacher philosophy contributed to varied teaching goals as well, and often explained the differences in seating arrangements chosen by teachers (Fives & Buehl, 2008; Kuzborska, 2011). First, teachers tended to be either student-oriented or subject-matter oriented. Student-oriented teachers focused on the differences among students and emphasized collaboration and individual development of skills and aptitude. Subject-matter-oriented teachers focused on the teacher as an expert with the primary task of transmitting information. Teachers very likely had traits from both views (De Vries et al., 2013). These teacher views undoubtedly impacted the way teachers arranged their classrooms. The student-oriented teachers were generally more focused on student collaboration and attempted to improve the interaction between students. Therefore, they were more likely to choose a seating arrangement that utilized groups to encourage student cooperation. Second, the number of years of experience that a teacher had in the classroom was a trait that explained teacher differences. Research had shown that more experienced teachers often became more controlling as the years passed (Ünal & Ünal, 2012). Beginning teachers often focused on the interaction between students; however, they often found themselves challenged by student behaviors and chose seating arrangements accordingly. A third influence was the gender of the teacher. In answering questions about the
decisions they made regarding seating arrangements, female teachers mentioned significantly more social interactions than male teachers (Gremmen et al., 2016). Women teachers were more socially oriented, so they had more social considerations for their classroom practices than men (Goldenberg & Roberts, 2013). Teachers did report using some common strategies such as alphabetical order, student gender, and ability grouping for assigning seats (McKeown et al., 2015).

Students also preferred one type of learning environment over another, depending on their learning style. Teachers worked with students who came with a wide variety of needs and preferences and arranged their classrooms to meet the needs of those students (Gregoric, 1985). The key factor in accommodating all of this variance was flexibility. Teachers were able to adjust the arrangement of the environment and created a more productive context for learning as the learning goals for any given day changed. Engaged students learned more and misbehaved less (Tauber, 2007).

Teachers considered many factors in the arrangement of their classrooms. They accommodated workspace for students, general seating arrangements, a teacher work area, special occasion areas, as well as convenient traffic flow. Teachers had very little control over the actual amount of space with which they had to work, but thoughtful arrangement increased the workability of the space they had been given (Charles, 1983). Researchers suggested that the most useful arrangements put few barriers between teachers and students (Jones, 1987; Tauber, 2007). Effective teachers spent more time circulating among students and interacting with them while they worked, as opposed to standing at the front of the room merely presenting information. They stated that their students only learned when they were actively involved in doing something (Tauber, 2007).
Regardless of the chosen arrangement, it should be flexible. The most common types of furniture for student seating were individual desks, small tables for two students, and large tables for four to six students (Tauber, 2007). Individual student desks allowed for the highest level of flexibility with the arrangement. In observations of effective classrooms, many teachers utilized an interior loop, which allowed for easy access to student work and interaction with individual students. Most of the teachers in this study adopted assigned seating. They stated that students were more engaged when the teacher took into account the best location to meet their learning needs.

**Teacher vs. student-centered classrooms.** Many studies focused on identifying the best arrangements for classroom seating (Hara, 2009; Kennedy, 2015; Price, 2019). Classrooms were generally either teacher-centered or student-centered. In a teacher-centered classroom, the focus was mainly on the teacher who did most of the talking while the students listened or took notes. Students most often completed work activities alone, with little collaboration. The lack of interaction between students was beneficial for teaching students independence and decision-making. Because the teacher was presenting all the necessary information, teachers were more confident that students had not missed hearing about an important topic. Teacher-centered classrooms were very orderly. Students remained quiet, and teachers retained most of the control. However, this style was often very boring for students. They missed essential details because they focused on elements other than the material presented. Students did not learn how to collaborate with others, and they missed the development of communication skills.

In student-centered classrooms, students and instructors shared the focus and interacted equally. Students spent as much time listening to other students and working together as they did listening to the teacher-presented information. They learned how to communicate and
collaborate with others. They learned to ask questions and direct their learning. They were more interested in activities over which they had some degree of control. Even with all of these benefits, student-centered classrooms had challenges of their own. They were more noisy and chaotic. Teachers needed to become skilled at managing many different activities at the same time. Because the teacher was not always providing information to all students at the same time, some students missed critical facts. For students who preferred to work alone, group work could be frustrating (Hara, 2009; Kennedy, 2015; Price, 2019).

Most studies found that a combination of the approaches was best to meet all the needs of the students in the classroom (Kennedy, 2015; Price, 2019). Classrooms were rarely ever completely teacher-centered or completely student-centered. Rather, they existed on some continuum between the two (Kennedy, 2015). The focus of the class changed from time to time, as the needs of the class changed. When a time constraint forced the teacher to communicate a large dose of information to the entire class, the teacher-centered approach might have been the most effective. Additionally, when the teacher facilitated all discussions from the front of the room, topics with the potential to confuse may have been addressed quickly (Price, 2019).

As educators began to rethink the idea of straight rows of desks with a teacher at the front of the room lecturing, the architecture of the classroom became an aspect of the classroom environment that was imperative to consider. If teachers wanted students to work together and engage in quality discussions, they needed to address the obstacles to that process.

**Traditional seating.** Researchers examined all types of seating arrangements. The most common was the traditional seating arrangement of students in straight rows of desks, all facing the front of the room, sometimes referred to as row-and-column seating (Sztejnberg & Finch, 2014). Although Dewey (1980) called for a move away from traditional row seating in the
1800s because he believed it stifled creativity and experimentation, this seating arrangement remained common. Some more recent researchers disagreed with Dewey and argued that it could be a useful tool, depending on the desired type of communication for a particular lesson (Hurt, Scott, & McCroskey, 1978). Traditional seating arrangements had shown to increase the levels of on-task behavior, such as compliance and eye-contact with the materials and the teacher (Wannarka & Ruhl, 2008). Additional studies required teachers to label students as high, medium, or low depending on their level of on-task behavior (Wheldall & Lam 1981; Wheldall & Lam, 1987). Students who were well-behaved (high) showed very little change in behavior when switched from rows to clusters. Moderately (medium) engaged students showed an intermediate change, while students ranked as low and those with behavioral difficulties, showed “substantial” improvement. In traditional seating, no student had a direct view of any other student. Quality interaction with anyone other than the teacher was virtually impossible. Some researchers pointed out that rows in a classroom promoted anonymity (Dillon, 2018). Teacher-centered classrooms often utilized this seating arrangement. The teacher often chose to stand at the front of the room disseminating information to students who interacted with him alone. This type of seating arrangement was least useful for tasks requiring social interaction and most useful for independent work requiring quiet concentration. Traditional seating decreased the levels of off-task behavior, as well as the rate of question-asking, for the entire class (Wannarka & Ruhl, 2008).

Students in the first couple of rows generally answered more questions than those in the back of the room. Adams and Biddle (1970) first referred to this area as the “action zone.” The action zone in a classroom was the area in which the most excitement, interest, and participation occurred (Marx, Fuhrer, & Hartig, 2000). Adams and Biddle described an inverted T shape in a
traditional classroom setting that typically consisted of the front rows and down the aisles directly facing the teacher. Koneya (1976) expanded on this concept by describing a triangle that formed when the action zone dissolved toward the back and center of the room. It extended across the front row and ended at the middle seat of the middle row. Students within the action zone could hear and see the teacher and display materials better, and the teacher could hear and see those students better (Wannarka & Ruhl, 2008). When collecting data on the classroom interactions, researchers noted 61% of the students from the front and center of the classroom volunteered to participate compared with only 31% of the students from the back and sides (Sommer, 1967). Reflective teachers recognized this problem and implemented various strategies, such as walking around the room or purposefully asking questions of students in various locations around the room, in an attempt to reduce the impact of this tendency. However, studies showed that students outside the action zone still did not receive the same level of teacher attention (Granstrom, 1996; Moore & Glynn, 1984; Shamin, 1996). The students had a greater tendency to turn their attention to other activities in the classroom.

Students who chose to sit within the action zone tended to be more assertive, display more creativity and self-esteem, and were more successful than those who chose to sit near the back of the classroom. When researchers moved students from the action zone to the back of the class, they tended to achieve at the same level as they had within the action zone (Benedict & Hoag, 2004). However, when researchers moved students from the back seats into the action zone, the scores of those students increased. Students forced out of the middle zone and into the back and sides saw their scores decrease. Therefore, both the personality tendencies of particular students and the students’ location in the room came to bear on their achievement in the classroom. Researchers suggested that seating placement could improve academic achievement
Because not every child could sit in the action zone all the time, researchers made teachers aware of this phenomenon, and the teachers worked to strategically combat the tendency to neglect certain areas of the room. The research indicated that rotating students’ location in the classroom bore consideration, as well.

**Circular seating.** Another commonly researched classroom organization was one in which teachers arranged all desks or student seats in a circle. This type of arrangement instilled a sense of belonging in the students. It also had overall positive effects on learning, emotions, and well-being (Bourdieu et al., 1994; Falout, 2013; St. Onge & Eitel, 2017). Some research included variations such as ovals, irregular circles, and broken circles in this category (Falout, 2014; Minchen, 2007). Theorists often pointed to historic human habits, such as sitting around campfires and Romans gathering in the Colosseum, as evidence of our predisposition to this interactive arrangement (Falout, 2014). Circular arrangements remained popular due to the powerful influences inherent when people interacted in this manner. Research showed that students seated in circles engaged in significantly more on-task behavior than those in rows (Hastings & Schweiso, 1995; Marx, Furher, & Hartig, 2000; Rosenfield et al., 1985; Whedal & Lam, 1987; Wolf & Rickard, 2003). Students in clusters engaged in more on-task behaviors than those in rows, but not as much as those in circles (Rosenfeld, Lambert, & Black, 1985). This type of arrangement was great for interactive plans like brainstorming and questioning (Wannarka & Ruhl, 2008).

When teachers arranged student desks in a circle, a speaker was more likely to get a response from a person opposite or nearly opposite to him than from someone seated adjacent to him (Gremmen et al., 2018; McKeown, 2016; Steinzor, 1950).
Researchers drew a comparison between sociopetal and sociofugal spaces (Scott-Webber, 2004; Sommer, 1969; Sugihto, 2016). Sociopetal spaces were places designed to bring people together and encourage interaction. Examples were: playgrounds, restaurants, and chairs around a coffee table. Sociofugal spaces minimized contact between people. Examples of this were: library carrels, waiting rooms, and church pews. Humans needed both types of spaces in order to function productively. Different situations called for different types of spaces. The circular seating arrangement in the classroom took a sociofugal space and turned it into a sociopetal one (Sztejnberg & Finch, 2006). There were times in a classroom that students needed space that discouraged interaction, and other times that interaction enhanced the learning for everyone. One of the most important jobs of a teacher was determining which type of environment was necessary for the maximum learning to take place at any given point. In circular arrangements, the effect of the action zone was less evident. Circular seating could turn the entire class into an action zone (Falout, 2014).

**Semi-circular/horseshoe seating.** Another common classroom seating arrangement was a semi-circular or horseshoe arrangement. In this particular arrangement, the teacher often stood at the opening of the circle with students stationed in such a way as to give them direct visual contact with the teacher and one another. Studies suggested that this arrangement was best when the teacher wished to elicit both student-to-student communication as well as student-to-teacher communication (McCorskey & McVetta, 1978). It was an effective arrangement when the focus was on discussion and higher-order thinking, as opposed to simply “right” or “wrong” answers.

In a study comparing semi-circular seating with traditional seating, students showed a higher rate of question-asking to the teacher when in a semi-circle (Marx et al., 2000). Attention, interest, and social interaction increased due to the ease of communication. Students asked more
questions in a semi-circular arrangement than in the traditional arrangement. Action zones also failed to emerge, giving support to the idea that this arrangement was more socially inclusive than other arrangements.

Semi-circular arrangements were the most conducive to peer collaborative work as well as communication with the teacher. Some researchers questioned whether the increase in the interaction was due in part to the students’ proximity to the teacher or the face-to-face orientation with the teacher (Marx et al., 2000). Further research would be necessary to clarify any impact.

Within semi-circular arrangements, patterns of interaction emerged. Some groups exhibited more of a fan pattern. In this pattern, the instructor spoke to the students occasionally, and the students spoke back to the instructor. Several formats made use of the fan arrangement. Lecture, demonstration, and studio were three such formats. Another pattern of interaction that occurred in a fan arrangement was the web. Sometimes an instructor moderated the web, and other times students controlled all the interactions of the web. Students produced all of the desired interactions in an unmoderated web. The teacher posed questions and summarized, but it was up to the students to carry the communication. Moderated webs typically formed more of a circle as the instructor became part of the circle or sat just outside the circle to observe and facilitate. The moderated web was the pattern often used in a Socratic seminar (also called discussion teaching) and in some large business school classes. Teachers trained the students in methods to manage the interaction, and the teacher often plotted the path of communication (O’Hare, 1998).

Students in assigned seats in a semi-circular arrangement asked more questions than those in assigned seats in traditional arrangements (Marx et al., 2000). Researchers randomly chose the location of student seats in the semi-circle each time the seating arrangement changed.
This random selection reduced the impact of differences in student personalities because students did not choose their own seat. Therefore, the effect of the seat location was independent of the student characteristics.

**Round table/modular seating.** The modular arrangement was useful when student-to-student communication was the most important (McCorskey & McVetta, 1978). It enabled the maximum amount of interaction among the members of the group while diminishing the intrusion of one group upon the work of another. The teacher was less of a focus in the modular arrangement than in any of the previous arrangements. The main drive behind all types of small group activities around tables was to increase the individual learning of students by actively engaging them in the learning process. Researchers measured this increase in learning by improved performance on individual assignments. Teachers used round table arrangements when students needed to work collaboratively in smaller groups (Hurt, Scott, & McCroskey, 1978; Marx, Furher, & Hartig, 2000; Patton, 2001; Rosenfeld, Lambert, & Black, 1985).

Generally, researchers found that students benefitted from cognitive, as well as social-emotional gains when they participated in cooperative learning groups. Students also appreciated having physical flexibility to work comfortably in teams, as well as having space between groups (Espey, 2008). Students seated around tables scattered around a classroom could establish face-to-face contact easier than those in traditional row-and-column arrangements (Gump, 1987). However, sometimes they were not facing in a direction to facilitate eye contact with the teacher.

Research examining student learning and attitudes when using small groups in a team-based learning design showed that students’ perceptions were affected by the comfort and physical ease of communication within the groups (Espey, 2008; Gremmen, 2018; Marx et al.,
There was a higher degree of learning and perceived enjoyment of the process when teachers arranged classrooms and groups with careful attention to spacing.

**Assigned seating or student choice.** Another issue in classroom seating arrangements was whether the teacher assigned the students a location to sit in the classroom or allowed the students to choose their seats. When students chose their seats, their selection was highly associated with their motivation, personality, and desire for participation (Weinstein, 1985). However, other researchers believed that the seat selection itself might have contributed to whether a student did well or poorly (Perkins & Wieman, 2005). In one study, researchers randomly assigned students to particular seats at the beginning of the semester. During the first half of the semester, the seat location had a marked influence on student achievement. Students assigned to seats in the back of the room for the first half of the term were nearly six times as likely to receive a failing grade as those who started in the front of the room. Halfway through the term, the researchers reversed the students’ locations, but the failing students continued to fail. Extensive measures were taken by the professors to achieve student engagement and discussion. After the researchers switched the seat locations, the researchers noticed that the students in the back of the room who started the semester in the front attended more often and asked significantly more questions than those who were now in the front. The GPAs of the two groups were virtually identical, indicating that the student populations were similar. The farther the original seat was from the front of the class, the lower the attendance, and the larger the drop-off in attendance from the first term to the second term. The reduction in achievement underscored the importance of the assigned-seat location of students. When students chose their seats, they remained in cliques, or they chose locations that did not serve to improve their academic performance (Perkins & Wieman, 2005).
In a study by Marx, Fuhrer, and Hartig (2000), assigned-seat locations influenced question-asking rates. The researchers compared rates of interaction for traditional seating and semi-circular seating. To mitigate the possibility that outgoing students asked more questions regardless of their seating location, students’ seats were changed randomly for each data collection session.

**Literature Related to the Study**

In a study by St. Orge and Eitel (2017), researchers observed four circular arrangements in both outdoor and indoor settings. The arrangements were tested 86 times over four weeks, with 12-15 students per group. Four instructors participated and worked with each group to eliminate the effect of possible differences in instructor style, enthusiasm, and expertise. All of the sessions focused on science standards using lectures, discussions, and activities. Researchers and the instructors gathered data on the percentage of students who were engaged in each arrangement. Engagement was defined as direct eye contact toward the instructor or toward the group, body language directed toward the instructor or the group, and active participation verbally and non-verbally with the project occurring within the circle. Student engagement and participation were highest in the formation where all members, including the instructor, were seated. In that particular arrangement, 88% of the students were engaged. Another circular arrangement involved the instructor and the students all standing. In this formation, 74% of the students were engaged. In a third circle formation, the instructor was seated, and all the students stood. In this example, 82% of the students were engaged. The last formation involved the instructor standing and the students sitting. This arrangement showed the lowest levels of engagement, with only 70% of the students engaged in the activity.
St. Orge and Eitel (2017) hypothesized that students were more engaged when everyone was on the same eye level, and the data appeared to support that hypothesis. In contrast, when some members of the discussion group were seated while others stood, the group dynamic changed, and students lost the benefit of verbal and non-verbal expressions. When the environment was healthy and positive, students showed higher levels of participation. The circle formation with all members on the same level allowed students to feel more at ease and helped them to engage in the task at hand. When students made eye contact with one another and the teacher, they felt included and that their input was valued. This arrangement was especially beneficial for more-reserved students. Instructors also felt more comfortable with their students, which made group discussion more natural for them.

A second study conducted by Fernandes, Huang, and Rinaldo (2011) analyzed the impact of student seating choices on their learning, their relationships with other students and the teacher, and their participation in the classroom. They also discussed the implications of student control on their seating location. One common assumption was that students’ choice of a seat location was a direct indication of their internal motivation for learning (Benedict & Hoag, 2004; Betoret & Artiga, 2004; Marx, Fuhrer, & Hartig, 2000; Wannarka & Ruhl, 2008). Other research indicated that the location of the student’s seat might determine the kind of student that he or she became (Burda & Brooks, 1996; Perkins & Wieman, 2005; Sztejnberg & Finch, 2006). Research also showed that the location of a student’s seat impacted his or her achievement and participation in the classroom (Budge, 2000; Marx, Fuhrer, & Hartig, 2000; Wannarka & Ruhl, 2008).

Seating arrangements improved the atmosphere of the classroom. Certain seating arrangements encouraged certain positive and negative behaviors. Depending on the type of
interaction desired by the teacher in that lesson, he or she chose an arrangement to encourage the desired interaction. The students’ location in the classroom impacted the amount and type of non-academic behavior in which the students were engaged. It was important for a teacher to consider the shape of seating with the conscious thought of maintaining a line of sight with the students. The teaching style of the teacher often impacted the seating arrangements he or she chose, which did not take into consideration the emotional and academic needs of the students (Fernandes, Huang, and Rinaldo, 2011).

Students who chose to sit at the front of the room demonstrated a greater chance of earning an A or a B while those in the back had a higher chance of receiving a D or an F. Part-way through the study, the researchers moved the students. Students who were sitting in the front had a better chance of increasing their grade in the course. In the case of student-chosen seats, teachers made great effort to avoid judging the academic intention of those students based on where they chose to sit. Sometimes the seat selection was driven by the availability of preferable seats or the student’s cultural background (Fernandes, Huang, and Rinaldo, 2011).

A third study was conducted by Sztejnberg and Finch (2006). This study analyzed how secondary teachers made use of the learning environment adaptively. The researchers used a multi-method approach to determine the relationship between teaching style, learning style, and the use of space in the classroom. The researchers conducted a case study of chemistry classes in ten secondary schools outside of the United States. They used spacial observations (mapping) and questionnaires for data collection. This study was a follow-up to two previous studies that focused on the relationship between teachers and students, its connection to the teachers’ preferred communication styles, and the students’ emotional perspectives. This particular study considered instruction from the viewpoint of the teacher. The questionnaires utilized the
Principles of Adult Learning Scale (PALS). To investigate the quality of the learning experience, the researchers grouped the arrangements into sociofugal and sociopetal types. They studied seven specific physical characteristics of the classrooms and identified whether the seating arrangement was interactive or non-interactive. Researchers also studied brightness, seating comfort, interior variety, room size, outdoor view, seating quality, overall preference, and friendliness. Floor plans were submitted by the teachers of the chemistry classes. Researchers compared the room arrangements with the information gathered about the teachers’ style through the PALS questionnaire. They found that classroom environments were either traditional or non-traditional based on classroom activity. Teacher-centered classes tended to use rows and columns of desks or tables. Most of the classes they observed used this arrangement. The teachers generally believed their environment to be teacher-centered or student-centered. The styles in the questionnaires tended to be a combination of the two.

A fourth study (Woodson, 2013) was conducted in a secondary school in Texas to examine the effectiveness of classroom seating arrangements. It was a mixed-method study using a qualitative study that compared and contrasted five distinct arrangements using student surveys, teacher interviews, and administration questionnaires. The quantitative aspects of the study measured the effect of student participation in terms of performance as measured by grades.

Woodson found that specific seating arrangements were more effective than others. He also found that teachers’ goals for their classes influenced the types of seating that they chose in their classrooms. Some teachers were more focused on student learning, while others were more concerned with the experience of the classroom. He also found that the content area influenced
the type of seating arrangement used. He found a direct, significant correlation between student participation and student performance.

**Summary**

Researchers have long recognized the impact of effective classroom management on student engagement. To quantify the general characteristics of this art, they researched classroom management for many years. This chapter examined the history of classroom management research, the research on the value of classroom management, and the qualities of effective classroom management. It also outlined the commonly accepted components of classroom management. It examined the research on the impact of effective classroom management on student engagement and the impact of student engagement on student achievement. Researchers have identified the seating arrangement as one of the primary components of classroom management. This chapter also examined the research regarding the types of seating arrangements and the impacts of each type.

The literature review laid the foundation for the current study of classroom seating arrangements in a particular high school in southeast Tennessee. The vast body of research examining classroom management failed to apply the connection between a teacher’s growth mindset and his/her willingness to change the arrangement of the classroom. Chapter three discussed the specific methodology the researcher used in this study, as well as the processes for data collection and analysis.
CHAPTER THREE: Methodology

The purpose of this study was to analyze the connection between a teacher’s arrangement of the classroom and the engagement of the students in the class. The decisions made by a teacher related to classroom management directly impact student learning and achievement and are vital to accomplishing the lofty goals of education. This study also considered whether a teacher’s growth mindset had an impact on his/her willingness to make changes in classroom practices to facilitate increased student engagement.

Research Question

The following question guided this study: How do teachers with a growth mindset arrange their classrooms for increasing student engagement?

Description of the Specific Research Approach

This study was founded in Vygotsky’s sociocultural theory which states that learning is based on interactions with others and is a highly social process influenced by both adults and peers. Teachers have a profound influence on the learning in their classrooms by directing the interactions and engagement of students, not only with the content material, but also with one another (Marzano, Marzano, & Pickering, 2003). This study answered the research question with a qualitative case study that presented a detailed description of a particular location and group of teachers and their students. A qualitative case study is a flexible and rigorous method of inquiry that allows researchers to explore complex interventions, programs, and relationships of individuals and organizations and supports the deconstruction of various phenomena using a variety of data sources (Yin, 2003, 2018). This approach is rooted in the constructivist theory that truth is relative and dependent on one’s perspective (Baxter & Jack, 2008). One of the advantages of this approach is the inherent close collaboration between the participant and the
researcher. As the participant describes his view of reality, the researcher is better able to understand the participant’s actions (Lather, 1992).

A qualitative case study was an appropriate framework for several reasons. First, the study was focused on a “how” research question. Second, manipulation of teacher behavior was not warranted as a part of the study. Finally, the context of the study had a direct impact on the phenomena. In other words, it would have been impossible for the researcher to develop a true understanding of the teacher’s impact on decision-making regarding student engagement apart from the context of the classroom setting (Yin, 2003). Evidence provided by the state-testing data of the school indicated that student achievement needed improvement, and the previous instructional coach expressed concern regarding the levels of student engagement in the classrooms. The results of this study were descriptive rather than predictive.

**Research Design**

This qualitative case study analyzed the practices being utilized in a high school in southeast Tennessee. One school was chosen due to the wide variety of students and the level of need expressed in the standardized testing data as compared to the other high school in the district. The school housed approximately 1,800 students and 100 certified teachers. The study occurred over a two-month period in the winter of 2019-2020, and focused on three classrooms containing varying amounts of students of assorted ability levels. These students were freshmen, sophomores, and juniors. Some of the students were honors and Cambridge students, and some were grade-level students. The participating teachers had a mixture of experience levels, but none were first-year teachers.
Data Collection

The Carson-Newman University Institutional Review Board granted permission for the research to proceed and for the process of data collection to begin. Participants were selected by the researcher based on preferred seating arrangements and levels of experience. A cross-section of subject areas and student abilities were also used to select the focus teachers. Each classroom participated in two observations. Data were collected from interviews, observations, and focus groups. Open-ended interview questions presented opportunities for the teacher participants to explain and elaborate on their answers. Questions focused on levels of student engagement and the teacher’s response when a lack of engagement was noted. Teachers also answered questions regarding their thought processes and decision making associated with classroom arrangement. An essential point of the research was the determination of whether what teachers said they believed regarding classroom management was demonstrated in their classrooms.

Observations gave the researcher the opportunity to experience the atmosphere of the classroom and to become engrossed in the experience of the students; however, the researcher did not interact with students or teachers during the observations. Detailed notes indicating evidence of student engagement, or the lack thereof, were taken and compiled. Raised hands, verbal participation, and physical interaction during the lesson were typical indicators of student engagement. Oral, written, and physical types of student engagement were noted. After the initial focus-group data discussion, additional observations were conducted to investigate changes in classroom arrangement made by teachers. These follow-up visits allowed for a comparison of teachers’ stated beliefs versus actions.

Focus groups occurred during the school day and gave participants the opportunity to interact with one another and the subject matter. Following the initial observations, teachers
were supplied with specific data regarding student engagement and encouraged to provide their analysis of the data. Questions were non-leading and left open for elaboration. Participating teachers gave feedback on the transcribed notes to ensure precise conclusions. They had been given the opportunity to respond to the data and hypothesized about possible causes of the findings. The researcher frequently reiterated details from the teachers’ feedback to check for accuracy.

Triangulation was used by the sources of data collection—questionnaires, interviews, observations, and focus groups. A colleague of the researcher examined the raw data and interpretations and gave feedback on the reasonability of the conclusions. To reduce the likelihood of miscommunication, participating teachers checked the information for accuracy in member checks. Direct quotations from teachers were used as often as possible to reduce inadvertent personal interpretation. Other artifacts, such as agendas from the meetings, were collected and categorized.

**Coding Process**

The data were initially analyzed using open coding. The researcher began by marking items in the transcripts according to common theme. The notes from the interviews were organized into similar themes and the data were combined into broader categories. These categories were assigned tentative labels based on the large groups into which they fell. Examples of the actual words of the participants were used to identify and sort the ideas. The data regarding student engagement and classroom arrangement were condensed into information and presented during the focus groups.

Axial codes were created as relationships were identified and labeled. These codes were derived by identifying connections between the original open codes. Then, a core variable was
determined that encompassed all of the data. Selective codes were used to mark any data that directly related to the core variable that had already been described. The final information was shared with department heads and administrative personnel.

**Data Analysis Process**

The data analysis began with an attempt to quantify various aspects of student engagement in the classroom. Through the coding process, this study identified oral, written, and physical engagement as the three main types that would be recorded. Physical engagement was defined as student hand-raising or physical interaction related to the curriculum and directed by the teacher. Oral engagement included verbal responses to the teacher or peers that focused on the lesson’s content. An example of oral engagement could be answering a question posed by the teacher or discussing a curricular topic with a peer or group as directed by the teacher. Written engagement could be seen on individual papers, whiteboards, or the main boards of the class. It was also noted in group projects that were created and discussed by the entire class.

Classroom observations focused on these aspects of student engagement, and the researcher generated statistics centered on these specific behaviors. These elements were tallied and classroom arrangement was recorded in photos or diagrams. This data became the focus of the subsequent interviews and provided a basis for the discussions.

Audio recordings, written accounts, and transcription were used to collect the data from the focus groups and interviews. These data were then coded by categories and themes. Notes and charts of the observation data were used to create a basis for combining the information. These added to the collection of artifacts for the study.

The interviews were tagged to identify commonalities. Then, entries were further reduced as they began to show patterns and coordination.
Description of the Study Participants and Setting

The high school that became the focus of this study consisted of approximately 1,800 students. Of these students, 38.1% were economically disadvantaged, 4.3% were African American, 4.1% were Hispanic, and 11.7% were students with disabilities. The students included in the study were ninth, tenth, and eleventh graders of varying ability enrolled in either honors or regular English, math, and biology courses. Some classes were a part of the Cambridge program, and some were regular classes. The smallest class had 20 students, and the largest had 34 students. All the teachers had at least two years’ experience. All classes were furnished with a district-endorsed curriculum, and the academic standards had been stable for a minimum of two years.

The participating teachers were selected in an attempt to represent a wide variety of experience and preferred seating arrangements. They were also chosen to represent all four academic content areas. To ensure anonymity, teachers were labeled as A, B, and C. Teacher A taught English at the ninth grade level, used a circular arrangement, and had 12 years of experience. Teacher B taught mathematics at the eleventh-grade level. Teacher B used a horseshoe seating arrangement and had 7 years of experience. Teacher C taught biology two years at the tenth and eleventh-grade levels. Teacher C utilized a modular seating arrangement.

The researcher explained the study being conducted, as well as the participants’ choice to opt out of inclusion. However, due to the directive from the superintendent and the secondary supervisor to study student engagement and achievement in the school, data would be gathered regardless of participation in the study. Further explanation addressed the research process, the purpose of the study, and the potential risks and benefits. Participants knew that they could request to be excluded from the study at any time, and that the identity of teachers and students
would be constantly protected. Teacher participants completed an informed consent document before they participated in the study.

Data Collection Procedures

This study began with data analysis from the Fall of 2019. Teachers then participated in individual initial interviews conducted by the researcher. Open-ended questions were explicitly chosen to delve into teachers’ ideology about student learning. These discussions gauged the feelings and beliefs of teachers regarding students’ academic growth and the level of influence teachers believe they have on that growth. Teachers also answered questions about the arrangement of their classrooms and their reasoning for choosing those arrangements. They completed short questionnaires designed to measure their mindset regarding growth. The meaning of growth mindset was addressed, and teachers debated the influence that knowledge of this theory had on their initial perception. Then, teachers participated in a discussion about their current students and their personal goals for the semester. The structure of the study aligned with the theoretical framework in the emphasis placed on a teacher’s impact on learning.

In the next phase, pre-arranged observations, lasting for approximately sixty minutes each, were conducted in the three chosen classrooms. During each visit, the observer completed a table of student engagement interactions and made notes about the arrangement of the room and the physical location of students. The collection of data included notes taken during each class visit, photos and diagrams of each classroom setup and student placement, and statistics related to the types and frequency of student engagement during the lessons. The focus of this part of the study aligned with the theoretical framework, due to the attention applied to the student’s engagement with their learning and the opportunities for a student to demonstrate engagement.
At the conclusion of the first round of observations, teachers participated in the first focus group. This group included a presentation of the data collected by the researcher along with the data regarding classroom arrangement and student engagement. Teachers listened to data from the initial observations and discussed the context of the data. They were also allowed to ask questions or express concerns related to the findings. Based on the statistics, they shared their plans for any adjustments they might make to improve the levels of engagement. The questions and answers obtained during the first focus group were transcribed prior to coding.

The second round of observations was conducted to look for changes that had been implemented based on the initial data that were shared with teachers. During this round, the sixty-minute observations were unannounced; and additional data about student engagement were collected and tallied in a manner similar to the first round of observations. Data were also collected regarding any classroom arrangement changes or the physical location of particular students.

Following the second round of observations, teachers participated in a second focus group to elicit feedback relative to any progress that had been detected in the levels of engagement and the potential reasons for this increase. Again, teachers answered questions about their beliefs regarding intelligence and whether they believed it to be fixed or capable of change. They discussed the changes made by their colleagues and brainstormed ideas for implementation in their respective classrooms.

**Ethical Considerations**

Maintaining a high level of ethical considerations is one of the most important aspects of research. The researcher worked to protect the participants from harm and guard their privacy throughout the entire research process. Letter designations for teachers protected anonymity by
ensuring high levels of confidentiality. Student numerical labels identified seating locations and prevented the disclosure of students’ names. The secure data location protected the confidentiality of the research data.

The Director of Schools gave consent for the research study to occur. The secondary supervisor and the principal of the school made suggestions for the selection of classrooms and the timing of the data collection. The school was organized into four academies, and the assistant principals of each academy gave consent and offered support if needed. Member checks were used throughout the study to identify biases, inaccuracies, and misleading information. The researcher consistently asked for clarification and restated answers to interviewees to check for accuracy. There were no time constraints on the interviews, which allowed for high levels of exposition when needed. The researcher also made use of peer debriefing by obtaining feedback from other colleagues who were uninvolved with the study. These colleagues reviewed particular conclusions to determine accuracy in reasoning and identify potential concerns. This process reduced the likelihood of exaggeration of the claims and objectives of the research. Triangulation of data sources gave more validity to the conclusions, and an audit trail helped to ensure objectivity.

Limitations, Delimitations, and Assumptions

One limitation of the study was the fixed number of teachers in the school from which to choose. Another limitation was the timing of the study. Student engagement data were collected for the entire year, but only the data collected during the two winter months were used for this study.

A delimitation of the study was the choice of particular subjects of focus. The decision to use an assortment of courses and teacher experience levels was made at the discretion of the
researcher. Data were collected in all classrooms as a regular part of district expectations, but the teachers who were asked and agreed to participate were the ones included in the study.

Another delimitation was in the use of convenience sampling. Only teachers at a particular high school in a chosen district in southeast Tennessee were selected for this study. The number of individuals chosen to interview was also limited, thereby limiting the transferability of the study.

One assumption of the study was that teachers were honest and forthright when sharing information in the interview and focus groups. Assurances of anonymity increased the likelihood of honesty as participants could be confident that their responses would not be specifically attributed to them.

**Data Analysis Procedures**

Data analysis took place after each focus group, observation, and interview. This process began with open coding. The researcher separated the data from the initial focus groups into categories based on general content. This identified the teachers who believed that the changes made in the classroom could directly impact the achievement of the students. It also identified students for whom teachers had concerns and classified the teachers’ goals for students’ improved engagement. This process brought outliers to the attention of the researcher and gave direction for the observations that were to follow. Subsequently, the researcher used axial coding to combine the categories into themes, creating a focus during the observations and providing discussion opportunities among the teachers during the interview process. Selective coding was used to bring the categories and themes into a context that would lend itself to accurate interpretation of the research question under consideration. This structure was consistent with the qualitative methodology chosen and was useful for case studies.
Summary

This qualitative case study was conducted to analyze the relationship between classroom management best practices and student engagement in a particular high school. Teacher practices were analyzed through focus groups, observations, and interviews to determine whether teachers tended to make changes in their classroom arrangements and student location to increase the levels of student engagement, thereby increasing the likelihood of achievement. Three classrooms containing students of varying ages, courses, and abilities were included in the study. The levels of teacher experience were also considered to provide a cross-section of expertise. The interviews and focus-group data were accurately transcribed, and statistics were compiled based on the observations. The information gathered was coded using open, axial, and selective measures. The results of this coding were communicated in the presentation of the findings.
CHAPTER FOUR: Presentation of Findings

The purpose of this study was to analyze the decisions made by teachers in a selected high school with regard to the seating arrangement and student location in a classroom. The researcher collected data from interviews, questionnaires, observations, and focus groups. Teachers answered interview questions and completed questionnaires to reveal their opinions about student engagement and the impact of classroom arrangement. The researcher conducted initial observations to record student engagement and classroom seating arrangements. Teachers participated in a focus group to discuss the findings of the initial observations. The researcher conducted additional observations and focus groups to analyze changes made by teachers. This chapter focused on the findings of the case study. The researcher provided a detailed description of the context of the study, as well as the participants and setting. In this chapter, the researcher described the data and related the findings to each research question. The researcher presented an analysis of the data and an explanation of its relation to the questions of the study.

Descriptive Characteristics of Participants

This study examined the practices of teachers in a high school in Tennessee. It focused on teacher choices related to student seating arrangements and whether those teacher-made changes increased the level of student engagement. The school was a large high school in Tennessee that served approximately 1,800 students. The school was founded in 1916, and the current location was built and occupied in 1972.

The student population contained a high number of lower socioeconomic students, and approximately 30% of the students were classified as economically disadvantaged. The ethnicity of the student body was 90% caucasian, 4.8% African American, and 4.3% Hispanic, with less than 1% each Asian and Native American. The average class size was 30 students. The gender
makeup of the school was 51.2% male and 48.8% female. The selected school was one of three high schools within the borders of the county and the largest of the three. There were approximately 130 staff members employed at the school, with 104 of those being classroom teachers. The school operated on the block and semester system. Students were enrolled in four classes per semester, each lasting approximately ninety minutes. New classes were assigned after the winter break. The school was organized into four academies. Freshmen students were all assigned to the Freshman Academy while all other grade levels chose a focus area of Business, Humanities, or STEM (Science, Technology, Engineering, and Math). The freshman class operated on “skinny” blocks with students attending forty-five-minute classes, lasting the entire year, and state testing only occurring at the end of the year.

The researcher chose three academic teachers for the study to represent a variety of subject areas, teacher-experience levels, and student-ability levels. English, math, and science from regular and honors classes were selected.

Teacher A was an English teacher with twelve years of experience. She had been employed at the focus high school for two years. At the time of the study, her assignment was freshman English I honors students and senior English students. She had previously taught math, science, and writing in an elementary school and English in a middle school. Only the English I honors classroom participated in this study. Due to the year-long skinny blocks, freshman students were slated to take the state end-of-course exam at the conclusion of the school year.

Teacher B was a math teacher with seven years of experience, who began her teaching experience as a 7-12 grade math teacher in an alternative school. She also taught eighth-grade math in a middle school for one year. She had been assigned to the school in the study for six years. At the time of the study, her teaching assignment was to sophomore and junior students in
Integrated Math II and Physics. This study took place in an Integrated Math II classroom containing freshman students, who were identified as advanced in middle school and began high school math as eighth-graders. The first semester of their freshman year, they completed the second half of Math I and moved into this class their second semester. The school participated in the Cambridge Advanced Program of Study, with this class being identified as a Pre-Cambridge class. Students usually took pre-Cambridge classes as freshmen in anticipation of entering the Cambridge program as Sophomores.

Teacher C was a science teacher with two years of experience, both of which were at the focus high school. His assignment at the time of the study was with sophomore, junior, and senior students. This study took place in a biology class that had been identified as “regular,” in that students did not receive honors credit for the class. Regular classes were generally expected to be less rigorous with lower expectations for student performance.

Data Presentation

Research question. The following research question guided the researcher in an attempt to analyze teacher decisions related to classroom arrangement and student engagement in their classrooms.

How do teachers with a growth mindset arrange their classrooms for increasing student engagement?

Interviews

All three teachers participated in an initial one-on-one interview with the researcher and answered eight researcher-designed questions related to classroom arrangement and its impact on student engagement in their classrooms. The participants discussed their decision-making and how their thinking guided the decisions made regarding student location in their classrooms.
They described their classroom arrangements and whether they tended to make changes during the semester or school year. The researcher recorded, transcribed, and coded the information obtained in the interviews.

During the interviews, teachers described their attempts to increase student achievement and engagement through individual learning accommodations, classroom climate, student collaboration, and teacher proximity. The participants recounted both physical and curricular considerations for the classroom arrangement. They described behavioral and academic factors and reasons that motivated classroom arrangement changes, as well as the various arrangements they used throughout a semester.

Questionnaires

Teachers also completed ten-item questionnaires (See Appendix A) to provide data related to their perceptions of growth mindset and classroom seating arrangement. The results of all three teacher questionnaires indicated they believed student academic ability was not fixed. They also believed that academic ability was not purely genetic and that students could change their intelligence based on learning new things. The questionnaires indicated all three teachers believed classroom arrangement significantly impacted the learning environment, student behavior, and student engagement.

Observation 1

Teacher A. Following the initial interviews and questionnaires, the researcher conducted a 50-65 minute observation of the participant classrooms. The researcher collected data regarding student engagement and room arrangement. Teacher A’s classroom was arranged in a circular formation, with 21 students seated in chairs around the circle. The teacher sat just outside of the circle in a chair a little higher than those utilized by the students. At one point, the
teacher joined the circle and briefly sat in an empty chair to participate in the discussion. At another point in the lesson, the academy assistant principal came into the room, joined the circle, and participated in the discussion. The topic set forth by the teacher for discussion was related to the novel *To Kill a Mockingbird*. Students were equipped with a study guide and questions they had discussed the previous day. The teacher posed questions to the group, and students interjected into the conversation when they felt they had something to contribute. All but two students contributed orally to the discussion. The number of responses from students ranged from one response given by three students to thirteen responses from one student. Students contributed a total of 78 responses in 60 minutes. Of the 21 students in the class, 90.5% contributed to the discussion during the observation, with students providing an average of 1.3 responses per minute. Table 4.1 listed the number of students who participated and the number of responses. This illustrates the distribution of student responses in the class.

### Table 4.1

*Teacher A Student Responses*

<table>
<thead>
<tr>
<th>Responses per student</th>
<th>Number of students contributing given number of responses</th>
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**Teacher B.** Teacher B’s classroom was arranged in a modified horseshoe. There were 26 students in the class. Sixteen of those students were in the horseshoe; eight students were in the interior of the horseshoe; and two students were outside the horseshoe. During the lesson, the teacher moved one student from outside the horseshoe to a seat in the interior. During the fifty-three minute observation, fifteen students contributed to the discussion of the lesson through oral or physical engagement with eleven students showing no oral or physical engagement. Oral engagement was indicated by students voluntarily engaging with the teacher by asking or answering questions or by participating in content-related discussions with peers as directed by the teacher. Physical engagement involved students who approached the board to demonstrate and explain the lesson concepts. Students contributed a total of 57 responses in 53 minutes. Of the 26 students in the class, 57.6% participated in the class discussion with students providing an average of 1.1 responses per minute. Table 4.2 listed the breakdown of student interaction and
the number of students who participated a given number of times. For example, three students contributed two responses for a total of six responses.

**Table 4.2**

*Teacher B Student Responses*

<table>
<thead>
<tr>
<th>Responses per student</th>
<th>Number of students contributing given number of responses</th>
<th>Total responses</th>
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Teacher C. Teacher C’s classroom was configured in a modular arrangement. Seventeen students were seated around the room at ten tables containing one to three students per table. Throughout the lesson, the teacher moved around the room to work with individual students on a DNA group project at each table. Due to the nature of the assignment, the researcher adjusted the data collection to reflect group engagement and reported it by group rather than by individual. Oral student engagement was indicated by verbal interaction between the teacher and students, related to the lesson, and initiated by either the student or the teacher. Each table had at least one incidence of student engagement. Students contributed a total of 62 responses in 55 minutes. The response percentage for the class groups was 100%, as each group had at least one direct interaction with the teacher during the observation. The groups provided an average of 1.1 responses per minute. Table 4.3 listed the breakdown of group interaction and the number of responses from each group. For example, the three students in group three contributed a total of twelve responses.

Table 4.3

Teacher C Student Responses

<table>
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<th>Group number</th>
<th>Number of students at table</th>
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Focus Group 1

In this focus group, the researcher shared the data from the first observation and gave the participants an opportunity to talk with each another about the room arrangements and their reasoning regarding the choices they had made. They also discussed observations about the arrangements and findings in the classrooms of the other participants.

Teacher A reported that she had allowed students to choose their seat for the initial observation. This was the first attempt by the class to participate in a Socratic seminar. She also explained that she moved to the circle to sit beside a student who had not contributed. She believed her proximity gave the student more courage to engage with the discussion.

Teacher B reported she did not use a seating chart, did not unilaterally assign seats, and the students outside the horseshoe had chosen those seats for themselves. She stated that students frequently changed locations at the beginning of each class. She explained that the movement of the child to a location inside the horseshoe was for better student visibility of teaching materials.
Teacher C reported that student seats were his choice. He also stated that he chose seat locations for his students based on student behavior or achievement in his class, and he had changed the seating chart twice during the semester.

During this focus group, Teacher B pointed out that the circular arrangement of Teacher A allowed for more student interaction than her horseshoe arrangement. She also noted that almost all of Teacher A’s students had participated in the lesson. Initially, she believed that her subject area would not lend itself to a circular arrangement. However, after some thought, she described a scenario in which she believed the circle arrangement would prove useful. Teacher C expressed concerns with student emotion during class discussion, and Teacher A was able to suggest solutions for this challenge.

Teacher C felt that the horseshoe arrangement utilized by Teacher B might be useful in his classroom. He believed the ability of the teacher to move among the groups might be beneficial for his students. Teacher B observed that the increase in engagement among students in the modular arrangement of Teacher C’s class was not proportional to the number of students at the table and wondered if having a partner in proximity gave students the courage to interact in the classroom discussion and with the teacher more often.

**Observation 2**

**Teacher A.** The researcher conducted a second observation in the classroom of each participant to collect student engagement data and look for changes that had been made in the arrangements of the classrooms. The twenty-nine students in Teacher A’s classroom were again seated in a circular formation. Engagement was measured by a student voluntarily entering the content discussion to contribute to the content. Each student participated, and the number of responses ranged from three responses given by twelve students to ten responses from one
student. Students contributed a total of 129 responses in 61 minutes. The response rate of students was 100%. The rate of responses per minute was 2.11. Table 4.4 listed the breakdown of student interaction and the number of students who participated a given number of times. For example, six students contributed four responses for a total of 24 responses.

Table 4.4

Teacher A Student Responses

<table>
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<tr>
<th>Responses per student</th>
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**Teacher B.** The twenty-eight students in Teacher B’s classroom were still arranged into a modified horseshoe. Sixteen students were seated on the horseshoe, ten were inside the horseshoe, and two were outside. The observer noticed that the seating location of four students had been changed since the previous observation. During the sixty-eight minute observation, all 28 students contributed to the discussion of the lesson through oral or physical engagement. Oral engagement was indicated by students voluntarily engaging with the teacher by asking or answering questions or by participating in content-related discussions with peers as directed by the teacher. Physical engagement involved students who approached the board to demonstrate and explain the lesson concepts. Students contributed a total of 80 responses in 68 minutes. Of the 28 students in the class, 100% participated in the class discussion with students providing an average of 1.17 responses per minute during the observation. Table 4.5 listed the breakdown of student interaction and the number of students who participated a given number of times. For example, four students contributed two responses for a total of eight responses.

**Table 4.5**

*Teacher B Student Responses*

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<th>Responses per student</th>
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**Teacher C.** The twenty students in Teacher C’s classroom were still seated in a modular arrangement. However, he had moved them into five tables with four students at each table. Students participated in a scavenger hunt competition as a team while transcribing DNA. The teacher moved from group to group offering assistance and encouragement. He also gave updates on the progress of the game and standings within the game. During the 57-minute observation, each team engaged in the lesson physically and orally. Physical engagement was noted by students moving from their table to locate the next clue in the scavenger hunt. Oral engagement was indicated when a student voluntarily participated in discussion with the teacher by asking or answering a question related to the content. Students contributed a total of 63 responses in 57 minutes. The response percentage for the class groups was 100%, as each group had at least one direct interaction with the teacher during the observation. The groups provided an average of 1.1 responses per minute. Table 4.6 listed the breakdown of group interaction and the number of responses from each group. For example, the four students in group one contributed a total of ten responses.
Table 4.6

Teacher C Student Responses

<table>
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<tr>
<th>Group number</th>
<th>Number of students at table</th>
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Focus Group 2

In the second focus group, the researcher shared the findings from the second observation and any changes that had been noted. This gave an additional opportunity for the participating teachers to reflect on their own choices, and the choices of their colleagues. Teacher A reflected on the increase in participation from 90.5% during the first observation to 100% during the second. She attributed some of the increase to the levels of accountability that the students demanded of one another. She also referred to her practice of “shutting down” a student after many participation instances. She also noted that she kept the same seating arrangement as the first observation.

The engagement in Teacher B’s class increased from 57.6% to 100%. Teacher B attributed this dramatic increase to the use of active engagement structures, such as the “turn and talk,” which called upon every student in the classroom to engage with another student in the discussion of content. She also mentioned the addition of procedures such as having a currently
engaging student to call on the next participant. Teacher B shared that she had changed some student-seating assignments after the last observation in an effort to elicit more engagement and to keep students on task. Both teachers A and B referred to the fact that seeing the levels of engagement of their students in the other’s classroom during the first focus group inspired them to make changes, as well.

Teacher C discussed the factors that encouraged him to make changes in the groupings of his students following the first focus group. He noticed that tables with fewer students had lower levels of engagement. He moved his students to create evenly balanced groups. The overall engagement did not increase substantially, but students participated more evenly as there were no longer pockets of unengaged students. Teacher C also discussed students he had in common with Teachers A and B, as well as ways they kept those students engaged in their classrooms.

All three teachers mentioned the value of the focus-group discussions and their desire to regularly include other teachers in discussions like this.

**Increasing Student Achievement and Engagement**

**Individual learning accommodations.** The three teacher-participants in the study described their attempts to increase student engagement and achievement levels in their classrooms by meeting the learning needs of their students. They gave students opportunities for autonomy in their classrooms. Teacher A expressed that although setting up the opportunity for students to guide their learning required considerable advance teacher preparation, it was an important factor in increasing student achievement. She stated that students’ achievement increased when they learned from one another, built upon one another’s ideas, and made connections. The participants minimized the use of lecture in their classrooms, opting instead for group work and interaction between students.
**Student motivation.** The study participants believed that student engagement and achievement could be enhanced by increasing student motivation. Teacher C discussed the importance of ensuring that the material presented was related to a particular job students might have in the future. He stated that though students might not see a purpose for specific content presently, their motivation increased when they could see a benefit for the future. Teacher B echoed this sentiment by articulating that it was important for the teacher to relate the classroom content to real life to help students envision a foundation for their future.

**Classroom climate.** Another common theme expressed during the initial interviews was the significant role played by classroom climate in increasing student achievement and engagement. The teachers described specific activities they performed in their classrooms to create higher levels of engagement. Each of them mentioned the necessity of creating supportive relationships with students. Teacher C stated that he found building relationships from the beginning of the year to have a significant impact on both achievement and engagement. He explained that students who did not think their teacher believed in them shut down and created behavior problems for the rest of the class. Teacher B described the importance of the teacher’s relationship with students in creating an environment where they felt safe to make mistakes. She believed this made the students more open and increased their engagement in the classroom. The teacher participants also believed that the teacher’s positive facial affect in the classroom would improve the students’ engagement with the content. Teacher B stated that students needed a “happy” teacher. She believed a teacher’s good mood during the class and while presenting material caused students to feel more engaged and willing to take risks.

**Student collaboration.** The teachers expressed the belief that physical and verbal collaboration among students had a tremendous positive impact on the levels of engagement and
achievement in the classroom. Teacher A stated that it was essential to “get students up and moving around the classroom through group work.” She discussed a recent lesson that involved students interacting with their peers in a group followed by a reflection. She believed this reflection promoted accountability, since students were responsible not only for their own work but also for relaying the work of others. Preferring to keep her students “in a collaborative state,” she had developed procedures to facilitate students changing the room very quickly from one arrangement to another, depending on the task. She also described the process of creating “home-based” groups and “expert” groups that worked together to bring information back to their group and teach their peers. She stated that her student collaboration was very valuable in building student empowerment and leadership.

Teacher B echoed this belief in describing the value of students being able to work together on things that were more difficult to understand. As a math teacher, she relied on group interaction to thoughtfully pair students in a mutually beneficial way. She reported that occasionally she directed the discussion between students, and other times it came from the need for students to receive assistance from another student who had a greater understanding of a particular concept. Often a student worked a problem in a different way which helped a struggling peer to understand. She also directed students to look for errors in the work of their peers. Student collaboration made this possible. She shared that group interaction, strategic student pairing, and peer tutoring increased student engagement and achievement.

Teacher C stated that he often used groups in the classroom for experimental activities. He found that students, who preferred to work alone, often achieved more when they were paired with another student. He tried to pair higher-level students with lower-level students to help strugglers increase their competency.
**Teacher proximity.** The teachers in the study mentioned the impact of teacher proximity on student engagement and achievement. They considered this factor when changing their room layout. Teacher A stated that she purposefully left ample space open in the center of the room to increase the ease with which she moved among the students during the lesson.

Teacher B explained she had recently moved from traditional row-seating to a horseshoe arrangement with tables to ensure that she could walk the entire area of the room. She was determined to create an environment where she could walk around and be in front of each student when needed. Even the students who remained at desks were positioned in such a way as to allow her to work directly beside them.

Teacher C discussed his choice to use a modular arrangement to give him the freedom to move among the students. He also mentioned the desire to improve his proximity. He was working with the teacher in the adjacent room to redesign his floor layout to allow for greater teacher mobility in his larger classes.

**Teacher Considerations for Arrangement**

**Physical aspects and course components.** When the researcher asked the three teachers in the study to discuss their decisions about class arrangement, they discussed both physical and course-related aspects. Teacher A taught English and reported that this had been a particular focus in her decision-making. She started by looking at the curriculum for her course. She noticed that group work was built heavily into the materials, so she set up the classroom in a way that would be conducive to that. When the curriculum required a large performance such as a play, she adjusted the arrangement of the room to accommodate the need. She wished to create an environment that encouraged independent reading. She believed comfort to be a factor in creating satisfaction around the practice of reading. Her room contained a reading area with
pillows and cushioned ottomans. She utilized ambient lighting to create a less clinical environment. She stated that those modifications helped her students perform better and be more engaged in the curriculum.

Teacher B, a math teacher, described the physical layout of her room and her desire for all students to have visual access to her teaching tools. She had several different electronic boards she had acquired through grants and wanted to be sure that all students could easily see them. She also stated that the number of students in the class often dictated the type of arrangement she used. Some of her classes contained more students than tables, so she had to utilize a mixture of desks and tables in those classes.

Teacher C also considered the location of his instructional tools in the arrangement of his class. He utilized a modular arrangement in his classroom, creating two aisles for easy movement and clear visibility of both boards. He also made adjustments depending on the coursework. This was a science class without easy access to a lab. Teacher C used his modular arrangement to create lab experiences for the students.

Changes in Class Arrangement

**Behavioral and academic concerns.** The researcher asked the participating teachers to describe the reasons they might make changes to their classroom arrangement during the year or semester. They gave behavioral and academic concerns as the primary reasons for these changes. Teacher A stated that she often moved students based on academic needs. Inclusion students might need to be near one another or the inclusion teacher so they could receive assistance without it becoming a distraction in the class. She also moved students based on concerns about their behavior or concerns expressed by their parents.
Teacher B described changes she made to accommodate a special project with her students. The tables she purchased rolled easily to support changes in the arrangement. She also created pods with the desks when she needed to have large-group activities. To take advantage of mentoring opportunities for struggling students, she changed the student locations as needed. She also moved students who showed difficulty attending in their current location.

Teacher C explained that he started the year by allowing students to choose their seat locations. As the semester progressed, he made changes based on behavior issues that arose. He preferred to create an entire class seating chart rather than just move one or two students. He also described special projects that required a different arrangement, as well as lab work for which he created stations around the room.

Classroom Arrangements

**Typical and special arrangements.** The researcher asked the three teachers to describe their classroom arrangements. Teacher A used a variety of arrangements depending on the activity of the day, but the circular arrangement was one of the most commonly used. Teacher B often used a horseshoe arrangement, but occasionally grouped desks in pods. Teacher C used a modular arrangement. All three teachers discussed special arrangements they used that were not the result of curricular decisions. They described testing arrangements that were dictated by the state department of education or American College Testing (ACT). These arrangements were also used in their classrooms occasionally.

Coding

The coding process began with careful sorting of the raw data from the interviews, observations, and focus groups. The researcher used color coding when commonalities emerged and open-coding to identify patterns of meaning within the raw data. She grouped those items
by similar topics, then into broader categories with axial coding, and finally, into selective codes that represented the major themes and findings of the interviews, observations, and focus groups (see Figures 1 and 2).

**Figure 4.1**

*Coding of Data Regarding Teacher Considerations for Increasing Engagement*

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>“students should be empowered to drive their own learning”</td>
<td>Student choice</td>
<td>Individual learning accommodations</td>
<td></td>
</tr>
<tr>
<td>“kids learn in ways that are not conventional”</td>
<td>Student empowerment</td>
<td></td>
<td></td>
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<tr>
<td>“we used to be kind of lecture driven people”</td>
<td>Alternative to lecture</td>
<td></td>
<td></td>
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<tr>
<td>“they picked where they want to”</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>“they actually got to choose where to sit”</td>
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<tr>
<td>“I moved a few because we’re trying to get the right fit”</td>
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<tr>
<td>“I do a lot of choral responses”</td>
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<tr>
<td>“the level of involvement has been increasing since we began this process”</td>
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<tr>
<td>“other students were holding other students accountable”</td>
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<tr>
<td>“I tell them they can only drive the conversation through questioning”</td>
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<td></td>
</tr>
<tr>
<td>“applying what they learned to something in real life”</td>
<td>Real-world application</td>
<td>Student motivation</td>
<td>Considerations for increasing student achievement and engagement</td>
</tr>
<tr>
<td>“related to real life”</td>
<td>Future goals of students</td>
<td></td>
<td></td>
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<tr>
<td>“it’s better if you can relate it to a certain job they may have in the future”</td>
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<tr>
<td>“talking about current events or how the past relates to current events”</td>
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<tr>
<td>“his buddy was there, so way more engagement”</td>
<td></td>
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<td></td>
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<tr>
<td>“good relationships with students”</td>
<td>Relationships</td>
<td></td>
<td>Classroom climate</td>
</tr>
<tr>
<td>“building relationships with students to start the year”</td>
<td>Teacher affect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“the teacher has to be in a good mood”</td>
<td>Student relationships</td>
<td></td>
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<tr>
<td>“they don’t talk when they’re in a table group”</td>
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<tr>
<td>“my involvement was almost not needed”</td>
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<tr>
<td>“at most I was redirecting”</td>
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<td></td>
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</tbody>
</table>
Figure 4.1 (continued)

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>“It’s important to get kids up and moving around the classroom”</td>
<td>Physical movement</td>
<td>Student collaboration</td>
<td>Considerations for increasing student achievement and engagement (cont)</td>
</tr>
<tr>
<td>“group work is important”</td>
<td>Teamwork</td>
<td></td>
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<tr>
<td>“I like to put kids in a collaborative state”</td>
<td>Group Work</td>
<td></td>
<td></td>
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<tr>
<td>“groups of four was perfect because they can still move around the classroom”</td>
<td>Discussion</td>
<td></td>
<td></td>
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<tr>
<td>“be as involved with other people as much as possible”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“they can easily talk to one another to discuss”</td>
<td></td>
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<tr>
<td>“I do a lot of group work”</td>
<td></td>
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<tr>
<td>“I divided them into teams”</td>
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<tr>
<td>“He is influenced by that other child”</td>
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<tr>
<td>“I don’t know why I put them all together”</td>
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<tr>
<td>“they were basically in groups of four”</td>
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<tr>
<td>“I absolutely love how they all pretty much said something”</td>
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<tr>
<td>“they’re all engaged”</td>
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<tr>
<td>“the girls …tend to stick together where they’re at”</td>
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<tr>
<td>“it’s never the same on who sits outside”</td>
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<tr>
<td>“we did a partner A and partner B worksheet and their problems are different”</td>
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<tr>
<td>“they’ve got that old shoulder partner thing”</td>
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<tr>
<td>“trying to do some of these partner things would be easier if I had the tables”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“ease of getting from table to table by me”</td>
<td>Teacher movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“walk around pretty much the whole area of my room”</td>
<td>Neatness to students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I should be able to walk around and be in front of each student”</td>
<td>Working with students individually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I would like to figure out a little bit better movement area for me personally”</td>
<td></td>
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<tr>
<td>“I was sitting next to a kid…so she could speak and feel confident speaking…”</td>
<td></td>
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<tr>
<td>“I have it set up to where I can walk around in front of every student”</td>
<td></td>
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<tr>
<td>“I weave in between the desks really well”</td>
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<tr>
<td>“I keep him right up front because he’s so distracted”</td>
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<tr>
<td>“I would sit in the circle in that circumstance”</td>
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<tr>
<td>“I would sit in the circle as opposed to me being on the outside”</td>
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<tr>
<td>“I was able to set up a U shape pattern because then they’re all looking”</td>
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<tr>
<td>“it’s got a good little flow”</td>
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</tbody>
</table>
Figure 4.2

Coding of Data Regarding Classroom Arrangement

Raw Data

"class size plays a part"
"arranged in a way that I can see all the students I’m working with"
"I have a projector and a couple different boards, and I want them to be able to see all of that"
"I hate having tables sometimes even though I’m a biology class"
"my room is an awkward shape"
"I had to put some in the middle because of space"
"I didn’t have enough room to put everyone at tables"

"look at the curriculum"
"I think about my subject matter"
"projects or certain activities like a full lab"
"celebrate the joy of reading independently"
"it worked well with the Reagan training we already learned about"
"I needed them for physics"
"I can’t take them to the lab, so I bring the lab to them"
"I remember doing this….with creative writing class"

"behavioral issues of a student or group"
"if behavior problems become a constant problem, we’ll go to a full seating chart"
"some kids need minimal distractions"
"he’s a bad kid…leads to bother those around him..."
"she needed…some time away from some people..."
"a lot of it is corrective behavior"
"it was easy to cut him in"
"I’m a little less when I know a lot is going on at home"
"He’ll quiet down, but he’s one I have to stay on top of"
"when kids start acting out, and their emotions start flaring… I gotta reel it back"
"I’ve run into that problem with students who take it to the next level"

"pair with student abilities"
"students mentor other kids"
"assistance with inclusion classes"
"when I do group activities they’re right beside each other"
"I got tired of having to move the desks… every single day"
"I have them calling on each other"
"I moved them near someone who doesn’t talk as much"
"you talk three times, and I shut you down"

Open Coding

Class size
Visual contact with students
Room features

Axial Coding

Physical aspects

Selective Coding

Teacher considerations for arrangement

Course components

Intangibles

Student misbehavior
Student attention

Behavioral concerns

Changes in class arrangement

Academic assistance
Special education

Academic concerns
Figure 4.2 (continued)

**Raw Data**
- "test-taking mode"
- "EOC testing"
- "standard ACE set-up"
- "testing mode"

**Open Coding**
- State testing
- ACT testing

**Axial Coding**
- Special arrangements

**Selective Coding**
- Classroom arrangements

**Typical arrangements**
- Modular
- Circular
- Horseshoe

**Groups of Four**
- "Socratic seminar circle"
- "tables"
- "modular"
- "U-shaped with my tables"
- "put them together and have a group of four"
- "little pods kind of sitting everywhere"
- "I really like how they’re all facing each other"
- "we do this Socratic kind of circle thing about once a week"
- "it would be hard for math to do a circle"
- "it lends itself well to things like English"
- "I could do that, for math with errors and finding who’s right, who’s wrong, or who has a question"
- "I was trying to get to this kind of U shape"
- "they’re not really looking at the back of anyone’s head"
- "I have to put some in the middle because of just space"
- "I didn’t have enough funds to buy all tables"
- "the kids on the outside...kind of changes day to day"
Theme Summaries

Considerations for increasing student achievement and engagement. All data sources showed that teachers made decisions to improve student achievement and engagement. Teachers discussed their use of non-traditional instructional methods, real-world application of concepts, building relationships, group work, and the use of teacher proximity in the individual interviews. The observations revealed the classroom seating arrangements, as well as specific maneuvers, utilized by the teacher. During the focus groups, the participants discussed student seating choice and teacher instructional decisions made to increase student achievement and engagement.

Teacher considerations for classroom arrangement. The physical and subject-specific considerations were revealed in teacher interviews and focus group discussions. Teachers used the curriculum to determine which arrangement to use, and changed arrangements to accommodate particular strategies. They considered the physical structure of the room and the number of students in the class.

Changes in class arrangement. The researcher documented the changes made by teachers during the observations. All three participating teachers made changes during the study. The teachers discussed the reasons behind those changes during the individual interviews, as well as the focus groups. They identified both behavioral and academic concerns as the basis for those changes. Both Teachers B and C changed the seating locations of particular students.

Classroom arrangements. The researcher observed the typical arrangements in the classrooms during the observations. The teachers used circular, modular, and horseshoe arrangements. During the interview and focus group discussions, the participants described the special arrangements they used for testing. They also explained the arrangements they used most
often and the reasoning behind those choices. They discussed other situations they believed lent themselves well to a particular arrangement. The participating teachers indicated a willingness to adjust their seating arrangements based on feedback from their colleagues.

**Summary of Study Findings**

The study sought to describe the practices of three teachers possessing a growth mindset regarding the arrangement of their classrooms. The researcher collected data through an initial interview, questionnaire, two observations, and two focus groups. The interviews and questionnaires allowed the researcher the opportunity to discuss the mindset of each teacher before collecting data on the classroom arrangements. The focus groups allowed the researcher to share the data after the first observation and for the teachers to discuss anything they noticed. They were also able to compare the results in student engagement and achievement produced by their colleagues using a different classroom arrangement than their own. They asked questions of one another and speculated about reasons for relatively high and low levels of engagement.

After the first focus group, the researcher conducted a second observation to look for changes made by the teachers based on data from the first observation. During the second observation, Teacher A had not made any changes in the actual student seating. However, she had changed a procedure for participation, requiring students to share more equally in the discussion. The rate of student responses grew from 1.3 per minute to 2.11. Teacher B moved several students to locations closer to the front of the room and incorporated an engagement strategy for group participation. The student response rate grew from 1.1 to 1.17, but 100% of the students participated during the lesson. Teacher C moved students into more consistent clusters. The response rate remained stable at 1.1 in both observations. Although the response rate remained similar, the groups had a highly consistent number of interactions with the teacher.
In Chapter Five, the researcher analyzed the data collected during the focus groups and at the conclusion of both observations. She related this information to the research question and interpreted the results. She discussed the implications of the data and made recommendations for future studies.
CHAPTER FIVE: Conclusions, Implications, and Recommendations

Classroom management was one of the three most significant roles of teachers in the classroom (Marzano, Marzano, & Pickering, 2003). Without it, student learning almost always became a struggle. An essential element of classroom management was the arrangement of the classroom (Gest & Rodkin, 2011; Gremmen, M. C., van den Berg, Y. M., Segers, E., & Cillessen, A. H., 2016). Classroom arrangements impacted student thinking and the teacher’s ability to interact with students (Cheryan, Ziegler, Plaut, & Meltzoff, 2014; Suleman & Hussain, 2014). Increased interaction with the teacher intensified the levels of student engagement (Guardino & Antia, 2012). The researcher based this study on the theoretical framework of sociocultural theory, which stated that learning was based on interactions with other people and was mostly a social process (Vygotsky, 1987). Sociocultural theory focused on the impact of adults and peers on learning. Teachers participated in the social environment of the classroom as instructors, tutors, mentors, and decision-makers. Because of the active role of teachers, they had a significant influence on the learning that took place (McLeod, 2018). Mindset theory heavily influenced this research as well. Teachers with a growth mindset believed that the intelligence of students could be impacted through the experiences they provided for their students in the classroom. Teachers designed the arrangements of their classrooms to improve the levels of student engagement.

This qualitative case study analyzed the classroom arrangement decisions made by three teachers in a high school in Tennessee. Teacher A taught English, Teacher B taught math, and Teacher C taught science. Each teacher participated in an initial individual interview and completed a questionnaire. The researcher conducted an observation in each classroom to collect data about the levels of student engagement and the teachers’ choice of arrangement. After the
observations, the teachers participated in a focus group to analyze the data collected and to draw conclusions about the results. The researcher conducted a second observation to look for changes in the class arrangements and to collect data to compare student engagement following any changes that had been made. After the second observations, the teachers participated in a second focus group to examine the new data and look for possible trends.

The answers submitted by the participating teachers on the questionnaire classified all three of them as having a growth mindset. They believed that the intelligence of students could be increased by the things teachers did in the classroom. They also believed that student intelligence was based on more factors than genetics. Based on the data collected, the three teachers in this case study made changes in their classroom arrangements in an attempt to increase student engagement. Student engagement was a large part of each focus group, and the teachers commented on the engagement of the other participating teachers. At the final focus group, the researcher shared the changes and the impact of those changes. The teachers also discussed other changes they planned to make after the study concluded. This chapter discussed the conclusions, implications, and recommendations for future study of this research.

Conclusions

The following research question guided this study: How do teachers with a growth mindset arrange their classrooms for increasing student engagement?

According to the data collected in this study, the three teachers did arrange their classrooms to increase student engagement. The findings of the questionnaire used in this study revealed that the teachers had a growth mindset. During the initial interviews, the teachers answered eight questions to gauge their general opinions about student engagement and classroom arrangement. Each of the teachers stated that they relied heavily on group work in
their classrooms. They chose teaching strategies other than lecture due to their belief that students benefitted from input into the teaching process. They also intentionally arranged their classrooms to ensure beneficial interaction between themselves and their students.

**First observation.** The researcher conducted an observation and noticed that all three classrooms used activities that allowed for student interaction. Student-centered classrooms often utilized a large amount of group work (Kennedy, 2015). The students actively participated, and the teacher took on the role of facilitator. The teachers in this study formed student-centered classrooms.

Teacher A utilized a circular arrangement and showed a student response rate of 90.5%. The students averaged 1.3 responses per minute. Teacher B utilized a modified horseshoe arrangement with students at tables and desks. The student response rate was 57.6%, with an average of 1.1 responses per minute. Teacher C arranged his classroom in a modular layout. The response rate of the students was 100%, and the students averaged 1.1 responses per minute.

The circular arrangement of Teacher A’s classroom seating allowed for constant eye contact between students. Students were somewhat unfamiliar with the arrangement, but almost every student participated during the session. The high percentage of participation was partly a result of the teacher’s choice to step into a facilitative role and to compel students to drive the discussion. The arrangement of the classroom virtually eliminated the action zone, and all students were essentially seated on the front row. Students chose their own seats, and often contributed to the discussion when expounding on the comment of someone seated near them.

This particular structure also encouraged a high number of student responses during a relatively short time frame. Teacher A created a student-focused environment, so students were not listening to her speak for extended periods of time. Instead, she occasionally commented on
the students’ line of reasoning or redirected the discussion before turning it back over to the students. This lack of teacher focus resulted in a high concentration of student engagement.

Teacher B’s modified horseshoe arrangement allowed students to face the front of the room where the teacher and teaching materials were located. Students participated in the task at hand; however, the levels of student engagement were lower than in the circular arrangement. This classroom had a pronounced action zone, and students in the back and on the sides showed lower levels of engagement. These students avoided the teacher’s attention and allowed their peers to monopolize the class discussion. Teacher B used student volunteers and peer tutoring to involve more students, but the engagement levels were still less than those in Teacher A’s classroom. Simply arranging the chairs in different configurations produced greater levels of engagement than well-implemented strategies.

Teacher C’s modular arrangement prevented a clear action zone, but the choice of student placement within the modules allowed certain students to avoid interaction with the teacher. The students in this class chose their seat location, as well as the other students in their group. Students who chose to sit alone communicated less with the teacher. Some tables had only one or two interactions with the teacher, while others interacted 14 times. It was clear that groups with fewer students also had fewer interactions, but the increase was not proportional to the number of students in the group. Groups of three students sometimes had seven times as many interactions as groups of one or two students.

Teacher C utilized a group activity with high levels of interaction built into the plan, but students still had the opportunity to opt out of engaging with the content. Although the arrangement of the room encouraged a more balanced geographical engagement than the horseshoe design, the location of the students within the seating arrangement impacted their
levels of engagement. This confirms the observation in Teacher B’s classroom that demonstrated the importance of seating arrangement coupled with particular student location within that arrangement. In contrast with Teacher A’s circular arrangement which kept all students at the center of the action, the modular arrangement of Teacher C allowed students to choose seating positions that encouraged less eye contact and helped them avoid interaction with the teacher and others in the class.

First focus group. During the first focus group, the participants showed considerable interest in the arrangement and levels of engagement that had been noted in the classrooms of their colleagues. They asked clarifying questions of one another to gain potential strategies for their classrooms. Teachers were very open with one another and willing to offer suggestions when concerns were raised. Teacher A’s circular arrangement allowed for students to brainstorm and interact with one another (Marx, Furher, & Hartig, 2000; Rosenfeld, Lambert, & Black, 1985). The students had high levels of oral participation similar to what had been seen in other studies (Falout, 2014; King, 2014). The action zone in a classroom allowed students to better see and hear the teacher, as well as any teaching materials that were utilized. Students had higher levels of achievement while sitting in the action zone. Students outside of the action zone had less of the teacher’s attention. Circular seating expanded the action zone to the entire classroom. The researcher found this to be true in the observation of Teacher A’s circular arrangement, and these results echoed the findings in several other studies (Falout, 2014; Shamin, 1996; Wannarka & Ruhl, 2008).

Teacher B’s modified horseshoe arrangement allowed for some of the same benefits of visibility as the circular arrangement; however, students outside of the horseshoe showed lower levels of interaction and engagement. This arrangement also produced a noticeable triangular
action zone as described in recent studies (Falout, 2014; Marx, A., Fuhrer, U., & Hartig, T., 2000). Students outside of the triangle in Teacher B’s class exhibited less engagement with the teacher and other classmates. Teacher B noticed this during the data discussion and questioned Teacher A regarding the facilitation of her circular arrangement.

Teachers B and C both expressed concerns about the implementation of a circular arrangement with their particular content areas and the management of differing student opinions. Teacher A described strategies she used to ensure respectful student interaction, such as sentence stems and more teacher participation in the circle, and explained how she trained her students until they no longer needed those interventions. Teachers B and C were interested in the increase in student engagement that occurred in the circular arrangement, and Teacher B brainstormed a couple of ways she could use this arrangement with her subject area. This discussion showed a willingness on the part of the other teachers to adjust and change their methods for the benefit of student achievement.

Teacher B also showed a willingness to change her arrangement for the perceived benefit for students when she discussed her recent switch from individual student desks in rows to pairs of students at tables. She mentioned that she wanted students to have better visibility than what was afforded to them in straight rows. This new seating arrangement was consistent with data from studies that discussed the row arrangements as beneficial for behavior but less beneficial for engagement (Hastings & Schwieso, 1995; Rosenfeld, Lambert, & Black, 1985; Wheldall & Lam, 1987). She also mentioned the impact of student engagement training on her decision to change to tables. Due to class size, she had some students outside the horseshoe and noticed their lack of engagement compared with their peers. The researcher also pointed out the levels of student engagement inside and outside the action zone. Teacher A was interested in the
reasoning of Teacher B regarding student movement inside and outside the horseshoe, as well as the ability of the teacher to move among the students in this arrangement.

Teacher C’s modular arrangement created less of an action zone, but he noticed the lack of interaction of some students who were more isolated from their peers. Teacher B suggested that allowing a student to sit alone at a table might encourage them to opt out of class discussions. This was consistent with other studies that showed high levels of interaction with the group but lower levels as a class (Hurt, Scott, & McCroskey, 1978; Marx, Furher, & Hartig, 2000; Patton, 2001; Rosenfeld, Lambert, & Black, 1985). This arrangement also sometimes made eye contact with the teacher more challenging.

**Second observation.** During the second observation, the researcher noticed that the teachers had made several changes in the placement of students based on first focus-group conversations. The levels of student engagement also increased. The researcher presented data that likely impacted teacher choices about student placement.

Teacher A imposed an expectation on students for engagement and created a “cut-off” point for students with excessive interaction. As a result, her student engagement data increased to 100%, with an average rate of 2.11 responses per minute. Students had more experience with the circular arrangement at the time of the second observation, and the researcher noticed a marked improvement in their comfort with the interaction. Students showed less hesitation when entering the discussion, and the interaction seemed to be more about the content of the discussion than the act of participation. Students understood the process and held one another accountable for meeting the expectation. The circular seating arrangement impacted the level of participation as it had during the first observation, but the choices made by the teacher regarding expectations
increased the engagement as well. This indicated that a well-chosen seating arrangement was even more effective when paired with constructive teaching practices.

Following the focus group discussion about classroom action zones, Teacher B made changes to her seating arrangement and utilized an engagement structure to ensure that more students participated in the lesson than during the first observation. She also instituted interactive strategies, such as having students call on their peers to respond during group discussions. The action zone in her classroom was much less pronounced than it had been in the first observation data, and students had a higher student response rate of 100%, with an average of 1.17 student responses per minute.

Teacher B continued to use the modified horseshoe but with intentional modifications. Teacher B’s classroom was student-focused, but with more teacher-directed interaction than in Teacher A’s classroom. Students continued to sit with a clear view of the teacher and teaching materials. Teacher B achieved the increases in engagement with a combination of seating changes and procedural changes designed with engagement in mind. Like the observation in Teacher A’s room, it was apparent that an efficient seating arrangement was even more effective when utilized alongside well-designed teaching strategies.

Teacher C kept the same seating arrangement but changed the grouping of his students. His student response rate remained 100%, with an average of 1.1 responses per minute. As the researcher presented the data during the first focus group, the other participating teachers speculated that students seated alone at a table initiated less interaction with the teacher during the lesson. They wondered if students interacted more when supported by peers in the same group. Teacher C moved students around to different groups and created new groups with equal numbers of students. Although the response rate remained the same, the responses were more
evenly distributed among the students. Also different than the first observation, each group of students engaged in interaction with the teacher.

The activity chosen by Teacher C involved high levels of physical engagement requiring students to move around the room occasionally to retrieve clues from various locations. However, groups of students voluntarily interacted with the teacher at equal rates.

The purpose of this study was to determine ways that teachers might change their seating arrangements to increase student engagement. Those changes indicated that the teachers in this study were willing to make those changes to increase levels of student engagement. They not only made changes in the seating arrangements, but also the location of particular students.

**Second focus group.** At the second focus group, Teacher A commented on the improved student engagement of her students and how pleased she was at the lack of necessity for teacher involvement. Students held one another accountable, and the teacher’s role was one of occasional redirection. She attributed those improvements to the change in expectations for students. After students had contributed several times, they were required to switch to the role of facilitator. This new role increased the interaction of the others in the circle. The arrangement already had high levels of engagement, but this change increased it exponentially. Teacher C brainstormed a way to use the circular arrangement for a stem-cell research discussion. This discussion showed growth and a willingness to make adjustments, as he had initially been opposed to using this level of student discussion in his subject area.

Teacher B discussed her desire to increase student engagement in the class discussion by utilizing “turn-and-talk” to encourage her more introverted students to interact. Teacher A mentioned she had visited the classroom of Teacher B after the first focus group to watch the student interaction and to look for possible changes she could implement in her classroom. This
decision showed a willingness by Teacher A to make adjustments for increased student engagement. Teacher B also discussed her reasoning for moving several students after the first focus group. She stated that she attempted to pair more talkative students with those who are less so. She expressed frustrations with a particular student that she shared with Teacher A and was offered suggestions for how to manage his tendency to blurt out while still encouraging engagement and input. Teacher B expressed that she planned to utilize the same strategy with him while he was in her classroom. All three teachers discussed a particular student who was shy to participate and brainstormed ways to increase his engagement.

After hearing feedback from his colleagues during the previous focus group, Teacher C explained he had made changes in his seating arrangement to pair higher-level students with lower-level students and to prevent any student from working alone. The researcher pointed out a couple of students with particularly low levels of engagement, and Teacher C explained that they both had outside issues that impacted their involvement that day. The other teachers spoke about issues they had with one of the students and possible solutions. They also discussed other students in the class that they had in common and the strategies they had found to be successful. All three teachers were open to making adjustments.

**Relevancy to theoretical framework.** The results of this study were clearly impacted by the theoretical framework of the sociocultural theory which stated that learning was based on interactions with other people and was mostly a social process (Cherry, 2019). The learning and engagement of the students in the classrooms were directly impacted by the social nature of the class arrangements. However, the learning gained by the participating teachers was also driven by the social nature of the focus groups and the discussion of the data collected during the observations.
Social interaction was integral to Teacher A’s circular arrangement. Students interacted with one another as they discussed concepts from the literature focus of the class. They responded to the answers given by others in the class and critiqued the reasoning of one another. Teacher B used social interaction as students tutored one another, checked and explained the work of their peers, and demonstrated correct strategies for the entire class. Teacher C used high levels of social interaction as students worked in groups to complete activities during both observations.

The teachers themselves learned from one another in social interaction. They listened to the challenges described by their colleagues, gave suggestions for possible solutions, and encouraged one another.

Mindset theory also had a significant impact. This theory stated that individuals believed that intelligence was either fixed, or it could be grown. Teachers with a growth mindset made adjustments to classroom management to increase the levels of engagement of their students. Teachers were identified as having a growth mindset before the study began. Their interactions throughout the process indicated they had a desire to improve their craft and believed their skill as teachers could grow.

The interactions during the focus groups showed a desire by the teachers to learn new strategies and ways to incorporate them into their own practice. They brainstormed with each other alternative ways to improve the methods they commonly used. Teachers B and C initially stated their disbelief in the practicality of a circular arrangement with their particular content. When Teacher A gave a couple of suggestions for how to implement this arrangement, Teacher B thought of a couple of other ways she might use the arrangement. Teacher C also found it possible and began to verbalize ways to use it in the future. Teacher A visited the classrooms of
the other teachers in the group to see if there were strategies she could adopt in her classroom as well. All three teachers showed a belief they could improve their practices and the willingness to learn new approaches.

**Implications**

The data collected during this study indicated that the arrangement of the classroom had a definite impact on the levels of student engagement. However, the researcher also found that even greater levels of engagement were achieved when the teachers paired effective seating arrangements with intentional teaching strategies.

At the conclusion of the study, the participating teachers indicated that they had found this process to be very useful in their practice, and they would love for all teachers in the school to have the opportunity to participate in an activity similar to the one led by the researcher. Many teachers in the school shared the same students and were unaware of how those students interacted in other classes with different teachers. They believed it would have tremendous benefits for teachers to discuss their classroom arrangements and the reasons for their choices, as well as the engagement of students in their class.

This study generated several implications. The academic task or the type of desired behavior should impact the seating arrangement selected. Each of the teachers used their seating arrangement for a particular purpose. They also made changes as the academic need changed. This is consistent with other studies that showed the value in using different seating arrangements (Wannarka & Ruhl, 2008).

When the desired class environment was interactive, groups and circles produced better results. Especially-disruptive students tended to function better in row arrangements or when seated alone. This was shown clearly in the classrooms of both Teacher B and C and was
consistent with the findings in other studies (Hastings & Schweiso, 1995; Marx, Furher, & Hartig, 2000; Wheldall & Lam, 1987).

Other studies demonstrated that students in the front and center of the classroom communicated more than those seated outside the action zone (Marx, Fuhrer, & Hartig, 1999; Wannarka & Ruhl, 2008). Teacher B’s class illustrated this finding in the first observation, but the changes she made between observations reduced this inequity. Students tended to follow the same seating preferences as they moved from class to class. Therefore, teachers had a considerable impact on student engagement by directing room arrangements. It could be inferred that teachers needed to be aware and willing to make changes when students’ choice of seating was detrimental to their engagement or academic progress.

Teachers with an open mind toward change benefitted from careful analysis of data and discussion with colleagues about the significance of the data. Another study found that the growth mindset of the teachers had a direct impact on changes made in the interest of students (Robinson, 2017). This finding was consistent with the results of this study.

These data could be used in a broader study of other classrooms in the school. It might be beneficial for teachers to be grouped into teams to participate in observations and debrief together. Discussions regarding common students and strategies used in challenging situations brought about productive changes by individual teachers. Teachers felt less defensive when they were given autonomy to make changes based on data and results achieved by their colleagues. Discussion with colleagues about specific strategies made the suggestions seem more practical when these strategies had already been used with success on-site with the identical students in question.
It might also be beneficial to have teachers identify strategies they were not currently utilizing in their classrooms that had been shown to produce positive results. They could select one or more to investigate and initiate with the assistance of the instructional coach. Willing participants could implement the strategies in their classrooms, collect data, and report back to their teacher cohorts with the data results.

**Recommendations**

Future research could include a focus on particularly low or high-achieving classrooms. It could also include broadening the scope of data collection. This study focused on three classrooms in one school. More classrooms in this school could be included, as well as other schools in the region.

Future research about classroom arrangement could also include individual student achievement data. Researchers could compare students’ beginning of the year achievement with data collected after teachers made adjustments to the class arrangement.

Other studies could focus on the impact of the teaching strategies on the levels of student engagement when paired with quality seating arrangements. The researcher noticed the increase in engagement in these classrooms when teachers changed strategies, but the main focus was on changes in the arrangements themselves. Future data could focus on the strategies in combination with the arrangements.

One delimitation of this study was the narrow scope of the participants. Three classrooms were chosen based on the fact that they contained a variety of seating arrangements, levels of students, and content area. However, it might be beneficial to study classrooms in one content area to compare results in the same subject. It might also be beneficial to compare results from several classrooms utilizing the same seating arrangement. It might also be
interesting to look at levels of schools, such as middle schools or elementary schools, as well as schools outside of this particular school district.

Summary

Previous studies on student engagement and classroom arrangement have focused on various types of arrangements and the impact of those arrangements on student interaction with teachers and other students. This study examined the practices of teachers with a growth mindset within one particular school in Tennessee and determined whether they made changes in the arrangements of their classrooms based on data collected to increase the levels of student engagement in their classrooms. Data collection involved initial interviews, questionnaires, observations, and focus groups in examining the data collected after each interview. These four sets of data answered the research question that drove the study and determined that the teachers made changes in their classrooms to increase the levels of engagement.

Future research could expand the impact of change into many other classrooms at this school or study how teachers at other schools or in other locations in the state approached implementing change to impact the student engagement in their classrooms. Future studies could also add student achievement data to measure student progress during the utilization of various room layouts. These data could be used to measure student growth and efficacy of particular seating arrangements.
References


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Appendix A

Interview Questions
Interview Questions

1. What do you think has the greatest impact on student achievement?

2. What do you think has the greatest impact on student engagement?

3. How does the arrangement of your classroom affect the impact of student engagement?

4. How does the arrangement of your classroom affect the impact of student achievement?

5. How do you decide your classroom arrangement/setup at the beginning of the semester/year?

6. What types of room arrangements do you use most often during a school year?

7. What might cause you to rearrange your room during the semester?

8. Are there other things that might affect changing your room arrangement?
Appendix B

Interview Questionnaire
Students have a certain amount of ability and can't do much to change it.

It is important for students to be positioned so they can see one another at all times during class.

Students' intelligence mostly determines how well they do in school.

The main cause of off-task behavior is classroom seating arrangement.

Students can change how intelligent they are.

The percentage of correct answers on a test or assignment is a good measure of academic ability.

Academic ability is mostly genetic.

Room arrangement impacts the learning process, student behavior, and student engagement.

It is important for students to be positioned so they can see the teacher at all times during class.

It is important for the teacher to be able to move about the room during class.