Flexible Seating Impact on Classroom Environment

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ABSTRACT
As schools strive to instill college and career readiness within students, the academic success of students continues to be a priority of educators and administrators alike. The classroom learning environment utilized by students was examined throughout this study. Specifically, this study examined how the spaces within the classroom are utilized by students and how classroom spaces impact interactions between students and teachers. This qualitative study employed classroom maps and recording logs to gather data from students in second and fifth grade classrooms. With the data collected, the relationship between classroom environment and student engagement was examined. From the research, many common trends emerged. Common themes included that students prefer a specific seating choice in the classroom, flexible seating options were selected more than traditional seating options, and some students needed teacher directed instruction on modifications needed with seating choice or reminders how to sit in a specific choice. With these findings, it promoted a more collaborative work environment in the classroom.
KEYWORDS: Flexible Seating; Classroom Learning Environment; Traditional Seating, Elementary Education; Learning styles.

INTRODUCTION

The physical classroom design continues to change and move away from the traditional classroom set-up with the desks facing the front of the room. The traditional learning spaces in the classrooms consist of desks facing the front of the classroom with the teacher or podium located in the front (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 27). The classrooms are transitioning to a flexible-seating design in the classroom which allows more student choice and options for the students. The idea of using the flexible seating is mimicking the idea of a coffee shop or "Starbucks" for the students to work in around the room (Havig, 2017, p. 1). The classroom environment impacts the level of student engagement and academic success. The stakeholders of the field of education are looking at ways to continue to move in this direction for student success (Dotterer & Lowe, 2011, p. 1652). The students in the classroom need to be comfortable in the place they are learning which will lead to students being more engaged. The students will then be more attentive and will be more likely to participate in discussions that create a more meaningful, impactful learning experience (Reyes, Brackett, Rivers, White, & Salovey, 2012, p. 700).

Funding has been a big concern recently with policy makers beginning to distribute funds based on performance-based models. This shift has researchers dedicating more time and energy to "examine the factors that characterize ideal educational experiences" (Granito & Santana, 2016, p. 1). When utilizing performance-based models, student achievement is the ultimate focus. In order for students to be successful and achieve to the best of their ability, contributing factors that impact student achievement must be examined and analyzed. One contributing factor is that of student engagement which "is the amount of time and energy students expend on their studies. This has been linked to cognitive skills, college adjustment, and personal growth, all of which contribute to student success" (Granito & Santana, 2016 p. 1). The levels of engagement students experience in the classroom impact their success. As student engagement is linked to student attitudes and perceptions, the classroom environment in which they learn in is to be structured to meet their learning needs. Environmental conditions such as "temperature, color of walls, lighting, air quality, and acoustics can also impact student learning (Granito & Santana, 2016 p. 2). Taking a closer look at classroom environment allows educational stakeholders to determine manners in which to structure and create sound learning spaces to foster student achievement.

In today's classrooms, the teachers are continuing to make changes that will create the best learning environment for the students. Learning what that environment is benefits the students' achievement as well as the student-teacher relationship in the classroom. When looking into the best environment is for the students it is important to note the different factors that play into their success. Whether it is the design of the classroom, how the walls are decorated, the seating options, student choice or the technology used. The world is constantly changing and evolving, and the classrooms are no exception as they continue to move away from the traditional set-up. Being able to have a better understanding of how to create the best learning environment for the students will be beneficial in student success.

The purpose of this study was to determine which classroom workspaces students gravitate toward and the role of student choice in their selection. The study focused on the manner in which students utilize specific workspaces within the classroom and how student choice impacts the areas in which they choose to work. Furthermore, this study aimed to evaluate the use and practicality of the classroom environment and the designated spaces within it as they are utilized by students and teachers in relation to the level of student engagement that students experience in the space. School engagement is defined more clearly through understanding more about student behavior, thoughts, and feelings in relation to student classroom experiences (Dotterer & Lowe, 2011, p. 1651). The current trend in education has moved away from traditional, rigid classroom structure in order to create classroom environments that allow students the ability to work collaboratively. Twenty-first century classrooms include, "work tables and rolling chairs that can be arranged as needed for collaborative and team projects, teacher-led workshops, design workshops, and student presentations" (Adedokun, Burgess, Henke, & Parker, 2017, p.2). Considering the manner in which teachers can manipulate and structure the classroom environment in order to meet the needs of twenty-first century learners will encourage student success and achievement.

To facilitate a classroom environment specifically designed to meet the needs of all learners, educators must consider multiple factors including how "the social, instructional, and organizational climate of schools influences both students' engagement and their academic achievement" (Dotterer & Lowe, 2011, p.1650). In order to meet the various learning needs of all students, teachers must consider the physical environment because "while concentrating, students react differently to the immediate instructional environment--sound versus silence, brightness versus soft lighting, warm versus cool temperatures and formal versus informal seating" (Burke & Burke-Samide, 2004, p.238). Taking careful consideration of environmental factors will guide educators as they purposefully structure classrooms to facilitate enriching environments for learning to take place.

Identifying the factors that allow for student success in the classroom are very important. There are many factors that may play a role in this, and the classroom environment is essential. The design of the classroom is a physical manifestation of educational theories, philosophies, and values (Rands & Gansemer-Topf, 2017, p.27). Classroom designs with an emphasis on open seating concepts and open work areas allow for collaborative work. Students view their classroom as an open area where learning takes place rather than a rigid environment. Open workspaces and seating policies are affordances to students and teachers alike. Teachers have the ability to conference with groups of students more comfortably and naturally. Additionally, flexible classroom design encourages interaction and leads students to feel closer personal connections with their teacher and peers (Rands & Gansemer-Topf, 2017, p.29). Open workspaces also allow for active learning to take place. Active learning "has become an integral part of the student learning experience" because it provides opportunities for students to be at the center of their own learning (Rands & Gansemer-Topf, 2017, p. 26).

The important terms used throughout this study were defined as follows. Traditional learning spaces are defined as having the desks face the front of the classroom with either a teacher desk or podium located in the front of the room (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 27). Active learning classrooms are defined as a place that "uses movable work surfaces typically grouped in pods that do not usually face the front of the classroom; they are designed to create more access to technology as well as workspaces that allow for student interaction. They often include whiteboards that facilitate group problem-solving and peer-to-peer teaching" (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 27). Learning environment is an educational term used to describe the use of evolving technologies that are used for educational purposes and the constructivist concept for teaching and learning (Kuuskorpi & Gonzalez, 2011, p. 1). When referring to educational spaces, we are discussing areas in the classroom that allow for multiple learning and teaching styles to be applied as well as the use of new technologies (Kuuskorpi & Gonzalez, 2011, p. 1). A physical learning space more specifically is defined in the narrowest sense as "a conventional classroom and, in its widest sense, as a combination of formal and informal education systems where learning takes place both inside and outside of schools" (Kuuskorpi & Gonzalez, 2011, p. 2).

The significance of the study was directed toward practicing educators and administrators within the field of education. Both educators and students would benefit as a result of the study. The data gathered from the study would guide educators and administrators when making decisions regarding classroom design and its effects on student engagement. Students would benefit as a result of this study as they learn in classrooms designed for increased student engagement. The findings of the study would be valuable for various educational stakeholders especially when considering the movement toward implementing performance-based funding. Students learning in an environment specifically designed to be educationally stimulating have the ability to perform higher than those students who do not learn in such an environment. Having a deeper understanding of how classroom environment impacts student engagement, all stakeholders would be well prepared to make educational-related decisions in order to ensure students achieve academic success.

This study aimed to answer the following questions:

1. How are the defined spaces within the classroom utilized by students and teachers?
2. In the classroom, do the students continue to gravitate to a specific seating choice or area in the room to work?
3. Does flexibility with seating arrangements or student choice in where they work impact student engagement?

LITERATURE REVIEW

Common themes that have emerged through analysis and reflection of the topics associated with the classroom environment and student engagement include transformation, student learning styles, flexible seating, and emotional impacts. These components all share common threads that are intertwined making up the major themes throughout this review.

TRANSFORMATION

Classrooms today are undergoing many changes including being transformed from the traditional classroom design into spaces that better equip students for 21st century learning. The place in which we learn is very important because it plays a significant difference on the learning experience for students (Beard & Wilson, 2013, p. 93). The classroom environment varies based on the teacher, room arrangement, sounds, light, temperature, and decorations that are present within each space. With the classrooms undergoing these changes, many are moving away from the name of a classroom and towards the name of 'learning centers' (Beard & Wilson, 2013, p. 97). The switch of the classrooms is also a result of the implementation of the internet and more media options. The "dynamic teaching space" allows for the students to work in pairs, groups and have the ability to collaborate throughout the day (Kuuskorpi & Gonzalez, 2011, p. 5). Classrooms are not the only thing undergoing changes, but teachers' roles have changed drastically as well.

Today's classrooms are required to be more flexible for students and teachers to engage in learner-centered teaching practices. The availability of having classroom components that include moveable equipment such as worktables and rolling chairs provide opportunities for students to engage in more collaborative work requiring the students to take more responsibility for their own learning (Adedokun, Henke, Parker, & Burgess, 2017, p. 2). Technology, cultural, and social changes are continuing to alter the expectations of the classroom, or physical learning environment for teachers (Kuuskorpi & Gonzalez, 2011, p. 1). Teachers are not the only ones questioning the impact the school environment has on student engagement, but professional architects and educational planners are also continuing to research this area. More specifically architects and educational planners are looking at how the various designs have an impact on student outcomes with a focus on student behavior and achievement (Tanner, 2009, p. 382).

A shift in education has moved from viewing learning as a solitary process to a collaborative effort. To accommodate this change, chairs and seating styles are necessary tools within the classroom environment to improve learning engagement and attention (Harvey & Kenyon, 2013, p.3). Flexible seating and flexible learning spaces encourage movement within the classroom. Without this movement, brain activity is reduced when as body becomes inactive thus students become motionless and learning does not take place (Harvey & Kenyon, 2013, p.3). Flexibility within classrooms is of value in 21st century classrooms allowing for students to work in collaborative groups, a common practice in present day classrooms. Flexible learning spaces allow for altered seating arrangements to done inherently by the hands of the students as needed.

STUDENT LEANING STYLES

In the classrooms, teachers are expected to have a classroom that reflects each students' specific learning style (Burke & Burke-Samide, 2004, p. 238). Each student has a unique learning style, and the classroom should be able to accommodate students learning styles to promote student engagement. Today's classrooms are undergoing many

changes from previous years of the traditional classroom set-up because the traditional classroom design could have a negative effect on student growth (Burke & Burke-Samide, 2004, p. 237). It is noted that the use of rows of desks in the classroom that was traditionally used was to maximize the on-task behavior of students in the classroom (Adedokun, Henke, Parker, & Burgess, 2017, p. 2). We are now beginning to re-examine this classroom strategy because it does not align with our new beliefs of creating a learner-centered environment where collaborative work is part of the foundation of learning. The classroom environmental elements such as design, sound, light, and temperature all have an impact on students' achievement and their growth as well (Burke & Burke-Samide, 2004, p. 237). When students for example become distracted by the temperature in the classroom to an extent that it causes a level of discomfort, their lack of focus will inhibit their academic success.

Not only does the classroom need to be able to reach all students with their learning styles, but it also must provide a social place where students can engage in a positive social environment. There are many skills involved in creating this social classroom such as, the ability to solve problems, interact with peers working together, respect multiple perspectives and allow for students to interact with the tools in the classroom (Roskos and Neuman, 2018, p.113). The classrooms today have to be able to reach all students where they are and support them through their learning experience.

FLEXIBLE SEATING

There have been previous studies completed with similar findings "that the type of learning space can influence creative thinking, add excitement for both the student and instructor, and enhance teaching and learning experiences" (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 26). It is described that, "future learning spaces will provide greater flexibility and mobility of people, knowledge, furniture and other artefacts" (Beard & Wilson, 2013, p. 97). A new trend of using flexible seating in the classroom has become more popular and could decrease the amount of disruptive behavior occurring with students.

By using flexible seating in the classroom, the room begins to look more like a "Starbucks" with students working throughout the room, rather than at desks (Havig, 2017, p. 1). Some of the features that teachers are including in their classrooms to move away from the traditional classroom style include tables, pillows, couches, bean bag chairs, and therapy balls (Havig, 2017, p. 1). These flexible seating options are vital tools that can be the means to creating a more meaningful learning experience through environmental modes.

A fundamental design embedded within flexible seating is to link the design of the classroom to a purpose. At a basic level, flexible seating allows for multiple configurations of whole group, small group, and partners to talk, listen, read, write, play, and learn (Roskos and Neuman, 2018, p.111). The nature of flexible learning space and flexible seating is that they are fluid, not rigid. Flexible seating is implemented in mind with the overall goal that students select workspaces suited to their needs as a learning in order for them to be as successful as possible. Students are not limited to one specific seat or space; they make adjustments as they see fit. With the possibilities in the flexible seating options, it "can encourages positive behavior and prevent disruptive behavior" (Havig, 2017, p. 1).

It is important to realize that these pieces of furniture open a door to the opportunity for students to gain a greater sense of purpose and feeling of community within the walls of the classroom (Waldock, Rowlett, Cornock, Robinson, & Bartholomew, 2017, p. 588). Students are able to develop relationships with one another and the classroom instructors when provided the tools to create a partnership with one another. To further instill a sense of community within the classroom, desks should be positioned face-to-face so that not one student is alone or apart from any type of learning, a component which is crucial for all student success (Mott, Thomas, & Burnette, 2014, p.4). These opportunities for students to enhance and develop one another's learning through the connections that they can establish can be monumental to their educational experiences.

The study of flexible seating is constantly changing and evolving in the classroom as well as the impact on students is becoming more well known. The studies that do exist focus highly on the use of innovative pedagogy and the learning space that is required for implementing such practices. Many studies are also limited in knowledge due to the fact that student learning has been measured strictly through the use of student standardized test scores (Adedokun, Henke, Parker, & Burgess, 2017, p. 3). Many teachers and school districts are continuing to implement flexible seating options in their classrooms, but many do not have reasons for doing so other than thinking that it is a best practice supported by research. There is concern that many are implementing this without any published research to justify it and are just following along with the latest fad in education (Havig, 2017, p. 2). This lack of knowledge provides a gap in the information that we know about how the learning space can impact the learning process and student achievement.

METHODOLOGY

The proposed research study followed a qualitative design approach. Researchers obtained data based upon student seat selections utilizing the attached classroom maps and recording logs. After data collection, trends in the data were be analyzed and interpreted to draw conclusions about the second grade and fifth grade students at the research sites.

PARTICIPANTS

The participants in this study were elementary students who are second grade and fifth grade classroom. There were 25 students in the second-grade classroom and 40 students in the fifth-grade classroom. The two classrooms are located at an elementary school in central Illinois. The second-grade population includes 3 students with individualized education plans. The fifth-grade population includes 4 students with individualized education plans.

The students were be monitored based on where they are working throughout the day in the classroom. The students have a variety of seating options ranging from floor seating, ball chairs, standing, couch, stools, and chairs. The teachers will be monitoring the students based on the seating choices that they decide to work in and where they will be successful.

INSTRUMENTATION

Data was collected using a map of each classroom that outlined the various flexible seating options available for student use. After each student selected their seat of choice to work at, researchers noted their seating choices on the map. This process allowed researchers to record daily seating choices in order to analyze patterns and frequencies of choices. The seating map for the two classrooms are presented in figures 1 and 2.

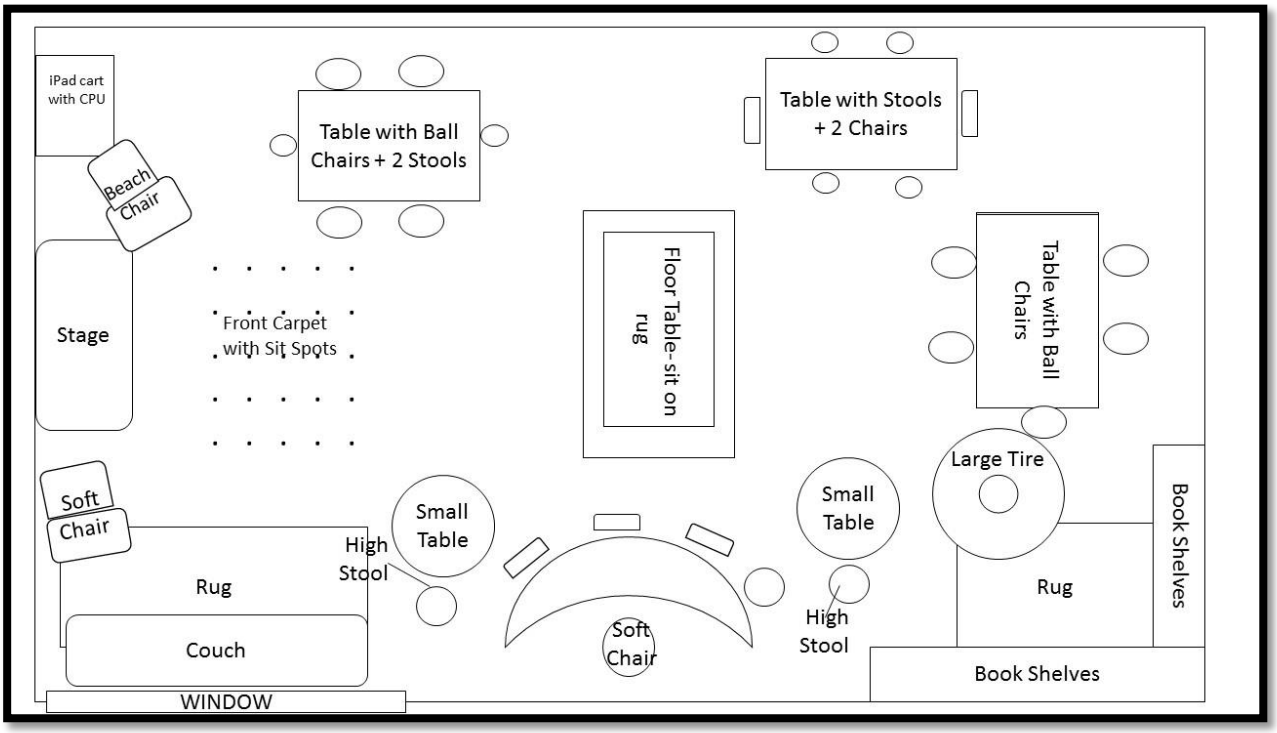

Figure 1. Seating Map for 2nd Grade Classroom

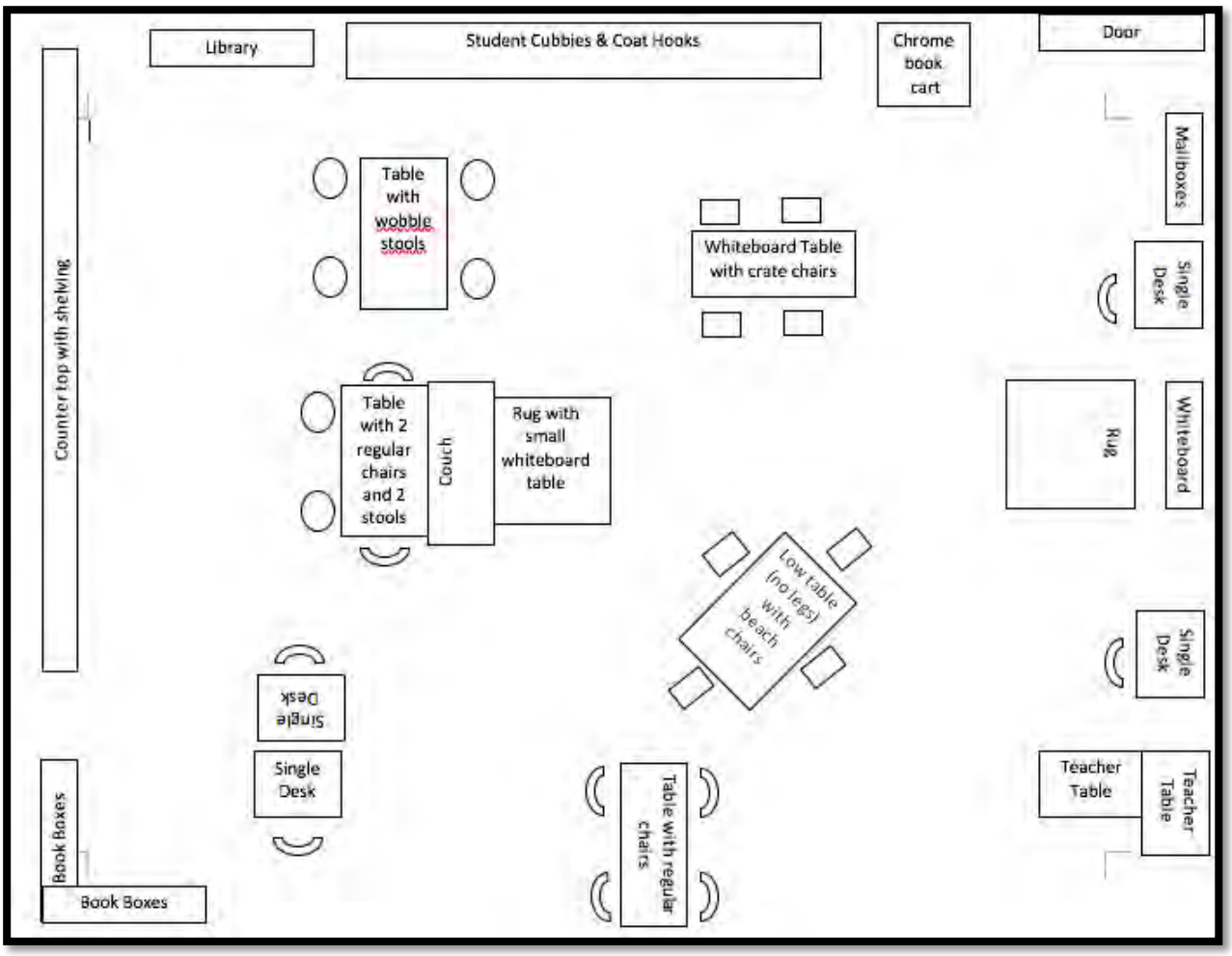

Figure 2. Seating Map for 5th Grade Classroom

DATA ANALYSIS PROCEDURES

The data that was collected via the classroom map and seating choice logs were organized and analyzed by the researchers. The researchers sought to identify patterns within the seating selections of the second and fifth graders. For example, were students choosing to sit with friends versus an area in which they can be the most productive? Did students select different seats each day or were their choices habitual? Were students choosing alternative seating or did they prefer standard chairs? Which students typically worked alone versus in a group? What was the most popular seating choice in the classroom? The information was documented on the seating choice logs for 2 weeks to determine what seats the students were picking to work at.

RESEARCH QUESTIONS

1. How are the defined spaces within the classroom utilized by students and teachers?
2. In the classroom, do the students continue to gravitate to a specific seating choice or area in the room to work?
3. Does flexibility with seating arrangements or student choice in where they work impact student engagement?

DEFINITIONS OF TERMS

The important terms used throughout this study are defined as follows. Traditional learning spaces are defined as having the desks face the front of the classroom with either a teacher desk or podium located in the front of the room (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 27). Active learning classrooms are defined as a place that "uses movable work surfaces typically grouped in pods that do not usually face the front of the classroom; they are designed to create more access to technology as well as workspaces that allow for student interaction. They often include whiteboards that facilitate group problem-solving and peer-to-peer teaching" (Sawers, Wicks, Mvududu, Seeley, & Copeland, 2016, p. 27). Learning environment is an educational term used to describe the use of evolving technologies that are used for educational purposes and the constructivist concept for teaching and learning (Kuuskorpi & Gonzalez, 2011, p. 1). When referring to educational spaces, we are

discussing areas in the classroom that allow for multiple learning and teaching styles to be applied as well as the use of new technologies (Kuuskorpi & Gonzalez, 2011, p. 1). A physical learning space more specifically is defined in the narrowest sense as "a conventional classroom and, in its widest sense, as a combination of formal and informal education systems where learning takes place both inside and outside of schools" (Kuuskorpi & Gonzalez, 2011, p. 2).

LIMITATIONS OF THE STUDY

A variety of limitations are evident within the study. First, student seating choices may be influenced by the day-to-day availability of the various seating choices. A system could be implemented within both classrooms in order to avoid this issue. For example, the researchers could create a schedule to specify a small group of students who can pick their seats first then change these groups daily. Another limitation within the study could arise if and when a student is not able to pick a seat where they would work the best. If a student needs a specific seat location due to behavior needs, their selections are then influenced by the teacher. Another limitation of the seating options is that some students may be distracted by others that sit near them. Since there is no assigned seat for students, who the students sit by can influence their engagement in an activity. If this leads to an issue with the students working on a task, the teacher may have to ask the students to find new seats or separate from each other.

DATA ANALYSIS AND INTERPRETATION

The purpose of this study was to evaluate the use and practicality of the classroom environment and the designated spaces within it as they were utilized by students and teachers in relation to the level of student engagement that students experience in the space. The participants of this study included 40 fifth grade students and 25 second grade students from an elementary school in central Illinois.

In considering the first research question posed, "how are the defined spaces within the classroom utilized by students and teachers?," it was noted that two specific areas were commonly underutilized by students in the fifth-grade classroom. Those two areas included the couch with the table in front of it and the table on the side of the room with regular chairs. All other spaces in the classroom were either full or had one open seat with each class that used the space. The whiteboard table with crates, the table with wobble stools, and the single desks were used most often by both fifth-grade classes. These findings indicate that they are the preferred workspaces for fifth grade students. Each day of the study, at least one student in each fifth-grade class was observed making a modification to their workspace whether it was a change of seat or it involved using a whiteboard or clipboard as a hard surface to write on rather than the table provided. All students who chose the crates with the whiteboard table used the table surface to compute math problems rather than their smaller whiteboards available to them in their book boxes. When looking deeper into the second-grade class, it was recognized that many students frequented many of the same seats multiple times and did not move from that seating choice often. During writing time, students cannot sit on the couch or tire because it is difficult for them to write at those seats, but at other times throughout the day, these were very frequented seats. The floor table and the ball chairs were often full each time as many students prefer these seating options. The small tables with the high stools were a seat that some students prefer, but if students needed a spot to focus better by changing their seating option they would go to this spot. When there were modifications that were done after a student started their work and often times this resulted in them getting a clipboard and sitting on the floor.

The second research question aims to determine if students gravitate toward specific seating choices or areas in the classroom. Figures 3 and 4 indicate that during the period of data collection, 7 of the 40 students never selected to use a regular chair at any point. These 7 students strongly favored alternative seating available within the classroom. Throughout the course of data collection, it was observed that the wobble stools, crates with the whiteboard table, and the single desks were always full or remained with one open seat. This finding indicates that these areas of the classroom were well received and utilized by students. In Figures 3 and 4, it can be noted that 16 of the 40 students preferred to utilize a workspace with a regular chair. As these chairs are spread out across a variety of workspaces, their selection in which space they used varied day-by-day. In the fifth-grade classroom, the practice that emerged was that students are using both traditional and flexible seating. It was observed that a handful of students habitually sat in the same area while a majority of the students changed up their seating amongst common areas of their choice. For example, in 5C, Chloe was found working at a single desk in the front of the room 8 out of the 10 days. It was also observed that select groups of students sat by each other habitually. In 5C, Abby H and Abby M were observed in the same workspace every day. In the second-grade classroom, many students had their few favorite spots that they normally worked in unless the tire or the couch were open. Most areas of the classroom were always being utilized and many students preferred the same type seating choice with a few variations. An example of this is Campbell, who sat 13/15 times at either the floor table or on the floor if the table was already full. Another example of the students gravitating towards a specific seating choice is Phoebe who sat in a ball chair 10/15 times. It is noted that the tire and couch did not have open seats, and the next seating

choice that students preferred was the ball chairs and the floor table. There are a few students who regularly chose to sit in a chair. But the majority of the time there were chairs left open and the ball chairs were full as well as the floor table. Figure 5 indicates that 7 students never sat in a chair during data collection and 9 students only sat in a chair one time. In Figure 5, it also shows that only 3 students never sat at a ball chair. This seating choice was picked the most by being selected as the seating choice 83 times.

F = Floor, C = Couch, Cr = Crates, S = Stools, WS = Wobble Stool, SD = Single Desk, BC = Beach Chairs, RC = Regular Chair *= changed seats later on due to choice/teacher X = absent

Braxton	RC	RC	RC	RC	RC	RC	RC	BC	BC	RC
Erin	WS	CR	CR	CR	X	CR	CR	CR	X	CR
Logan	CR	RC	RC	RC	BC	WS	BC	WS	WS	WS
Megan	RC	WS	WS	BC *	WS	WS	WS	WS	CR	X
Cam	RC	WS	WS	RC *	WS	RC	WS	C	RC	RC
Gabby	CR	CR	RC	RC	RC	RC	BC	WS	CR	WS
Rylie	S	RC	BC	BC *	CR	CR	CR	S	CR	WS
London	WS	X	CR	X	X	X	CR	CR	X	CR
Brynlee	X	WS	WS	CR	BC	RC	RC	RC	RC	BC
Desirae	WS	RC *	RC	RC	RC	S	S	BC	S	CR
Abby H	S	RC	S	S	RC	C	RC	RC	RC	RC
Darian	RC	CR	RC	RC	RC	BC	RC	C	RC	BC
Leah	RC	S	CR	S	WS	BC	ES	S	WS	C
Ethan	WS	CR	RC	RC	RC	RC	CR	CR	CR	RC
Cohen	CR	WS	WS	WS	BC	RC	C	WS	CR	S
Lilly	RC	RC	CR	CR	RC	RC	RC	RC	X	BC
Colton	X	BC	BC	BC	WS	WS	WS	BC	BC	WS
Abby M	S	RC	RC	X	RC	C	RC	RC	RC	RC
Chloe	RC	RC	RC	RC	RC	RC	RC	RC	S	RC
Olivia	BV	RC	RC	RC	S	S	S	BC	S	CR

Figure 3. Seating Choice Data for 5th Grade Students (Section 1)

Aycen	RC	RC	RC	RC	WS	C	CR	S	RC	RC
Jaiden	WS	CR	RC	BC	X	RC	WS	RC	ES	X
Addy	WS	CR	RC	RC	WS	RC	WS	RC	RC	WS
Paydyn	CR	CR	WS	WS	BC	S	CR	WS	BC	CR
Ava	RC	RC	CR	RC	BC	CR	RC	WS	CR	CR
Amy	CR	B	CR	CR	CR	CR	CR	CR	CR	CR
Kate	CR	WS	WS	WS	BC	RC	CR	CR	BC	CR
Robert	S	S	RC	CR *	CR	WS	BC	CR	CR	RC
Cole	BC	RC	CR	RC	CR	BC	WS	RC	CR	C
Hayden	RC	S	RC	RC	RC	RC	RC	RC	S	RC
Faith	X	WS	RC	RC	WS	RC	RC	RC	WS	RC
Matt	RC	WS	X	RC *	S	BC	RC	WS	RC	RC
Kendra	BC	RC	RC	RC	CR	BC	S	RC	RC	RC
Mikey	X	BC	BC	X	RC	RC	RC	BC	X	RC
Jensen	X	CR	WS	WS	RC	WS	WS	WS	WS	WS
Brody	RC	RC	CR	WS *	WS	CR	RC	RC	RC	RC
Izzy	BC	BC	BC	RC	RC	S	RC	BC	RC	RC
Grace	RC	RC	RC	BC	RC	BC	S	RC	RC	RC
Landen	X	BC	BC	CR	X	X	BC	BC	RC	BC
Reece	CR	WS	WS	BC	BC	CR	BC	BC	BC	BC

Figure 4. Seating Choices Data for 5th Grade Students (Section 2)

F= floor, C=couch, SC= soft chair, T= tire, S= stool, HS= high stool, BC= ball chair, Ch= chair, FT- floor table, - = absent

Allison	C	BC	BC	FT	F	T	BC	FT	BC	FT	F	FT	F	T	Ch
Ariana	-	F	FT	FT	BC	S	Ch	SC	SC	SC	SC	FT	SC	F	F
Brock	BC	-	FT	BC	FT	F	S	C	BC	F	Move out				
Camden	BC	BC	S	Ch	Ch	BC	BC	F	BC	S	BC	BC	S	S	FT
Campbell	SC	FT	F	FT	FT	F	FT	F	-	F	FT	F	FT	F	F
Caleb	C	C	HS	Ch	-	Ch	Ch	C	C	C	BC	BC	F	FT	Ch
Carin	-	-	FT	BC	Ch	BC	FT	FT	BC	-	-	FT	-	-	HS
Carter	BC	BC	BC	F	BC	T	BC	F	T	F	BC	BC	Ch	C	C
Casey	F	F	FT	S	FT	S	S	Ch	F	S	S	Ch	S	F	F
Conary	S	F	Ch	FT	S	BC	BC	BC	S	S	S	S	BC	BC	BC
Cole	Ch	F	Ch	S	Ch	S	Ch	BC	BC	S	BC	S	S	BC	HS
Cooper	F	SC	BC	HS	Ch	FT	FT	HS	C	Ch	Ch	Ch	BC	HS	F
Jacob	F	S	-	-	FT	F	Ch	FT	S	FT	FT	F	F	Ch	FT
Juliet	-	BC	HS	Ch	HS	BC	HS	F	F	BC	BC	F	Ch	Ch	Ch
Kameron	BC	BC	FT	HS	FT	F	BC	FT	BC	C	FT	T	F	HS	C
Kayleigh	T	T	BC	S	BC	F	BC	BC	HS	Ch	F	C	F	SC	F
Liberty	S	F	S	S	S	-	-	-	F	BC	F	F	FT	BC	S
Maeva	Ch	F	BC	S	S	S	FT	F	Ch	F	F	F	FT	BC	S
Max	-	-	BC	FT	HS	FT	F	F	F	F	Ch	F	C	F	FT
Noelle	FT	FT	FT	FT	BC	BC	FT	HS	HS	F	FT	BC	BC	FT	FT
Oliver	F	C	BC	BC	S	S	BC	BC	F	HS	BC	F	F	FT	Ch
Phoebe	-	C	BC	BC	BC	FT	BC	BC	BC	BC	BC	BC	BC	F	F
Savannah	S	S	Ch	BC	Ch	BC	BC	F	-	T	S	FT	FT	BC	T
Silas	F	F	F	BC	BC	BC	HS	F	F	S	HS	F	F	F	F
Trinity	-	-	F	S	BC	HS	C	T	C	Ch	HS	HS	F	C	SC

Figure 5. Seating Choices Data for 2nd Grade Students

The third research question asking, "does flexibility with seating arrangements or student choice in where they work impact student engagement?," yielded a few generalizations. First, some students needed to be moved and given specific areas to sit in as requested by the teacher. These students were moved due to disengagement during class specifically because they demonstrated off tasks behaviors, predominantly the inability to refrain from talking to their peers. After reminders and time away from distracting peers, this behavior was seen less frequently. Overall, when students were asked to take part in collaborative conversations at their groups, the conversations observed were on task and productive. It should be noted that all students in both fifth-grade classes and the second-grade class completed their work in a timely manner. Thus, their choice of seat did not negatively impact their ability to complete their work on time.

The major patterns observed as a result of the study indicate that students will utilize both alternative and traditional seating when both options are available. Another significant finding from the research indicates that students take it upon themselves to make changes in their workspace when necessary. This is as evidenced by them asking to move seats or by using a clipboard or whiteboard as a hard surface to work on rather than the table provided. One finding that should not be overlooked is the fact that even with alternative seating options, there will always be students that select a tradition workspace comprised of a regular chair at a desk and/or table.

The new understandings of this research demonstrate that students are able to self-select their seating choice in a second grade and fifth grade classroom. Students may select a variety of options at the introduction of flexible seating, but over time they will gravitate towards a specific seating choice where they can work best. An example of this is in second grade, there is a student who cannot focus on their work while sitting on a ball chair so when they decide on this choice, they either bounce too much, roll, and do not complete the work. This student made a choice that the seating choice of a ball chair was not a good option for them and decided to sit in other options.

The overall findings of the research resonate with the underlying themes of flexible seating. Flexible seating encourages students to select workspaces based upon their needs and that the selection is not permanent. Students will determine which workspaces best suit their needs and will make adjustments accordingly. Figures 3, 4 and 5 show that some students became creatures of habit regarding their seating choices while others ventured to choose a variety of options. During the period of research, no major behavior problems presented themselves with the fifth-grade classes. The few instances where students had to be assigned a seat lasted 2 days at most. Students selecting their workspaces did not hinder their ability to follow classroom expectations nor did it inhibit their ability to complete their classwork. In the second-grade class, two students lost ball chairs for the remainder of that day because they were using them inappropriately based on classroom rules, which resulted in them moving seats. The students then earned them back the next day and made a better choice. Student choice on where they sat in the classroom did not impact their class work and they still followed classroom expectations in the second-grade classroom.

Exceptions to the patterns observed throughout the course of this study emerge from the difficulty some students experience should they be unable to select a workspace that suits their needs. Those students that require teacher intervention in the workspace selection process will naturally take a longer time to determine their best space within the classroom to learn.

The information that we gathered supports the previous findings that is discussed in literature. Our students have had the opportunity to enjoy movement and options in the classroom. The students are able to make a choice based on their learning style about where they will work best as independent learners as well as collaborators in a small group. Both the second-grade classroom and the fifth-grade classroom has a relaxed feel and many different seating options for the students to decide to sit at. This is following with the coffee house feel of being a more relaxed setting. The results we found from our research agrees with the ideas in the literature about students being engaged and being able to self-select their seating choice.

As evidenced from the findings of the study, both the second and fifth grade students demonstrated ownership of their learning as they selected workspaces to suit their needs. The availability of having classroom components that include moveable equipment such as worktables and rolling chairs provide opportunities for students to engage in more collaborative work requiring the students to take more responsibility for their own learning (Adedokun, Henke, Parker, & Burgess, 2017, p. 2). Our students reflect this finding within prior studies because the students were constantly observed collaborating with their peers who shared similar interests in the chosen workspaces.

The flexible seating available to the second and fifth grade students predominantly chosen over the traditional seating options. Without this movement, brain activity is reduced when as body becomes inactive thus students become motionless and learning does not take place (Harvey & Kenyon, 2013, p.3). All flexible seating options in the second and fifth grade classrooms accommodate a student's physical movement. For example, the second-grade classroom uses ball chairs while the fifth-grade classroom uses wobble stools. The findings of the study indicate that these flexible seating choices were at capacity each day. The results of indicate that students prefer to be mobile while learning rather than inactive in a traditional chair.

As noted within the findings of the research, many students made modifications to their seating and were not limited to sitting in the same space each day. Students are not limited to one specific seat or space; they make adjustments as they see fit. With the possibilities in the flexible seating options, it "can encourages positive behavior and prevent disruptive behavior" (Havig, 2017, p. 1). The findings of our study support the notion of positive behavioral impacts and less disruptive behaviors because students were not restricted to teacher decided

workspaces. The implementation of flexible seating innately develops a student's sense of ownership of their learning as the navigate which classroom workspaces suit their learning needs. Little to no behavior issues arose in the second and fifth grade classrooms during the data collection process. Any issues were remedied after redirection, modeling, and conferencing.

The significance of the results of this study indicate that elementary school aged children are capable of selecting workspaces that best suit their learning needs. When presented with both traditional and flexible seating options, students will explore a variety of workspaces before establishing a habit as to their best working space. Additionally, the results indicate that students will make necessary modifications to their workspaces. If the seating option or surface does not meet a student's needs, they will take ownership and modify accordingly.

ACTION PLAN

Prior to carrying out our research, we had special interest in classroom environment. Specifically, we were interested in how to transform learning spaces within the confines of the traditional classroom structures evident within our schools. Many of the changes we had made in our classrooms prior to research were ideas we had gathered from colleagues and educators across the country within our personal learning networks. The prior seating and workspace changes were made with the idea in mind that students work best when they are in a supportive, flexible environment. Because of this understanding, we chose to explore flexible seating and classroom environment as it relates to student ownership and engagement.

The findings of this study further solidify that flexible learning environments are most conducive to student engagement, ownership, and achievement. Anytime a student is able to make choices as it relates to their learning, they are innately more engaged and assume ownership. Throughout the study, the students were encouraged to select workspaces that met their needs as a learner. Often, this process allowed students to try out a variety of workspaces in order to navigate which area of the classroom suit them best. Additionally, we learned which areas of our classroom are highly desirable amongst our students. Within the second and fifth grade classrooms, certain areas with flexible seating were deemed most popular amongst the students. Also, in both classrooms there were some students who never sat in a traditional seating option of chair and sat in the flexible seating options each time. This data collection made us more aware of which of our current workspaces should stay and which need to be redesigned.

Moving forward, we will continue to implement flexible seating within our classrooms and encourage our colleagues to do so as well. We will be advocates for classroom redesign to promote flexible learning spaces and move away from the traditional, rigid classroom structures. Because our results indicated which workspaces students find most conducive to learning, we will explore options to acquire more ball chairs, wobble stools, stools, lowered tables, etc. Though we had very few instances with misuse of workspaces and teacher intervention with seating selection, we will continue to model how to choose a workspace. This will require frequent review of expectations as well. As the concept of flexible learning spaces becomes a typical practice, the hope would be that students become accustomed to self-directed seating selection and it becomes a natural progression throughout their schooling.

As flexible seating and flexible learning environments coupled with student self-selection is somewhat a progressive practice. it will take time for teachers to break the mold of the traditional classroom structure. For many, this will require slow implementation with modifications made along the way. Another potential challenge is acquiring alternative seating and surfaces for students to work on. Historically, the process of acquiring such furniture is at the discretion of the teacher and the availability of school funds. While funding is limited, many teachers are able to write grants and have classroom items donated. There are many challenges with transitioning a classroom from a traditional design to a flexible learning environment.

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