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Student Choice and Student Engagement

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by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

The focus of this study was school transformation to accommodate "new literacies, skills, and dispositions that students need to flourish in a networked world" (Richardson, 2016, p. ix). Many schools operate within a traditional model developed during the Industrial Revolution to fit the need for efficiency and compliance (Robinson & Aronica, 2015). However, according to Robinson and Aronica (2015), "These systems are inherently unsuited to the wholly different circumstances of the twenty-first century" (p. xxiii). The purpose of this study was to determine if student choice of where to sit or type of seating positively impact student engagement. Observations were conducted in classrooms to identify whether students had a choice in where they sat; the types of seating available; and whether each student was engaged, compliant, or off-task as defined by a scoring guide. It was determined there is a positive significant difference in the engagement level of students who have a choice in where they sit as compared to students who are assigned to seats. It was also determined there is a positive significant difference in the engagement level of students who were offered flexible seating options compared to students who were seated in traditional desks or at tables with chairs. There are many opportunities to learn from this study and to change educational practices based on the theoretical framework about student engagement and the decline in student engagement according to Gallup polls (Gallup, 2016). The findings of this study bring additional awareness to student engagement and what factors impact learning in the classroom.

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Chapter One: Introduction

In a 2015 Gallup survey of American workers, 32% of United States employees reported they were engaged in their work (Adkins, 2015). To be engaged, according to Gallup, a person is "involved in, enthusiastic about and committed to their work and workplace" (Adkins, 2015, para. 3). The workers who are not engaged, according to Adkins (2015), "are not hostile or disruptive. They show up and kill time, doing the minimum required with little extra effort to go out of their way for customers" (para. 4). Kotler (2014b) declared, "Think about this for a moment: two out of three of us hate what we do with the majority of our time" (p. ix).

In a survey of 669 managers, Amabile and Kramer (2011) asked supervisors to rank the key management tools significant in affecting employee motivation and emotions. The five tools managers ranked were support for making progress in the work, recognition for good work, incentives, interpersonal support, and clear goals (Amabile & Kramer, 2011). The managers ranked recognition for good work as the number one impact on motivation and emotions; however, the managers (95% of them) were incorrect in their hypothesis (Amabile & Kramer, 2011). A multi-year study by Amabile and Kramer (2011) involving hundreds of employees and an analysis of about 12,000 diary entries by workers showed progress had the most significant impact on motivation and emotions. Amabile and Kramer (2011) wrote, "On days when workers have the sense they're making headway in their jobs, or when they receive support that helps them overcome obstacles, their emotions are most positive and their drive to succeed is at its peak" (para. 3).

The concept of flow, introduced in the 1970s by Csikszentmihalyi, was a result of his study of play (Pink, 2009). Pink (2009) explained, "[Csikszentmihalyi's] exploration of play unlocked an insight about the human experience that would make him famous" (p. 111). During his doctoral research, Csikszentmihalyi studied painters, rock climbers, soccer players, and other people who were engaged in "what Csikszentmihalyi called 'autotelic experiences'—from the Greek auto (self) and telos (goal or purpose)" (Pink, 2009, p. 111). Pink (2009) commented, "In an autotelic experience, the goal is self-fulfilling; the activity is its own reward" (p. 111). Csikszentmihalyi replaced the word "autotelic" with the word "flow" to describe those optimal moments his subjects experienced (Pink, 2009). Csikszentmihalyi described the flow experience:

> The flow experience is when a person is completely involved in what he or she is doing, when the concentration is very high, when the person knows moment by moment what the next steps should be, like if you are playing tennis, you know where you want the ball to go, if you are playing a musical instrument you know what notes you want to play, every millisecond, almost… So, there's concentration, clear goals, feedback, there is the feeling that what you can do is more or less in balance with what needs to be done, that is, challenges and skills are pretty much in balance. (as cited in Juliani, 2015, para. 4)

Kotler (2014b) explained, "In flow, we are so focused on the task at hand that everything else falls away. Action and awareness merge. Time flies. Self vanishes. Performance goes through the roof" (p. viii). Relating flow back to job satisfaction, Kotler (2014b) stated, "Flow directly correlates to happiness at work and happiness at work directly correlates to success" (p. ix). Achor (2011) concluded, "The single greatest advantage in

the modern economy is a happy and engaged workforce" (para. 3). Achor (2011) argued, "Given the unprecedented level of unhappiness at companies and the direct link between happiness and business outcomes, the question is NOT whether happiness should matter to companies. Given this research, it clearly should" (para. 4).

Csikszentmihalyi found, "The happiest people on earth worked hard for their fulfillment. They didn't just have the most peak experiences; they had devoted their lives to having these experiences" (as cited in Kotler, 2014b, p. 20). According to Pink (2009), "A number of companies, including Microsoft, Patagonia, and Toyota, have realized that creating flow-friendly environments that help people move toward mastery can increase productivity and satisfaction at work" (p. 115). Conversations, a marketing services company in New York founded by Frank O'Brien, was added to Inc. 500/500 List of "America's Fastest Growing Companies" (McKeown, 2014). The founder designates one day a month for a daylong meeting with all 50 employees to think about what is essential—a time to think, talk, and not be bothered by phones or technology (McKeown, 2014). O'Brien said, "I think it's critical to set aside time to take a breath, look around, and think. You need that level of clarity in order to innovate and grow" (as cited in McKeown, 2014, p. 64).

In 2008, Google was recognized as one of the top five companies in which to work (Amabile & Kramer, 2011). Amabile and Kramer (2011) described the reputation of Google's headquarters as an "almost mythical status" where people thought the perks of the company were leading to outstanding performance by the employees (p. 1). Some of the perks offered by Google were ping pong tables, free chef-cooked meals, a 24-hour gym, and shuttle service, among others (Amabile & Kramer, 2011). However, Amabile

and Kramer (2011) found the perks may not have been the driving factor to success at work, rather "the secret is creating the conditions for great inner work life—the conditions that foster positive emotions, strong internal motivation, and favorable perceptions of colleagues and the work itself" (p. 1). Amabile and Kramer (2011) discovered, "People are more creative and productive when they are deeply engaged in the work, when they feel happy, and when they think highly of their project, coworkers, managers, and organizations" (p. 3).

Neuroscientists are studying ways to craft spaces where people work (Anthes, 2009). Behavioral scientists are "unearthing tantalizing clues about how to design spaces that promote creativity" (Anthes, 2009, para. 2). In an interview for *Harvard Business Review*, Witthoft stressed the importance of bringing one's full self to work and to the workplace, work itself can be collaborative and creative (as cited in Doorley & Witthoft, 2012). Witthoft said, "We can create a space that supports visualization of ideas, getting ideas out, and then equally supports getting rid of those ideas and moving onto another idea very quickly" (as cited in Doorley & Witthoft, 2012, para. 5).

McKeown (2014) taught a course at the Hasso Plattner Institute of Design at Stanford (also referred to as the d.school) and discovered the importance of intentional design. There were no traditional chairs, and the foam cubes around the room were not very comfortable to sit upon, making it appear students wanted to stand (McKeown, 2014). McKeown (2014) observed, "Students would rather stand up, walk around, and engage with one another—not just the classmates sitting to their right or to their left. The school had used the physical space to encourage new ways of engaging and thinking" (p. 65).

Designers of spaces have an important role, according to Doorley and Witthoft (2012). Doorley and Witthoft (2012) suggested of creators of collaborative spaces, "Intentional or not, the form, functionality, and finish of a space reflect the culture, behaviors, and priorities of the people within it. This suggests that a space designer is simultaneously a cultural translator and a builder" (p. 38). Psychologists helped to redesign the Kingsdale School in London (Anthes, 2009). The designers wanted to promote social cohesion and, said Anthes (2009), "The new structure also includes elements that foster alertness and creativity" (para. 3). Berger (2014) discussed the evolving workplace, "The consensus seems to be that this new world demands citizens who are self-learners; who are creative and resourceful; who can adjust and adapt to change" (p. 49).

According to a 2013 Gallup poll of public school students, "The more years students spend in school, the more disengaged they become" (Busteed, 2013, p. 3). In 2015, there were 3,300 schools nationwide that participated in the Gallup Student Poll (Gallup, Inc., 2015). Forty-six states were represented by the 900,000 public school students who responded (Gallup, Inc., 2015). Gallup, Inc. (2015) stated there is a strong link between engagement and school success:

> Engagement decreases steadily from fifth grade through junior high and high school before reaching the lowest point in the junior year. In fifth grade, three-quarters of students feel involved in and enthusiastic about school, but by 11th grade, the same is true for only about one-third of students. (p. 6)

In summary, only about one-third of the nation's students are engaged at school (Gallup, Inc., 2015) and less than one-third of the nation's employees are engaged at work

(Gallup, Inc., 2015). Engel (2015) connected unengaged students and the unengaged workforce and stated, "Our educational system, however unwittingly, has been guided by the premise that boredom in school is an acceptable price to pay for future success as a bored adult" (p. 8). Achor (2011) argued, "The single greatest advantage in the modern economy is a happy and engaged workforce" (para. 6). Achor (2011) concluded, "A decade of research in the business world proves that happiness raises nearly every business and educational outcome" (para. 7).

Delzer (2016) related a moment at her local Starbucks that changed her as a teacher, "Looking around, I realized that everyone seemed to be happy, engaged in their work, and relaxed. Some people chose the traditional chairs and tables while I opted for a big, comfy chair with my MacBook on my lap" (para. 1). Delzer (2016) posted, "Our classroom environments should be conducive to open collaboration, communication, creativity, and critical thinking. This simply cannot be done when kids are sitting in rows of desks all day" (para. 2).

When setting up a classroom, teachers make choices that impact how students learn in the environment (Kohn, 1993). Kohn (1993) stated, "The question of how students learn embraces a great many issues—beginning with whether to work alone, in small groups, or as a class—and including such incidental matters as where students will sit (or lie) while they work" (p. 6). Robinson and Aronica (2015) stated, "In the conventional high school classroom, students sit at desks, facing the front, while the teacher instructs, explains, and sets assignments" (p. 75). Delzer (2016) lamented, "To see that some classrooms look the same now as they did 70 years ago, is shameful" (para. 2). Dillon, Gilpin, Juliani, and Klein (2016) stated, "As a teacher, you can have the best

curriculum and you can be the best facilitator of knowledge, but if you don't have an environment that's conducive for learning, then nothing else truly matters" (p. 3).

If students are provided with and have choices for seating alternative to traditional desks and chairs, will their level of engagement and learning increase? Merritt (2014) revealed, "Current research is inadequate regarding the possible relationship between alternative seating and young children's attention and emerging literacy skills" (p. 13). Major topics to be addressed in this study include student choice of seating, student engagement at the elementary level, and whether or not there is an association between the two.

Background of the Study

Investigating with historical research, according to Fraenkel, Wallen, and Hyun (2015), "is the only research method that can study evidence from the past in relation to questions" (p. 540). In order to understand why student seating might make an impact on engagement, background on early schooling was explored. Bailey (2015) described a classroom designed on a factory model that has been around since the early 1900s, "Take a moment and conjure an image of a factory, what it manufactures, its goals and working environment. In this image, you might see obedient workers, performing rote, repetitive tasks with little personal meaning" (p. xx). Horn and Staker (2015) relayed, "Only fifty percent of five to nineteen-year-olds in the United States were enrolled in school in 1900" (p. 6). At that time, according to Robinson and Aronica (2015), "Schooling was for the wealthy and those who joined the church" (p. 31).

Robinson and Aronica (2015) wrote, "The Industrial Revolution changed everything" (p. 31). Robinson and Aronica (2015) described the "technological

innovations" (p. 31) that changed the way goods and materials were produced, which also led to new products made of iron and steel. This created a ripple effect with new working classes of men and women, high demands for energy that resulted in mining, and steam engines that changed the face of transportation (Robinson & Aronica, 2015). Engel (2015) wrote, "One result of this [factory labor movement] was that many poor children also went to work in the factories, partly because there was no one home to watch them and partly because the families needed every penny they could earn" (p. 16). As the general public realized the injustice of sending children to factories, labor laws were created and the question was asked, "If children couldn't work at home alongside a neighbor or relative, and if working in factories was bad for them, where would they go? School became a solution to a widespread child care dilemma" (Engel, 2015, p. 17). Robinson and Aronica (2015) concluded, "It was in all these tumultuous circumstances that the demand grew for organized systems of mass education" (p. 33). Horn and Staker (2015) continued, "In order to create a universal education system that could accommodate large numbers of students, educators looked to the efficient factory system that had emerged in industrial America" (p. 6).

The result was a system with students grouped by grade levels so everyone could learn in the same way at the same pace (Horn & Staker, 2015). Berger (2014) reflected on the educational system of the Industrial Age when he said, "To create good workers, education systems put a premium on compliancy and rote memorization of basic knowledge—excellent qualities in an industrial worker" (p. 48). Darling-Hammond (2010) reflected on that same time period, "The notion was that one could organize all the facts needed into a set body of knowledge and divide it up neatly into the twelve years of

schooling, doling out the information through graded textbooks and testing it regularly" (p. 4).

Student-centered classrooms, or open classrooms, became popular in the United States in the late 1960s but lost popularity a decade later (Cuban, 2004). Cuban (2004) wrote thousands of elementary classrooms became "home-like settings," and avid promoters of open classrooms wanted schools built without walls (para. 11). Classroom spaces were arranged in a workshop model, allowing students to go to activities of interest to them (Cuban, 2004). Cuban (2004) noted a scene described by Walter and Miram Schneir in a 1971 *New York Times* article, "What is most striking is that there are no desks for pupils or teachers. Instead, the room is arranged as a workshop" (p. 2). Engel (2015) referred to the educators of the 1960s and wrote, "These enlightened educators were intent upon awakening students' minds, giving them a chance to pursue their interests and find personal meaning in the subjects they studied" (p. 22). Change occurred just a few years after the open classroom concept began; in the mid-1970s, there was a reform to move back to the basics (Cuban, 2004). Cuban (2004) reported, "Citations in the media and academic journals indicate that interest in open classrooms peaked somewhere around 1974. By the early 1980's, open classrooms had already become a footnote in doctoral dissertations" (p. 2).

Another aspect to a workshop model, or open classroom, was the concept of learner-centered classrooms (Bray & McClaskey, 2015). Goldstein (2014) described the difficulty of judging school success in the 1960s and 1970s, "During the 1960's and 1970's, standardized achievement tests were not in wide use as measures of students learning or teacher effectiveness" (p. 130). With the division in the United States over

the Vietnam War, the shift was to return to the basics with focus on academic standards and traditional classrooms (Cuban, 2004). Cuban (2004) stated:

> The national crisis gave rise to a perception, amplified by the media, that academic standards had slipped, that the desegregation movement had failed, and that urban schools were becoming violent places. This time the call was not for open education but for a return to the basics. (p. 71)

President Reagan's administration published *A Nation at Risk* in 1983, focusing on failing schools and their impact on the national economy and the strength of the country (Engel, 2015). Engel (2015) reported, "No longer a privilege and a respite from work, formal education had become a necessity, considered essential to individual success" (p. 27). Engel (2015) added, "The debate about schools had become part of the debate about national power" (p. 27).

However, with the World Wide Web and the technologies that accompany the Web, Richardson (2016) explained learning needs to be "reconceptionalized" (p. 5). According to Richardson (2016), "[There is a] world of possibilities for us to learn and create and connect" (p. 6). Bray and McClaskey (2015) described what a learner-centered classroom might look like, "You look around and you do not see any desks. In fact, you might not even see any teacher desks" (p. 6). Bray and McClaskey (2015) also explained one will hear a lot of noise in areas where children are collaborating and there may be areas of quiet where students work in beanbag chairs independently.

Bray and McClaskey (2015) explained the learners of today are not the same as learners 10 years ago. Bluestein (2014) described the difference in today's learners versus the learners from an industrial society, "Although young people once depended on

a handful of adults to give them information on every subject, nowadays an entire world of data and resources is only a click away" (p. 4). Richardson (2016) challenged, "Here we now are, in an amazing moment when the vast majority of our students are able to connect to nearly the sum of human knowledge, almost half the earth's population, and a powerful slate of tools" (p. 27). According to Darling-Hammond (2010), knowledge is expanding at a "breathtaking pace" (p. 4). Darling-Hammond (2010) stated, "It is estimated that five exobytes of information (500,000 times the volume of the Library of Congress print collection) was generated in 2002, more than three times as much as in 1999" (p. 4).

Barnes (2013), classroom teacher and creator of Results Only Learning Environment (ROLE), described student-centered classrooms as being "built on autonomy and the elimination of traditional teaching practices" (para. 1). Barnes (2013) encouraged mini-lessons using videos, as well as technology integration, collaborative learning, and project based learning. Kingore (2013) explained, "The most effective curriculum and the best planned lesson are of little consequence if instructional practices fail to establish a productive and responsive learning environment" (p. 164). Church, Morrison, and Ritchhart (2011) discussed engagement and stated:

> When there is something worthwhile to think about and a reason to think deeply, our students experience the kind of learning that has a lasting impact and powerful influence not only in the short term but also in the long haul. (p. 26)

Price (n.d.) advocated for "tapping into students' interest in learning" (p. 7.) and warned about the pitfalls of disengagement, "It is almost as though we have accepted the

inevitability of learning as a cold shower; you're not expected to enjoy it, but it will do you good" (p. 6).

Theoretical Framework

In a meta-analysis of 41 studies, Patall, Cooper, and Robinson (2008) found a strong link between student choice and intrinsic motivation when completing a task, overall performance on the task, and willingness to accept challenging tasks. Fredricks (2014) defined intrinsic motivation as "a motivation driven by an interest or enjoyment in the task" (p. 37). Fredricks (2014) added, "Intrinsically motivating activities are those that individuals engage in for no reward other than interest and enjoyment" (p. 86). Ricci (2013) explained, "Extrinsic rewards come from an outside place, usually a teacher or a parent who promises a 'prize,' sticker, even money if a child demonstrates success" (pp. 70-71). Covey, Covey, Summers, and Hatch (2014) discussed rewards systems and said, "Whereas extrinsic rewards are shorter-lived and can even be viewed as manipulative or controlling, intrinsic rewards have longer staying power" (p. 223).

Robinson and Aronica (2015) "urge[d] teachers to focus on building strong relationships in which they engage their students, enable their students' curiosity and help them find their passion, maintain high expectations, and empower their students" (para. 5). Richardson (2016) added, "In classrooms where students are given the ability to choose their own topics for study and the methods and the people to study them with, the gains are huge" (p. 30). In a literature review for Princeton University, Wulsin (2013) recommended classrooms should be "profound places of revelation and discovery" (p. 2). Wulsin (2013) explained, "Well designed space has the ability to elevate discourse, encourage creativity, and promote collaboration" (p. 2). Wulsin (2013) endorsed flexible

seating spaces, mobile furniture, and portable devices. Fredricks (2014) voiced, "One reason students may be disengaged is that learning in school often bears little resemblance to how learning happens outside of the school context" (p. 39). Fredricks (2014) cautioned teachers about the traditional classroom set-up and warned the physical arrangement of desks in rows can limit interaction among peers.

The science behind sitting for long periods of time provides reinforcement for alternative seating (Gregory & Kaufeldt, 2015). Gregory and Kaufeldt (2015) reported, "When we sit too long, blood pools in our lower extremities, and oxygen and glucose are depleted in the brain. Movement helps pump blood to the brain" (p. 137). Gregory and Kaufeldt (2015) explained brains need natural dopamine and without it, "our brains are less motivated, sluggish, and uninterested" (p. 137). Because there is a gap in current literature concerning flexible seating and how choice in seating affects levels of engagement for students, motivation theory, and an understanding of neuroscience and how neurons interact to generate behavior, the topic of flexible seating was studied.

Statement of the Problem

There has been discussion about what workforce-development schools produce compared to schools focused on producing 21st-century citizens (Chase & Lehmann, 2015). Chase and Lehmann (2015) stated, "The purpose of public education is not the creation of the twenty-first century workforce, but rather, the cocreation—in conjunction with our students—of twenty-first century citizens" (p. 6). In the *World Economic Forum Report*, Gray (2016) identified the top-10 skills needed for 2015 and compared them to skills needed for 2020. Gray (2016) reported, "On average, by 2020, more than a third of the desired core skill sets of most occupations will be comprised of skills that are

not yet considered crucial to the job today" (p. 28). Gray (2016) stated his concerns with the current educational system, "Most existing education systems at all levels provide highly siloed training and continue a number of 20th century practices that are hindering progress on today's talent and labor market issues" (p. 40). Table 1 was produced from the information provided by Gray's (2016) report.

Table 1

Top 10 Skills Needed for Entering the Workforce in 2015 and 2020

2015	2020
Complex Problem Solving	Complex Problem Solving
Coordinating with Others	Critical Thinking
People Management	Creativity
Critical Thinking	People Management
Negotiating	Coordinating with Others
Quality Control	Emotional Intelligence
Service Orientation	Judgement and Decision Making
Judgement and Decision Making	Service Orientation
Active Listening	Negotiation
Creativity	Cognitive Flexibility

Complex problem solving, critical thinking, and creativity were at the top of the list for 2020, while creativity was at the bottom of the list in 2015 (Gray, 2016). In a press release for AltSchool (a privately funded education project in SiliconValley), Dalgaard, one of the major backers for AltSchool said, "Our children are going to experience an unbelievable amount of change in their lives, and we need an education

system that is preparing them for the careers and the world they'll find in 2030" (Quale, 2015, para. 12). Doorley and Witthoft (2012) advocated for a creative environment, "One thing that an organization can do to create opportunities for people that work there to be more creative and be more expressive is actually signaling, by way of opportunities, physical things people can do" (para. 13). Doorley and Witthoft (2012) continued by explaining physical opportunities may include vertical spaces where people can display artifacts of work they are doing and places where people can leave messages for each other about the work in order to promote transparency and creativity. Kim's (2011) study using the Torrance Tests of Creative Thinking revealed a steady decline in creative thinking among Americans, especially among students from kindergarten through third grade. Kim (2011) suggested in upper elementary students, "the decline in creative thinking might arise from some change stifling children's creative thinking in schools" (p. 293).

Gaspari (2016) argued, "Many schools are re-evaluating traditional details such as rows of identical desks and chairs, in favour of more student-centered agile learning environments" (para. 4). Fischetti (2016) said, "We need to consider not only the desks and chairs, but also the scenarios we are designing for. A boring, didactic, teacher-led lesson isn't made any less boring because I'm sitting in a comfy chair" (para. 3). Merenbloom and Kalina explained, "Although students appreciate the comfort that comes with structure, they also respond to novelty and challenge" (2013, p. 157). This study was designed to determine if giving students choice in where they sit causes them to be more engaged and if allowing students to choose spaces that allow them to learn in a social, rather than isolated, setting, leads to greater student engagement.

Purpose of the Study

Fraenkel et al. (2015) addressed the need for a study to contribute to "overall knowledge and to current practice" and to "seek to clarify some aspect of the field of interest that is considered important" (p. 616). Berger (2014) wrote, "As a number of education critics have pointed out, schools in many industrialized nations were not, for the most part, designed to produce innovative thinkers or questioners—their primary purpose was to produce workers" (p. 48). Richardson (2015) discussed transformation in schools and rethinking the purpose for classrooms, "Schools, in general, are highly structured, committed to the curriculum, and rooted in long-held narratives about what classrooms, teaching, and learning are supposed to look and feel like" (p. 23). Berger (2014) asked the question, "What if our schools could train students to be better lifelong learners and better adapters to change, by enabling them to be better questioners?" (p. 49).

Learning is emotional, and teachers who lead students to experience emotions through learning are helping students make emotional connections (Krechevsky, Mardell, Rivard, & Wilson, 2013). Krechevsky et al. (2013) asserted, "Making the emotional component of learning visible played a core role in motivating learning in these classrooms, for students and teachers alike" (p. 57). Learners need choice and the opportunity for collaboration, generation of questions, and activity (Bray & McClaskey, 2015). Bray and McClaskey (2015) added, "When learners have a choice in what they are learning, especially if it is something they are passionate about or interested in, they jump in and sometimes get lost in the task or project" (p. 167). Bray and McClaskey

(2015) explained choice in classrooms adds value to the task and getting to work with friends also adds value.

Csikszentmihalyi (2014) interviewed people who described experiences they were passionate about; the people described their feelings during those experiences as being carried away by a river (flow) (Csikszentmihalyi, 2014). In flow, Csikszentmihalyi (2014) explained, "Attention is focused on a limited stimulus field and there is full concentration, complete involvement" (10:02). Csikszentmihalyi (2014) revealed that in the flow experience, time is distorted. Engel (2015) wrote about flow and reflected, "Musicians, writers, furniture makers, cooks, and anyone solving an interesting problem that they willingly embarked upon know what flow feels like" (p. 99).

Bray and McClaskey (2015), Richardson (2015), and Fredricks (2014) connected intrinsic motivation, choice, and the need for schools to redesign learning spaces to their research. Ford (2014) declared, "Imagine a space where students can either get in groups or work individually" (11:42). The purpose of this study was to compare classrooms in District A to determine if choice and flexible seating increase student engagement in the classroom. Some of the classrooms observed had traditional seating with desks and chairs or tables. Some of the classrooms had flexible seating with standing desks, exercise balls, crates, pillows, and various seating at various heights. In each classroom, students either chose where they sat each day or had seats assigned by their teachers.

Research questions and hypotheses. The following research questions guided the study:

1. What is the difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites?

$H1_0$ There is no positive difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites.

$H1_a$ There is a positive difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites.

2. What is the difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites?

$H2_0$ There is no positive difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites.

$H2_a$ There is a positive difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites.

3. What is the difference in engagement of students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

$H3_0$ There is no positive difference in engagement of students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

$H3_a$ There is a positive difference between students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Choice. Gregory and Kaufeldt defined choice and self-directedness, "Choice is empowering and engaging. The notion of control is equally as motivating. Innate in most learners, self-directed learning encompasses both of these critical elements of a brain-friendly classroom" (2015, p. 126). Bray and McClaskey (2015) said, "The freedom to choose how one will spend one's time every day, coupled with the obligation to fulfill one's duties as a member of the community, builds personal responsibility and citizenship" (p. 141).

Choice theory of motivation. Because people feel a need to belong, they are motivated by internal interests or intrinsic motivation (Fredricks, 2014). Glasser (1998) defined Choice Theory of Motivation, "All we do is behave, almost all behavior is chosen, and we are driven by our genes to satisfy five basic needs: survival, love and belonging, power, freedom and fun" (para. 1). According to Gregory and Kaufeldt (2015), Choice Theory also revolves around the following six beliefs:

1. We can only control our behavior.
2. Information is all we can give someone else.

3. Most psychological problems are relationship problems.
4. Our past has everything to do with what we do today, but only our basic needs can be satisfied right now.
5. All behavior is made up of four elements: acting, thinking, feeling, and physiology.
6. We have direct control over acting and thinking, but we only control our feeling and physiology indirectly by how we choose to think and act. (pp. 21-22)

Engagement. Schlechty (2011a) defined student engagement as a construct with many related and connected elements. According to Schlechty (2010), to be truly engaged, four elements must be present. Schlechty noted the first indicator of engagement is, "Attention, but attention is not enough to be engaged. You have to care about what you are attending to" (Schlechty, 2010, 3:03). Students must be attentive and persistent; at the point of difficulty, they "come back for more" and stick with it (Schlechty, 2010, 3:23). Schlechty (2010, 4:20) added students must be committed, "they persist and commit voluntarily their time." Finally, the work must have "meaning and value" to the student (Schlechty, 2010, 4:45). These four elements, according to Schlechty (2010), make up the construct of engagement.

Factory model school. Also referred to as traditional schools, factory model schools were designed during the Industrial Revolution to prepare students for factory work (Horn & Staker, 2015). According to McKeown (2014), "Modern corporations were born out of the Industrial Revolution, when their entire reason for being was to achieve efficiency in the mass production of goods" (p. 85).

Flexible seating. Albemarle School District defined flexible seating as, "At least three different choices of seating for students – so you might see a stool, a beanbag, or chairs that look more traditional but allow kids to rock without tipping over" (2015, "Fund your flexible classroom"). Lindren (2015) wrote, "Flexible learning areas with easy access to technology naturally promote student engagement and project-based learning, inquiry, collaboration, creativity and problem solving. Collaborative learning in these new spaces can be busy and noisy – and that's okay!" (p. 37).

Flow. Flow is "the mental state that is achieved when a person performing an activity is immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity" (Gregory & Kaufeldt, 2015, p. 127).

IGNiTE. IGNiTE is an initiative by District A to provide resources and support to teachers and students. The purpose is to create an engaging, personal, and relevant experience for students in the district and to provide equitable access to mobile technology over a period of three years.

Motivation. According to Headden and McKay (2015):

> From the Latin movere, 'to move,' it [motivation] describes students' desire to engage in learning and do well. More precisely, psychologists define it as the directing of energy and passion toward a goal; it is what starts, directs, sustains, and stops behavior. (p. 4)

Neuroscience. Georgetown University Medical Center (n.d.) specified neuroscience is "also known as Neural Science, is the study of how the nervous system develops, its structure, and what it does. Neuroscientists focus on the brain and its impact on behavior and cognitive functions" (para. 2). Bray and McClaskey (2015) defined

neuroscience as "[Neuroscience] links our observations about cognitive behavior with the actual physical processes that support such behavior" (p. 51).

Open classroom. A movement from the 1960s to 1970s, "open classrooms contained no whole-class lessons, no standardized tests, and no detailed curriculum. The best of the open classrooms has planned settings where children came in contact with things, books, and one another at interest centers" (Cuban, 2004, p. 70).

Limitations and Assumptions

A limitation of this study was the type of instruction and teaching style each teacher had developed. It is possible those teachers who were open to allowing students choice in seating were also more open to student collaboration and project-based learning. It is also possible teachers who required assigned seats and only offered desks or tables as options for seating may have delivered more direct instruction in the form of lecture or question-and-answer, and they may not have allowed collaborative work among students. Therefore, the results of this analysis should not serve as an assumption all classrooms with student choice in seating yield higher rates of engagement due only to choice in seating. However, these results can be viewed as a starting point for understanding how students benefit from choice in spaces where they work and how motivation and choice impact the engagement of students.

Sample demographics. This study involved 12 schools in District A. Each of the schools had varying student demographics. District A was accredited for the 2015 school year. The district served 25,055 students with 79.6% White, 5.4% Hispanic, and 7.7% Black students. The overall attendance rate for the district was 85.2%. Students

receiving free and reduced price meals made up 54.6% of the population, and the four-year graduation rate was 88.38%.

Instrument. The method for collecting data consisted of an observation form created in Google Sheets by the researcher. The form was used to collect quantitative data and was designed to identify whether the classroom had choice seating or assigned seating; flexible or traditional (desks or tables) seating; and the total number of students who were engaged, compliant, or off-task during the time the observer was present.

The collection of data was limited to the 12 schools not currently IGNiTE sites at District A. Classrooms were each assigned a number, and a random number generator was used to determine which classrooms would be used as samples for data collection. According to Bluman (2011), "[The] preferred way of selecting a random sample is to use random numbers. The theory behind random numbers is that each digit, 0 through 9, has an equal probability of occurring" (p. 710).

Summary

Bedell (2013) described engagement as three dimensions that can differ depending on the task. Behavioral engagement is observed when students are participating, having conversations about work, and when students keep trying even when the work is hard (Bedell, 2013). When students are setting their own goals, going beyond the minimum requirements, and self-regulating their behavior, they are demonstrating cognitive engagement (Bedell, 2013). Finally, students are displaying emotional engagement when they are enjoying learning and experiencing a sense of belonging in the school (Bedell, 2013). These students have developed relationships and feel success (Bedell, 2013). Gregory and Kaufeldt (2015) stated, "Our innate need for

belonging is a catalyst for cooperation and sets a good stage for interactive exploration" (p. 56). Fredricks (2014) stated, "Increasing engagement is seen by both educators and policymakers as the key to addressing problems of low achievement, high levels of student boredom and alienations, and high dropout rates" (p. 2).

Instead of standing in front of the class to deliver a lesson, teachers may take into account the diversity of their learners and offer flexible learning spaces (Bray & McClaskey, 2015). Fredricks (2014) indicated, "Although teachers cannot change the innate characteristics of their students, they can change the classroom environment" (p. 3). Learners can generate questions, organize inquiry projects, and learn collaboratively in a learner-centered environment (Bray & McClaskey, 2015). Drapeau (2014) stated, "Teachers model empathy and foster an environment of acceptance. They encourage students to accept ambiguous ideas" (p. 62).

In Chapter One, the design of this study was introduced including background information, the theoretical framework, a statement of the problem, the significance of the study, and limitations. A review of the literature regarding motivation theory, choice theory, the dimensions of engagement, and neuroscience is discussed in Chapter Two. A literature review is used to give the researcher ideas about other areas of study and can also help a researcher identify gaps that may be present in literature (Fraenkel et al., 2015). The methods and procedures applied in this study are outlined in Chapter Three. Fraenkel et al. (2015) recommended, "The actual procedures of the study—what the researcher will do from beginning to end, in the order in which they will occur—

should be spelled out in detail" (p. 20). Presentation of data and an analysis of findings are organized in Chapter Four. In Chapter Five, the conclusions and recommendations for further research are addressed.

Chapter Two: Review of Literature

Headden and McKay (2015) clarified, “Motivating students, studies show, is already a considerable challenge. According to a 2013 Gallup poll of public school students, ‘the more years students spend in school, the more disengaged they become’” (p. 3). Gregory and Kaufeldt (2015) explained motivation and engagement are used interchangeably, but in truth, motivation is the force or energy that results in engagement. Bray and McClaskey (2015) added, “Learners will want to learn if they are intrinsically motivated” (p. 193). Schwahn and McGarvey (2011) stated, “Most of us have experienced the intrinsic motivation that comes with the freedom to choose what we will learn. Learning that which is both interesting and meaningful spikes our motivation to learn” (p. 84).

Neuroscientists have discovered the brain is “biologically, even evolutionarily adapted to learning through active, meaningful socially-mediated activity” (Halpern, Heckman, & Larson, 2013, p. 1). Gregory and Kaufeldt (2015) described the need for more movement, which stimulates the brain, “Without sufficient natural dopamine release, our brains are less motivated, sluggish, and often uninterested” (p. 137). Sitting too long lowers the amount of blood in the brain, while movement pumps more blood to the brain, resulting in the release of dopamine (Gregory & Kaufeldt, 2015). Author and Osteopath Dr. Mercola (2014) wrote, “When you sit, your skeletal muscle fibers aren’t contracting, particularly the large muscles of your lower limbs” (para. 7). Mercola (2014) also explained scientists are now convinced temporary bursts of exercise cannot make up for the damage prolonged sitting does to the body. Levine (2014) determined,

"If you sit for a long period, the brain becomes sedentary in structure and then ultimately in thought patterns—a seated body begets a sedentary mind" (p. 46).

According to Glasser (1998), students need to have a feeling of belonging, of personal control, to have choices. Ronan (2015) agreed, "The psychological effects of feeling a sense of control are well-documented and include greater levels of happiness and activity and lower levels of stress and anxiety" (p. 1). An antidote to stress is fun, said McKeown (2014), "This [play] is key because stress, in addition to being an enemy to productivity, can actually shut down the creative, inquisitive, exploratory parts of our brain" (p. 87). Richardson (2016) stated, "Though we in education are loathe to admit it, however, our dilemma in schools has always been the disconnect between the way we learn naturally in our day-to-day lives and the way we approach learning in schools" (p. 3). Horn and Staker (2015) noted, "Factory-style classrooms also struggle to help students have fun with friends" (p. 144).

Today's teachers have much to compete with considering the interesting and challenging choices kids have access to outside of school (Schwahn & McGarvey, 2011). Schwahn and McGarvey (2011) continued, "As one insightful high schooler put it, 'I have to "power down" when I go to school"' (p. xiv). Schlechty (2011) wrote, "Students control the effort they are willing to invest and the attention they are willing to pay" (p. 8). While students can be "bribed" to pay attention, they have to be fully committed to the work and have to stick with it even if they fail (Schlechty, 2011). The purpose of this study was to investigate the relationship between student choice in seating, flexible seating, and level of engagement, while comparing traditional classrooms to those classrooms with choice in seating.

When asked why they authored a book about school transformation, Schwahn and McGarvey (2011) answered:

> We have walked by too many open high school classroom doors at 11 a.m. and 2 p.m. looked at students sitting in rows, listening but not hearing what teachers were saying, telling us with their posture and their eyes how they felt. We have watched too many first graders turn into bored fourth graders. (p. xiii)

By collecting data in both types of classrooms, a conclusion can be reached about whether giving choice can make a difference in learning.

Alternative Forms of Classroom Seating

Fischetti (2016) discussed learning spaces and equity, stating, "Learning spaces are also a question of equity. What works for one child won't necessarily work for another. One may prefer working at a traditional desk while another will feel more comfortable on the floor" (para. 4). Universal Design for Learning Strategies (UDL) (2016) are "instructional methods and tools used by teachers to ensure that ALL students have an equal opportunity to learn" (para. 1). The UDL (2016) website identified alternative seating as a strategy for increasing student engagement and defined alternative seating:

> Alternative seating can benefit students who have an excessive need for movement or other body sensation. The goal of an alternative seating option is to give students the opportunity to generate more sensation. Examples of generating more sensation include: shifting weight, bouncing gently, engaging postural muscles for balance, or snuggling into a support or cushion. This can help some students maintain focus while working on tabletop activities or stay engaged in a

> group lesson on the rug. Other forms of alternative seating may be helpful during sensory breaks from work, such as rocking chairs or bean bag chairs. (para. 1)

In an article highlighting the use of exercise balls in classrooms, Lynch (2010) addressed the needs of students with sensory processing disorders such as attention deficit hyperactivity disorder (ADHD). Lynch (2010) wrote, "Some kids need more movement than others. And for some kids with a sensory processing disorder or ADHD, being in motion allows their brains to be engaged" (para. 7). According to the UDL (2016) website, "Research has shown that therapy balls are most effective for students who are sensory seekers, but less effective with students who have poor postural control" (para. 5).

Exercise balls, also referred to as balance or stability balls, have been a focus of classroom studies during the last 15 years (Lynch, 2010). In 2013, the *Bangor Daily News* reported a study of students in the Dr. Levesque Elementary School in Aroostook County in Frenchville, Maine ("Replacing Classroom Chairs," 2016). After a four-month period of using stability balls, researchers reported positive results, "Public school students in Aroostook County who sat on stability balls instead of chairs experienced benefits including improved academic performance and better health, according to results of a recent formal study" ("Replacing Classroom Chairs," 2016, para. 1). Furthermore, Merritt (2014) stated, "With the amount of movement provided by alternative seating, students may be able to reach a level of optimal arousal for learning and therefore learn more effectively" (p. 14). Merritt (2014) continued:

> The use of an alternative form of seating can ensure proper positioning, in turn affecting a student's ability to focus. Students who are able to focus better and for

> longer periods of time will be able to learn more efficiently in all academic areas, including reading and language arts. (p. 14)

Brown, a teacher at Marine Elementary School, researched information from the Mayo Clinic about actively permissive education, defined as "letting kids move as they learn" (Berger, 2014, p. 47). Berger (2014) gave this account:

> As normal twelve-year olds, the sixth-grade students at Marine Elementary School near Minneapolis tended to squirm, slump, kick, and fidget in their seats—they had an abundance of energy, and controlling it required them to focus so much on sitting still they had trouble concentrating on their schoolwork. Their teacher Abby Brown wondered: What if they didn't have to sit still? Brown learned from the latest research at the Mayo Clinic about "actively-permissive education," which advocates letting kids move as they learn. Brown then helped design a new kind of school desk with a raised seat that puts the user in a semi-standing position and allows more freedom of movement. With the new desks, her students' attentiveness immediately improved—and Brown's creation is being looked at as a model for other classrooms. (p. 47)

The UDL (2016) website recommended standing desks to increase student engagement and defined a standing desk "as tables that are raised to waist height when standing and are used both in school and work settings" (para. 1). The correct height for the standing desk is at about the belly-button (Universal Design for Learning Strategies [UDL], 2016). Cozolino (2013) described physical activity as a way to keep the brain functioning optimally and recommended regular exercise be incorporated into the school day.

Teacher and student comments gathered from an Albemarle County Public Schools Edutopia video related thoughts on flexible seating (George Lucas Educational Foundation, 2015). An Albemarle County, Virginia, teacher said, "How do we support kids working collaboratively? And we can't do it if we are isolated in rows and every kid's an island" (George Lucas Educational Foundation, 2015, 1:27). A Lone Tree Elementary student commented, "Sometimes I just like to work on a surface if I have to write something… I feel like it's better on the surface, but then other days I want to sit on the beanbag if I'm doing something on the iPad" (DCSD Voices, 2016, 0:20). Students and staff at Lone Tree Elementary discussed their learning environment (DCSD Voices, 2016). An employee described the coffee shop feel visitors pronounce, but she was especially proud of the comments visitors make on the level of student engagement (DCSD Voices, 2016). One of the teachers commented, "I realized that my students weren't comfortable in their desks," so she redesigned her classroom to offer other options (DCSD Voices, 2016, 0:52). Teachers and students both supported flexible seating in the videos and noted evidence of more engagement because the students have a choice in where they work (DCSD Voices, 2016).

Some teachers, such as Cohen (2016), blogged about giving students choice in where they sit because other teachers reported success with students' choice in seating. Cohen (2016) reflected, "I couldn't manage my students' behaviors or needs as well when they were choosing their own workspaces" (para. 5). Cohen (2016) posted she realized she did not need to make big changes to seating in order to have students who are thriving and learning. Random-osity (2016), an anonymous BlogSpot author, described the success she has had with giving her students choice, "The kids get right to

work; they choose a smart spot in the room and are happy and working. Sure, there can be chatting since they choose who they work near, but we talked about smart choices" (para. 9). The anonymous author reported she researched the topic, but did not cite any sources or provide links to studies (Random-osity, 2016). Considering the possibility of offering choice to students in where they sit, teachers must think about the needs of their students. Teachers should also consider setting expectations for students when they have choice and reviewing the expectations frequently (Random-osity, 2016).

Physical Space

Church et al. (2011) asked, "Imagine a trip to a school after hours: no students or teachers around. How much could you discern about the learning and thinking that goes on there just by walking the hallways and stepping into the classrooms?" (p. 243). Church et al. (2011) continued, "The physical space of one's learning is yet another factor that shapes the learning culture. As human beings, we are continually constructing and reconstructing our environments to fit our needs" (p. 244). Ford (2014) spoke about the physical space of classrooms at a TED Talk, "When we change the physical space, that acts as a catalyst for other changes to occur" (2:09).

Being intentional in space design helps students know the teacher is serious about learning (Dillon et al., 2016). According to Dillon et al. (2016), "Classrooms designed with intention are very, very student centered, and created tastefully for kids. They are not spaces that you come into and see a bunch of teacher clutter" (p. 8). Fischetti (2016) remarked, "The environment where that learning takes place is vital. If our intent is to inspire collaboration, we must have spaces that allow for this" (para. 3). Gaspari (2016) suggested, "Space is the 'body language' of an organization and, when designed with

intent, can contribute to a culture of creativity and collaboration" (para. 1). Ford (2014) explained, "Space is very important to us in terms of how we think, how we connect to things" (2:45).

In reference to factory-model classrooms, Ford (2014) refuted, "Imagine instead a classroom, which from the very moment you arrived, engaged your senses" (11:14). Dillon et al. (2016) wrote, "These old learning spaces remove joy and energy from the classroom" (p. 31). According to Gaspari (2016), "Consciously or not, a space sets the stage for how we work, study, and play" (para. 1). A University of Salford Manchester Holistic Evidence and Design report showed, "Differences in the physical characteristics of classrooms explain 16% of the variation in learning progress over a year for the 3766 pupils included in the study" (Barrett, Barrett, Davies, & Zhang, 2015, p. 3). According to the research, "The single most important finding reported here, is that there is clear evidence that the physical characteristics of primary schools do impact on pupils' learning progress in reading, writing and mathematics" (Barrett et al., 2015, p. 14). The study also revealed cost is not a factor in creating an optimal space (Barrett et al., 2015). It was noted "small changes costing very little, or nothing, can make a real difference; for example, changing the layout of the room, the choices of display, or colour of the walls" (Barrett et al., 2015, p. 16). Merritt (2014), in a study of alternative seating for young children, suggested, "Examining the use of alternative seating in the classroom may help to develop strategies for all students, with and without special needs, to focus better and be more productive in the classroom" (p. 14).

Educational Reform

Pre-19th century children were not required to go to school and were taught apprentice skills at home (Magana & Marzano, 2014). But when the Industrial Revolution came along, "manufacturing technologies dramatically reduced the need for children to learn skilled labor, but labor laws prohibited children's employment in factories" (Magana & Marzano, 2014, p. 5). Because of this change, children were left home alone, which led to "a shift that occurred in education, from a family responsibility to a state responsibility" (Magana & Marzano, 2014, p. 5). Attendance at school became mandatory, and the education era was born with a focus on reading, writing, and arithmetic (Manana & Marzano, 2014).

Horn and Staker (2015) described a factory-model school concept. By instituting grades and having a teacher focus on just one set of students of the same academic proficiency, teachers could teach "the same subjects, in the same way and at the same pace" to all children in the classroom (Horn & Staker, 2015). Horn and Staker (2015) stated, "If Thomas Jefferson were alive today, he might have even considered such a school system—one that sorted students out at various intervals—a success" (p. 6). Richardson (2015) gave his historical perspective about schooling:

> Schools, in general, are highly structured, committed to the curriculum, and rooted in long-held narratives about what classrooms, teaching, and learning are supposed to look and feel like. We put kids in rows with the teacher at the front for the reason that, in the story of schools, teachers deliver the curriculum. (p. 23)

Gregory and Kaufeldt (2015) wrote, "School is probably the least responsive evolving institution in today's society, clinging to the factory model instead of the thinking model"

(p. 146). In reference to public education, Robinson and Aronica (2015) said, "These systems were developed in large part to meet the labor needs of the Industrial Revolution and they are organized on the principles of mass production" (p. iv). Dillon et al. (2016) reflected, "Education as a system is slow to move, slow to innovate, and slow to realize that its practices are failing" (p. 30). Dillon et al. (2016) explained the world outside of education is innovating and advancing, without any sign of stopping. However, said Dillon et al. (2016), "Schools are functioning well below the pace of society, and thus they are struggling to prepare kids in the area of career readiness without bringing a culture that is portable, flexible, and agile to the forefront" (p. 30).

Bailey (2015) declared, "It has become widely accepted that the standardized competitive factory model is not an effective learning model, and so we must begin undoing decades of programming and reinvent our schools (p. xx). Horn and Staker (2015) discussed the factory-model school setting and stated, "Factory-type classrooms are structurally incapable of allowing teachers enough time to give all students daily, personal feedback on their progress" (p. 144). As an undergrad, Kahn thought about schools that encouraged creativity, teamwork, and real-world projects (Tanz, 2015). Tanz (2015) wrote, "Khan argued that the traditional lockstep approach to education, in which students all learn the same material on the same schedule is anachronistic and crude" (p. 3). Tanz (2015) continued, "But Khan suggested that the digital revolution might finally enable a new model of education, more flexible, inspiring, and affordable than the current system" (p. 3). Kahn Lab School, founded in 2014, "is founded on the belief that young people are capable of far more than society currently recognizes," wrote Kahn (2014) in a letter to his first Kahn school families (para. 2).

AltSchool defined itself as a reimagined school and developers stated, "We believe schools should prepare each child for their future by developing students' self-awareness, nurturing their innate capabilities, and fostering collaboration skills through a personalized, whole-child education" (Quale, 2015, para. 1). According to a press release, "School doesn't have to be one-size-fits-all anymore; we now have the ability to personalize academics for each student based on their unique learning style, interests and skill level" (Quale, 2015, para. 4). When discussing software in technology and the replacement of humans, in this case teachers, Ventilla said in an interview:

> It's about human beings. It's about the relationship that kids have with their peers, with adults. That's what creates the motivation that creates the learning, but it seems odd to me that the purpose of school is to prepare kids for the future, and you don't have people in the mix thinking about education or education policy, who are very familiar with the future at all. (as cited in Dobo, 2016, para. 25)

The AltSchool concept is to use feedback data and "a platform on digital devices to help teachers personalize learning" (Dobo, 2016, para. 5).

Evolving Workplace

Berger (2014) discussed the evolving workplace, "The consensus seems to be that this new world demands citizens who are self-learners; who are creative and resourceful; who can adjust and adapt to change" (p. 49). According to the 2011 Skills Gap Survey by Deloitte Development and the Manufacturing Institute, about 600,000 manufacturing jobs are unfilled nationally because employers cannot find qualified workers (Morrison et al., 2011). Morrison et al. (2011) reported, "Respondents separately report that the

national education curriculum is not producing workers with the basic skills they need" (p. 2). On the changing nature of manufacturing work, Morrison et al. (2011) contended, "Unfortunately, respondents report that the number one skills deficiency among their current employees is problem solving skills, making it difficult for current employees to adapt to changing needs" (p. 2). *Forbes* contributors Chao and Lopez-Gottardi (2015) noted "increasing number of studies that suggest America's education model fails to promote the kind of creativity, risk-taking, and problem solving skills necessary for entrepreneurship, and for a world and labor market that is in the midst of profound transformation" (para. 1).

The information age is over, and the people who have the most facts are not needed at the top of the career ladder (Covey et al., 2014). Covey et al. (2014) said, "Factual knowledge alone, [therefore] is no longer the great differentiator between those who succeed in the new reality and those who do not" (p. 4). Covey et al. (2014) referred to the workers of today as the knowledge workers. The knowledge workers "are those who know how to analyze, optimize, synthesize, present, and do worthwhile things with facts" (Covey et al., 2014, p. 4).

In a classroom design literature review for Princeton University, Wulsin (2013) described the next generation of students who will be entering the workforce and the importance of shifting the way the next generation is taught from lecturing and memorization to a learner-centered education. Wulsin (2013) described what it would take to equip the next generation and declared:

> The complex and interconnected questions of the next century will not be answered by expert-specialists operating in isolated silos. Rather, creative

> generalists with interdisciplinary passion and experience will identify the disparate relationships and synergies that change the way our world operates. (p. 21)

In a report for Deloitte Development on the skills gap in the U.S. manufacturing sector, it was reported, "When we asked respondents what they considered to be the most serious skill deficiencies in their current employees, inadequate problem-solving skills topped the list" (Morrison et al., 2011, p. 8).

Engagement

The *Glossary of Education Reform* (n.d.) defined student engagement as "the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education" (para. 1). Fredricks (2014) explained, "The reality is that many teachers spend much of their time, effort, and emotional energy dealing with student disengagement in their classrooms" (p. 227). According to Bray and McClaskey (2015), "Engagement with school and learning is a gold standard that every parent, teacher, and school strives to achieve" (p. 168). Bray and McClaskey (2015) described the drop in engagement for each year learners are in school as a "national failure" (p. 168). Price (2015) discussed "a belief that engagement comes before learning; without engagement, learning is, at its best, transient and lacking depth" (p. 7).

The concept of "peer acceptance" is how much a student is liked or disliked by peers (Fredricks, 2014, p. 163). The *Encyclopedia of Children's Health Online* (n.d.) added, "It includes the level of peer popularity and the ease with which a child or adolescent can initiate and maintain satisfactory peer relationships" (para. 1). According

to Fredricks (2014), researchers have examined the effects of peers on engagement by studying peer acceptance. Students who are accepted by peers are cooperative and social, and there are positive academic outcomes when students are accepted by their peers (Fredricks, 2014). Ladd, Herald-Brown, and Kochel shared, "In contrast, the experience of peer rejection, or being actively disliked by one's peers, can lead to lower engagement" (as cited in Fredricks, 2014, pp. 164-165). Fredricks (2014) warned, "Whereas positive peer relationships can enhance engagement, peer rejection and low peer acceptance negatively impacts engagement and achievement" (p. 48).

In correlational studies of a sense of school community, Schaps (2005) found, "Correlational studies show that sense of community in school is positively associated with a range of positive academic outcomes. The strongest correlations are with: Attitudes toward school, academic expectations, and academic motivation and engagement" (p. 5). Schaps (2005) concluded, "Students who experience their school as a caring community consistently become more motivated, ambitious, and engaged in their learning" (p. 9). In a book review of *Overloaded and Unprepared: Strategies for Stronger Schools and Healthy, Successful Kids* by Pope, Brown, and Miles, Gotlieb (2015) wrote, "Pope, Brown, and Miles argue that maintaining student engagement—their excitement about school, their willingness to put effort into their work, and their belief that school is worthwhile—is essential for maintaining physical and mental health and reducing cheating" (para. 6).

Gregory and Kaufeldt (2015) described the need for students to feel a sense of belonging and to have choices, giving them a "certain degree of personal control" (p. 20). The need to belong is one of the five needs described by Glasser as it relates to

choice theory of motivation (Gregory & Kaufeldt, 2015). The feeling of disconnectedness and frustration can make students feel like giving up, according to Gregory and Kaufeldt (2015). There are many reasons students may not feel comfortable in school; poverty, English as a second language, race, differing cultural backgrounds, and sexual orientation can all create stress (Gregory & Kaufeldt, 2015).

Fredricks (2014) explained, "Teachers play a critical role in identifying students who are showing signs of disengagement and in intervening to prevent them from further disengaging and dropping out of school" (p. 196). McKeown (2014) stated, "Stress increases the activity in the part of the brain that monitors emotions (the amygdala), while reducing the activity in the part responsible for cognitive function (the hippocampus)—the result being, simply, that we really can't think clearly" (p. 87). Gregory and Kaufeldt (2015) explained the neuroscience of a brain under stress and perceived threat:

> In modern classrooms, a variety of situations and circumstances may be perceived as threats and cause undue anxiety and stress: Fear of ridicule or punishment, exclusion, being asked to keep seated and quiet, isolation from classmates, unclear expectations, or tasks that are too easy or too difficult… When there is unmanageable stress, self-preservation takes over, motivation is reduced, and learning is minimized. (p. 27)

In a study of stress and child development, Thompson (2014) revealed, "One of the reasons that children in stressful [family] circumstances fall behind academically is that, in addition to the other disadvantages they experience, the biological effects of stress undermine their ability to concentrate" (p. 45). Horn and Staker (2015) noted the impact

of stress on learning and stated, "[Furthermore], researchers have found that adverse stressful experiences during childhood are hugely detrimental to a child's ability to learn" (p. 151). Thompson (2014) further explained the biological effects of stress create problems with concentration, memory, and the ability to focus while a student is at school. Horn and Staker (2015) noted, "Of course, schools cannot solve this societal problem on their own, but at the least, school leaders can be aware of the high correlation between adverse childhood experiences and difficulty in feeling successful and making progress at school" (p. 151).

In an interview with Pink, Azzam (2014) summarized, "If schools truly want to engage students, they have to downgrade control and compliance—and upgrade autonomy" (p. 12). According to Pink, "With engagement, you're doing something because you truly want to do it, because you see the virtues of doing it" (as cited in Azzam, 2014, p. 12). Price (n.d.) identified the following four areas that define deep engagement: "Cares not just about the outcome, but also the development, of their learning; takes responsibility for their learning; brings discretionary energy to their learning task(s); and can locate the value of learning beyond school, and wishes to prolong learning beyond school hours" (p. 10). Price (n.d.) described "deeply engaged" students and stated, "Deeply engaged students often display 'expert' characteristics—especially if they are engaged in project or inquiry learning" (p. 19). Fredricks (2014) described three dimensions of engagement that must be reached by students to meet the deeper level of learning. The three types of engagement Fredricks (2014) defined include the following:

> Behavioral engagement: Level of participation, task involvement, and prosocial conduct in school activities.
>
> Cognitive engagement: Refers to the investment, thoughtfulness, and the willingness to exert the mental effort necessary in an activity.
>
> Emotional engagement: Includes positive and negative reactions to teachers, classmates, academics, and school. It reflects an individual's sense of belonging and sense of identification with school. (p. 33)

Deeply engaged students, according to Price (n.d.), "are able to positively 'connect' their learning: deeply engaged students often display 'expert' characteristics—especially if they are engaged in project or inquiry learning" (p. 18). Advocating for deep engagement, Fredricks (2014) said, "When students experience deep engagement, they will become lifelong learners and always seek out more engaging learning experiences" (p. 231).

Bray and McClaskey (2015) asserted, "When learners have a choice in what they are learning, especially if it is something they are passionate about or interested in they jump in and sometimes get lost in the task or project" (p. 167). Jackson and Zmuda (2014) wrote:

> Engagement tends to look quite different. Engaged learners often pursue their own train of thought about the topic under study, regardless of the task at hand. They may not always participate in group activities if they're still mulling ideas over—or if they're immersed in finishing that assigned task that they're just now getting around to doing. (p. 18)

Fredricks (2014) cautioned against drill and practice, “In many classrooms, students spend much of their time on drill and practice and on tasks that require recall or repetition of procedures” (p. 43). Fredricks (2014) continued, “This type of work does not lead to emotional engagement, cognitive engagement, or deeper learning” (p. 43). Instead, Hammond (2015) recommended, “As you design instruction and create classroom environments to authentically engage culturally and linguistically diverse students, keep in mind the brain rules. Authentic engagement begins with remembering that we are wired to connect with one another” (p. 50).

Flow Theory

Bray and McClaskey (2015) stated, “Csikszentmihalyi is noted for his work in the study of happiness and creativity. Yet he is best known as the architect of the theory of flow” (p. 41). Csikszentmihalyi (2014) spent 40 years studying to find out what makes the difference for people who can enjoy life regardless of their circumstances in comparison to people who lean on the supports of society such as money and property for happiness. Csikszentmihalyi (2014) said, “It is something that happens most easily when we sing, dance, do sports—but it can happen when we work, read a good book, or have a good conversation” (8:56). In flow, said Csikszentmihalyi (2014), “Attention is focused on a limited stimulus field and there is full concentration, complete involvement” (10:02).

Csikszentmihalyi (2014) explained the loss of control and loss of attention people begin to feel when they are faced with everyday distractions such as phones, traffic, and noise. Csikszentmihalyi (2014) wondered, “How do you organize your life so you can have that concentration” (12:38)? Csikszentmihalyi (2014) presented three conditions for

the flow experience and related them to a student musician and a rock climber. The first condition is having clear goals every step of the way (Csikszentmihalyi, 2014). The person knows what each next step in the task will be, such as in the case of a rock climber who knows one move or step will lead him to the next move in order to reach his goal (Csikszentmihalyi, 2014). The second condition for flow is immediate feedback (Csikszentmihalyi, 2014). Csikszentmihalyi (2014) described the rock climber's feedback as occurring after the move, when the climber is still on the wall. Finally, there must be a balance between challenge and skills in order for a person to stay in flow (Csikszentmihalyi, 2014). In the case of the musician, once a piece of music gets easier, the challenge level must go up to avoid boredom, because boredom will bring a person out of flow (Csikszentmihalyi, 2014).

The *Rise of Superman* video series described flow as three stages (Kotler, 2014a, 2014c). The first stage in flow is the struggle "to be strenuously engaged with a problem, task, or undertaking and the moment it gets a little difficult, we step away and that's the moment I like to step into it" (Kotler, 2014c, 1:23). The second stage, release, is defined, "Let everything go and seeing where it takes you" (Kotler, 2014c, 1:41). Finally, according to the three stages of flow as defined by Kotler (2014c), the brain moves to a state of flow. In flow, "The prefrontal cortex slows down so your inner critic gets shut down" (Kotler, 2014c, 1:35), and as attention goes up, senses are reduced. Relating flow to creativity, Kotler (2014a) explained while in flow, creativity is amped up and out-of-the-box thinking is heightened, "When you're in a flow state, it begets creativity and then creativity in turn, begets more flow" (2:17).

Engel (2015) wrote about her study of Csikszentmihalyi's work and noted Csikszentmihalyi's description of engagement in adolescents, called "negentrophy," which was defined as "constructive, socially meaningful pursuits" (p. 99). Engel (2015) wrote about watching a group of boys playing basketball. They threw themselves into the practice, did whatever the coach told them to do, made corrections to their game according to feedback from the coach, and ran sprints at the end (Engel, 2015). One of the boys ran so hard he threw up, but even then, he kept running (Engel, 2015). The author remarked on the experience and asked, "What would it take to funnel some of that natural inclination for effort and absorption into more intellectual work?" (Engel, 2015, p. 99). Engel (2015) added, "According to a growing body of literature, such profound engagement is an essential part of optimal development for children" (p. 99). It was reported children who experience negentrophy "are more energetic more of the time, try harder at various tasks, and generally enjoy a greater sense of well-being" (Engel, 2015, p. 100).

The term "flow" was defined by Gregory and Kaufeldt (2015) as "the mental state that is achieved when a person performing an activity is immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity" (p. 127). Flow is described as people being "fully immersed in what they are doing," and when a person is in flow, they are "completely involved and absorbed" (Bray & McClaskey, 2015, p. 41). Bray and McClaskey (2015) also referenced flow as related to engagement, "If we can provide learning opportunities where learners find themselves in the flow, they are more than motivated in the activity, they are so engaged they don't want to stop" (p. 41). Engel (2015) explained the advantages of children who engage in

various kinds of play and listed some of the "key intellectual abilities" they acquire through play: "the ability to take someone else's perspective, the ability to think about old problems in new ways, the ability to construct narratives, and the ability to negotiate with others, to name just a few" (p. 76). Spencer (2015) blogged, "Unfortunately, I see this [flow] happen more outside the classroom than inside of it. I see kids hitting a state of flow on the basketball court or in theater or at a skate park" (para. 3). Drapeau (2014) recommended, "Although there are not many opportunities for students to reach this state of being in a school setting, teachers should still strive to foster conditions that allow for flow to occur" (p. 17).

Motivation

Horn and Staker (2015) reported, "In a 2013 survey of five thousand teachers, student motivation ranked as the top challenge for teachers, followed by student's attitude toward learning, student distractions during class, and student behavior during class time" (p. 139). Sometimes the terms engagement and motivation are used together, one meaning the same as the other, "however, they are different and their distinctions are important" (Fredricks, 2014, p. 39). Headden and McKay (2015) defined motivation as intensifying or discouraging behavior. Fredricks (2014) explained motivation is psychological and uses internal processes, while engagement is how a person interacts with context.

Bluestein (2014) related motivation to choice and said, "Over the years, I have concluded that there is no such thing as unmotivated behavior—because all behavior is motivated by something—and that every choice satisfies some internal need" (p. 15). Halpern et al. (2013) showed, "Motivation to learn is stronger when driven by the

young person's prior knowledge and interests; when it is located, not in the rewards and punishments, but in the task itself" (p. 3). Horn and Staker (2015) recommended against punishments, rewards, and coercion to get students to learn and said, "School must create an experience that is intrinsically motivating for students. School can be a place where students find joy in learning" (p. 143).

Krechevsky et al. (2013) explained how motivation taps into the emotional side of the learner, "Classrooms that make learning and learners visible develop more than intellectual knowledge and skills; they also develop an emotional aspect of learning" (p. 56). In 1943, Maslow explained there are at least five sets of goals, which we call basic needs: physiological (hunger), safety, love, esteem, and self-actualization (what you can be, you must be). Maslow (1943) noted, "In addition, we are motivated by the desire to achieve or maintain the various conditions upon which these basic satisfactions rest and by certain more intellectual desires" (p. 18). Schaps (2005) researched the role of supportive school environments and explained, "When students' basic psychological needs are satisfied, they are more likely to: become engaged in school, act in accordance with school goals and values, develop social skills and understanding, and contribute to the school and the community" (para. 11).

In a 2013 report titled, *Realizing the Potential of Learning in Middle Adolescence*, Halpern et al. identified motivation as a "powerful engine for learning" (para. 1). Halpern et al. (2013) described social learning:

> Not least, research findings emphasize that learning is often most effective when it is social; when it occurs as a shared activity within meaningful relationships;

> and when it allows for increasingly responsible participation—within a tradition, a community of fellow learning, in one's culture at large. (para. 1)

Hattie and Yates (2014) reported human "capacity to learn from social experience exceeds that of any other species" (p. 124). The current generation, referred to by Schwahn and McGarvey (2011) as the Net Generation, is "heavily into social networks" (p. 93). Schwahn and McGarvey (2011) advised teachers should "tie the strong desire of today's youth to network with the powerful research regarding cooperative learning" (p. 93). Fredricks (2014) explained, "Peers can provide companionship, emotional support, and validation, and they can help with solving academic problems" (p. 16). Collaborative learning models give students more input in decision-making and give students opportunities to examine questions or develop projects with a small group of peers, and "the ultimate goal is to create artifacts that emphasize understanding and are shared with the larger class or community" (Fredricks, 2014, p. 171). Schwahn and McGarvey (2011) warned educators to be careful to avoid the Industrial Age way of thinking that collaborating is cheating.

Creativity

Ricci (2013) wrote, "We are all born with potential… Strengths can be shown physically, creatively, socially, academically, perceptually—the possibilities are endless" (p. 8). Kolter's (2014) video series, *The Rise of Superman*, discussed the importance of flow and the connection to creativity, "Flow massively amps up creativity" (1:23). Drapeau (2014) wrote about engagement and the connection to creativity, stating, "Creativity is not only for disengaged learners; it is motivating for all learners" (p. 3). Drapeau (2014) also expressed the importance of the classroom environment on

creativity and said, “Basic conditions of a creative learning classroom include providing a safe environment, supporting unusual ideas, providing choice, utilizing creative strategies and techniques, encouraging multiple solutions, incorporating novelty, and providing constructive feedback” (p. 30).

> Kotler (2014b) explained the importance of creativity in the workforce:
>
> Moreover, every time someone makes a list of skills needed in the twenty-first century, creativity tops it. The quality most desirable in a CEO? According to a global survey conducted by IBM of 1,500 top executives in sixty countries; creativity. What about the skills our children need to thrive in the future? …Creativity is again the answer. (p. 144)

Robinson (2015) stated, “The real driver of creativity is an appetite for discovery and a passion for the work itself. When students are motivated to learn, they naturally acquire the skills they need to get the work done” (p. 120). Kingore (2013) discussed the need for creativity in the 21st century, “Information is so readily available that students must learn how to become discerning and creative consumers of information” (p. 15). Robinson (2015) expressed the importance of motivating students to learn and allowing for discovery so students can experience the benefits of being creative. Robinson (2015) identified two other concepts, imagination and innovation, that are important when referring to creativity. Robinson (2015) wrote, “Imagination is the root of creativity. It is the ability to bring to mind things that aren’t present to our senses. Creativity is putting your imagination to work. It is applied imagination. Innovation is putting new ideas into practice” (p. 118).

Compliance

Engel (2015) wrote about an experience she had when she worked with the faculty of a school in Massachusetts. Engel's (2015) job was to help faculty members improve their teaching practices, and Engel spent time showing the faculty how to be observers in order to collect data on their practices. The staff wanted to collect data on student engagement, and the data were collected for a period of six weeks (Engel, 2015). At the end of the six weeks, the staff came together to compare and discuss their findings (Engel, 2015). Engel (2015) reflected, "Some reported having seen a lot of engagement in classrooms, while others reported seeing almost none" (p. 73). Engel (2015) asked the group several questions about what they saw: "Did you see any children so interested in what was going on in the classroom they didn't get up when the bell rang? What about a child who got so lost in an activity he didn't hear what the teacher said?" (p. 73). Engel (2015) lamented, "As they took turns sharing their data, one thing became startlingly clear: they hadn't recorded engagement at all. They had been looking for signs of compliance" (p. 73).

Engaged students are focused on the learning, the ones asking the questions, taking the risks, and sharing their thoughts (Jackson & Zmuda, 2014). Jackson and Zmuda (2014) describe, "Engaged learners can be needy. They're often annoyed by interruptions, they question everything, and they'll follow an idea even if it takes the outside the parameters of the assignment. Compliant they are not" (p. 18). In an interview with Azzam (2014), Pink gave his insights on the difference between engaged learners and compliant learners, "There's a huge difference between compliant behavior and engaged behavior. With compliant behavior, you're doing what someone told you to

do the way they told you to do it. There's nothing wrong with that, but it's different from engagement" (p. 13).

Jackson and Zmuda (2014) explained what compliance looks like in the classroom, "They're the ones who follow directions, diligently complete assignments, and get good grades mostly because of their effort or adherence to directions. They do the work because it's assigned, not because they find it interesting or relevant" (p. 18). Pink warned about the challenge of compliance and stated, "At some level, compliance is a lot easier for the people at the very top of the education system. It's a lot more convenient if you have compliant teachers and compliant students" (as cited Azzam, 2014, p. 13). Pink (2009) lamented, "While complying can be an effective strategy for physical survival, it's a lousy one for personal fulfillment. Living a satisfying life requires more than simply meeting the demands of those in control" (p. 110).

Neuroscience

Ricci (2013) shared, "We now know so much more about the neurological aspects of the brain that it cannot help but inform the way we approach learning, instruction, and motivation" (p. 6). Gregory and Kaufeldt (2015) described the importance of knowing the neuroscience of learning and memory and the success teachers will see in their classrooms when they use brain-friendly techniques for teaching. In addition, Gregory and Kaufeldt (2015) described how emotional engagement is often overlooked when identifying engagement, "The more interest, positive attitude, and task satisfactions (without anxiety, stress, and boredom), the greater the engagement" (p. 17). Ricci (2013) explained, "Neuroscientists have discovered that consistent negative or positive thoughts

and feelings can affect brain activity and have an impact on learning" (p. 136). Brackett and Simmons (2015) wrote about the science of emotions:

> Extreme emotions like chronic stress… can result in the persistent activation of the sympathetic nervous system and the release of stress hormones like cortisol. Prolonged release of these hormones affects the brain structures associated with executive functioning and memory, hindering a student's ability to learn and thrive in school and in life. (p. 23)

Brackett and Simmons (2015) warned emotions can "either enhance or derail classroom performance" and can even influence teacher behavior (p. 23). Ricci (2013) explained it is essential for the learning environment to be "fear-free" (p. 140). Ricci (2013) continued, "Fear is such an intense emotion that it can shut down cognitive processes and force the brain to only focus on the source of the fear and what to do about it" (p. 140). Cozolino (2013) enforced, "Fear also shuts down exploration, makes our thinking more rigid, and drives 'neophobia,' the fear of anything new" (para. 26). Gregory and Kaufeldt (2015) added, "Stress, excessive pressure, and perceived threat can temporarily shut down enthusiastic motivation as our brains go into a default reflex response" (p. 27). Bluestein (2014) warned teachers about showing impatience or disappointment in their students, "When we perceive threat, our primary brain functions retreat to the survival centers of the midbrain" (p. 11).

In a high school survey, students were asked to rate how many of their teachers care about them (Pope, 2010). Pope (2010) concluded, "The students who believe more of their teachers support them [in this way] are often more engaged with learning, less likely to cheat, and show fewer signs of stress and physical health problems" (p.

7). Bluestein (2014) concluded, “Kids who don’t feel safe, valued, or liked by their teachers have little stake in making classroom management particularly easy for them” (p. 37). Ricci (2013) declared, “A trusting, positive relationship between the teacher and student is the heart of a secure learning environment” (p. 140). Ricci (2013) recommended teachers encourage risk-taking and creating an environment that is judgement-free so students feel like they are in a supportive classroom environment.

Psychologist Cozolino (2013) explained how the mind, body, and brain are interwoven:

> Chairs with poor support hamper blood supply to the brain and impede cognition while temperatures above 74–77 degrees Fahrenheit have been shown to correlate with lower reading comprehension and math scores. A more hospitable climate for learning can help performance by providing for the physical needs of the body. (para. 20)

While some students may show great motivation to learn, they are not always able to handle the cognitive load placed on them due to limitations on the working memory (Hattie & Yates, 2014). Cognitive load refers to the total amount of mental effort used in working memory (Hattie & Yates, 2014). Hattie and Yates (2014) stated, “Cognitive load theory suggests that collaborative work may become effective not for intrinsic ‘social’ reasons, but because it reduces load at the level of the working memory within the minds of the individuals concerned” (p. 152). Hattie and Yates (2014) explained when motivated group members are put together to combine their knowledge, they can overcome problems associated with working memory, allowing them to be better at solving problems.

Drapeau (2014) wrote, “Brain research helps us to understand how to improve our creative thinking and make creative thinking a habit. The creative drive is a result of the interaction between the frontal lobe, the temporal lobe, and the release of dopamine” (p. 12). Dopamine, a pleasure chemical in the brain, causes learners to feel excitement, engagement, and curiosity (Kotler, 2014b). Kotler (2014b) explained further, “But dopamine does more than just stimulate our emotions and increase our motivation—it also tightens focus, drives us into the now, and, thus, speeds entrance into flow” (p. 144). Kotler (2014b) referred to Harvard Business School research by Amabile, “People report feeling extraordinarily creative the day after a flow state, suggesting that time spent in the zone trains the brain to consistently think outside the box” (p. 41).

The part of the brain that picks up on social cues, connects with others, and picks up environmental information is the nervous system, which is made up of three branches (Jackson & Zmuda, 2014). Jackson and Zmuda (2014) described the three branches of the body’s autonomic nervous system. The first branch is the sympathetic nerve, which “is focused on keeping us relaxed and seeks well-being by satisfying our needs for food, shelter, social relationships, and sex” (Jackson & Zmuda, 2014, p. 44). The sympathetic nerve “manages our relaxation response through easy breathing, a steady heartbeat, and the release of natural opioids such as dopamine, serotonin, and other endorphins” (Jackson & Zmuda, 2014, p. 44).

The second branch of the body’s autonomic nervous system is the parasympathetic nerve (Jackson & Zmuda, 2014), which provides the body with alertness and allows for reactions to “avoid danger by fight, flight, or freeze” (p. 44). The parasympathetic nerve “prepares us for quick action by releasing adrenaline and cortisol

to raise our heartbeat and prepare our muscles for a quick sprint" (Jackson & Zmuda, 2014, p. 44). Finally, the third branch, the polyvagal nerve, is the nerve that encourages bonding, socialization, and the "desire to be with other people" (Jackson & Zmuda, 2014, p. 44). Jackson and Zmuda (2014) explained, "It encourages social bonding through the release of hormones such as oxytocin when we are in the presence of others. Social activities such as laughing, talking, and even hugging release oxytocin, the bonding hormone" (p. 44).

Jackson and Zmuda (2014) concluded relationships are not just emotional, and when someone is in an environment that is hostile, unwelcoming, or inattentive, the body reacts and sends out distress signals to the body. Drapeau (2014) warned, "Creativity will not become a habit in a classroom where students are afraid of failure or making mistakes, overly focused on grades or worried about being different, or where they experience rejection, criticism, or bullying" (p. 12). Relating stress to the learning environment, Jackson and Zmuda (2014) wrote:

> Even if the environment isn't hostile but simply unwelcoming, the brain doesn't produce enough oxytocin and begins to experience anxiety. This anxiety triggers the parasympathetic nerve, making one think he is in danger because the brain doesn't experience a sense of community. (p. 45)

Gregory and Kaufeldt reflected on a brain in crisis, "When there is unmanageable stress, self-preservation takes over, motivation is reduced, and learning is minimized" (2015, p. 27).

Choice

Engel (2015) reflected on a classroom she had the opportunity to observe on many occasions. No matter what the subject was or how much of a challenge the topic provided, the children "seemed to downshift" when a new topic was presented to them (Engel, 2015, p. 101). Engel (2015) observed, "They instantly became just a little more passive and slightly disengaged" (p. 101). Engel (2015) concluded:

> No topic, regardless of how lively its presentation, would elicit the kind of intense effort and involvement children are capable of when they have some choice in what they do and some investment in the outcome (other than a grade). (p. 101)

McKeown (2014) described the benefits of choice, "When we forget our ability to choose, we learn to be helpless. Drip by drip we allow our power to be taken away until we end up becoming a function of other people's choices—or even a function of our own past choices" (p. 39).

Richardson (2016) wrote about the freedom of learning and it benefits children in all parts of their lives, not just the classroom. Richardson (2016) stated, "In classrooms where students are given the ability to choose their own topics for study and the methods and the people to study them with, the gains are huge" (p. 30). Kingore (2013) recommended, "Providing choices can increase students' ownership in the task and their motivation to excel beyond grade level as they perceive more application to their lives" (p. 33). Bray and McClaskey (2015) discussed further benefits for learners when they are given choice. If the learning is about something the student feels passionate about, they will "jump in and sometimes get lost in the task or project" (Bray & McClaskey, 2015, p. 167). Kingore (2013) added, "There are considerable differences between the traditional

teacher-assigned writing and writing assignments that promote choice" (p. 33). Conklin (2015) concurred:

> When classroom activities allow students to make choices relevant to their interest, direct their own learning, engage their imaginations, experiment with adult roles, and play physically, research shows that students become more motivated and interested, and they enjoy more positive school experiences (para. 7).

Richardson (2016) stated he believes kids do not lose their love of learning just because they get older, "Even the most disengaged kids in the classroom go home and have a passion to learn a great deal without us" (p. 15).

Summary

In 2015, there were 3,300 schools nationwide who participated in the Gallup Student Poll (Adkins, 2015). Forty-six states were represented by the 900,000 public school students who responded (Adkins, 2015). Adkins (2015) stated there is a strong link between engagement and school success:

> Engagement decreases steadily from fifth grade through junior high and high school before reaching the lowest point in the junior year. In fifth grade, three-quarters of students feel involved in and enthusiastic about school, but by 11th grade, the same is true for only about one-third of students. (p. 6)

Fredricks (2014) explained engagement and motivation are different and have important distinctions. Motivation is an internal process and can be connected to the emotional side of a student (Fredricks, 2014). Engagement is more about how a student is interacting with the environment (Fredricks, 2014). Fredricks (2014) wrote, "In other words, when

an individual is engaged in something, it is difficult to separate engagement from the environment" (p. 39). Choice, or lack of, plays an important role in student engagement (Kohn, 1993). Kohn (1993) stated, "Much of what is disturbing about students' attitudes and behavior may be a function of the fact that they have little to say about what happens to them all day" (p. 1).

Neuroscience is important to student engagement, and through the science of the brain, educators can create positive experiences in the classroom (Cozolino, 2013). Cozolino (2013) continued, "And through understanding how students' brains actually work and using that knowledge to benefit classroom learning, we may be able to positively influence classroom education and prepare students to better face unknowable futures" (para. 4). Ricci (2013) concluded, "Neuroscience has grown by leaps and bounds in the last several years and educating ourselves and our students about the brain has a huge impact on student effort and motivation" (p. 10).

In Chapter Two, a review of existing literature confirmed choice is important to motivation and engagement. Most of the literature reviewed related to choice in how learning occurs and what kind of learning occurs, with limited information provided about where the learning occurs. The methods and procedures applied in this study are reported in Chapter Three. Presentation of data and analysis of findings are outlined in Chapter Four. In Chapter Five, the conclusions and recommendations for further research are addressed.

Chapter Three: Methodology

The purpose of this study was to investigate the relationship between student choice in seating, flexible seating, and level of engagement in traditional classrooms compared to classrooms offering choice. As Bedell (2013) stated, "Student engagement is the psychological investment in learning. Engaged students are curious, interested, and excited by challenges. They persist through difficult tasks and they take satisfaction in their accomplishments" (p. 9). Quantitative methodology was utilized to discover if allowing choice for students resulted in higher levels of student engagement. Bedell (2013) continued, "Behavioral engagement in elementary school has been shown to be a critical predictor of the decision to drop out of high school" (p. 10). Quoting Finn (1989), Fredricks wrote, "Dropping out of school is not an instantaneous event; it is a cumulative process that results from a series of negative school experiences" (Fredricks, 2014, p. 194). Fredricks explained the important role of the teacher in "changing these educational trajectories so that students remain in school" (2014, p. 194). According to the 2015 Gallup Student Poll, four out of five adults reported engagement and hope for the future are "very important" when measuring school effectiveness (Adkins, 2015, p. 4).

In this study, data were collected to determine if offering choice in seating to students leads to higher levels of engagement. Within this chapter, the specific methodology of the study is described. The research problem is reviewed briefly and then the purpose of the study, the guiding research questions, and the research design are explained thoroughly. Sample size, instrumentation, data collection, and data analysis are also described in detail.

Problem and Purpose Overview

Kohn (1993) described the best predictor of burnout in the workplace is not too much work, too little time, or insufficient compensation; "rather, it is powerlessness—a lack of control over what one is doing… much of what is disturbing about students' attitudes and behavior may be a function of the fact that they have little to say about what happens to them all day" (p. 1). Fredricks discussed the responsibility of the teacher in reengaging students, "Critical to reengaging disengaged students is giving the students a voice. Students need opportunities to voice their feelings" (2014, p. 212). This dissertation will add to a body of research about student choice to help teachers decide if students will benefit from teachers restructuring classrooms into less traditional learning environments. As Richardson (2016) stated, "To put it bluntly, we know how learning happens in real life, yet we seem to ignore that when we step into the classroom" (p. 3). Fredricks forewarned, "Teachers can and should make the efforts to increase all students' engagement levels. The consequences of disengagement for both the individual and society are too severe to not try" (2014, p. 221).

Research questions and hypotheses. The following research questions guided the study:

1. What is the difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites?

$H1_0$ There is no positive difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites.

$H1_a$ There is a positive difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites.

2. What is the difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites?

$H2_0$ There is no positive difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites.

$H2_a$ There is a positive difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites.

3. What is the difference in engagement of students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

$H3_0$ There is no positive difference in engagement of students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

$H3_a$ There is a positive difference between students in the following categories: flexible/choice classrooms, flexible/non-choice, traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?

Ethical Considerations

According to the Publication Manual of the American Psychological Association, "Regardless of the type of article involved, attention to ethical concerns begins long before a manuscript is submitted for publication" (2010, p. 20). Ethics were described by Fraenkel et al. (2015) as the researcher asking "if it is 'right' to conduct a particular study or carry out certain procedures" (p. 61). The most important ethical decision a researcher makes is "to ensure that participants in a research study are protected from physical or psychological harm, discomfort, or danger that may arise due to research procedures" (Fraenkel et al., 2015, p. 63). To protect participants and assure confidentiality and anonymity in the study, no information was collected or retained regarding students' or teachers' identities. The observer only identified classrooms as offering traditional seating or flexible seating and choice or no choice in seating. All information was gathered onto one observation form and after compiling all of the data, the researcher had no way to link the information to any certain school or classroom. There were no known or foreseen risks to participants in this study, and deception was not used.

Participants were guaranteed all paper documentation was stored in a locked cabinet under the supervision of the researcher. Three years following completion of the project, all paper documentation will be securely destroyed and all electronic data will be retained indefinitely in a secure location with the use of a protected password and a personal computer on a secured site. Since the researcher is a supervisor at a sample site, a trained third party collected data at the site the researcher supervises.

Permission to collect data for this research project was requested from the Institutional Review Board (IRB) at Lindenwood University (see Appendix A), as well as

from the school district in which the data were collected (see Appendix B). The Informed Consent Letters for principals (see Appendix C) and teachers (see Appendix D) at participating buildings were collected before the researcher collected data at each of the 12 sites. Prior to signing consent forms, participants were sent the Participant Recruitment Letter (see Appendix E), which provided a detailed explanation of the study.

Research Design

The research design of this study was quantitative and observational. According to University of Southern California (USC) (2016), "Quantitative research deals in numbers, logic, and an objective stance" (para. 2). The USC (2016) website explained, "The overarching aim of a quantitative research study is to classify features, count them, and construct statistical models in an attempt to explain what is observed" (para. 4). Fraenkel et al. (2015) stated, "The term *data* refers to the kinds of information researchers obtain on the subjects of their research" (p. 142). In this study, data were collected in classrooms to compare choice with no choice in where students sit, to delineate flexible seating from traditional seating, and to determine the number of students engaged at the time the researcher was present.

Participants were observed in classrooms at non-IGNiTE sites at random times during the school day. The researcher was in the classroom long enough to observe whether students had choice in seating; what kind of seating was available to students; to count all students; and to record the number of students who were engaged, compliant, or off task in their learning. The data collection lasted no longer than five minutes in each classroom. The recorded data included student choice or non-choice; flexible or traditional seating; total number of students present; and number of students who were

engaged, compliant, or off-task in learning. Collected data were recorded on a researcher-designed spreadsheet (see Appendix F).

Instrumentation and Data Collection

Using the researcher-designed observation sheet, the primary investigator observed and recorded whether students had choice in seating or were assigned seats. The researcher also observed whether seating was flexible or traditional with students working at desks or tables. Finally, the total number of students in the classroom was recorded, and the number of students who were engaged, compliant, or off-task were counted.

The role of the observer was that of onlooker, an outsider (Fraenkel et al., 2015). The observer was portrayed to others as an observer and some, but not all, participants knew the observer. The purpose of the observation was explained to the building principals and teachers, but no explanation was given to the students because they did not have any interaction with the observer as data were collected. The focus of the observation was broad, "[a] holistic view of the activity or characteristic being observed and all of its elements sought" (Fraenkel et al., 2015, p. 445).

Population and Sample

The population represented by this research project was from a school district in southwest Missouri. District A serves a total of approximately 25,000 students in grades preschool through 12 (Missouri Department of Elementary and Secondary Education [MODESE], 2016). Twelve buildings from District A served as sample sites. The selection process was random. Taylor (2016) explained, "Simple random samples are important in statistics for a number of reasons. We must always beware of bias in our

experiments. The role of randomness in a simple random sample eliminates bias in our studies" (para. 8).

The 12 sample schools had a total of 187 classrooms, and each of the buildings varied in student population. The number of class sections in the 12 buildings varied from eight to 21 sections. Student populations per building varied from 161 to 495 students. Classrooms were listed, and each classroom was assigned a number. Using a random number generator, the researcher selected no fewer than 30% of the classrooms per building from which to collect data.

Data Analysis

To answer the research questions, chi-square tests were used. Fraenkel et al. (2015) defined chi-square as a method to analyze data reported in categories. Fraenkel et al. (2015) explained, "The chi-square test is based on a comparison between expected frequencies and actual, obtained frequencies" (p. 238). In the case of this study, the categories were choice in seating, assigned seating, flexible seating, or traditional seating. Two assumptions for the chi-square independence tests are that the data are obtained from a random sample and the expected value in each cell must be five or more (Bluman, 2011).

Summary

In summary, the purpose of this study was to investigate the relationship between student choice in seating, flexible seating, and level of engagement in traditional classrooms compared to classrooms offering choice. Quantitative methodology was utilized to discover if allowing choice for students would result in higher levels of student engagement. The problem investigated through this dissertation adds to a body of

research about student choice to help teachers decide if students benefit from teachers restructuring classrooms into less traditional learning environments.

The 12 sample schools had a total of 187 classrooms, and each of the buildings varied in student population. In this study, data were collected in classrooms to compare choice with no choice in where the student sits; to delineate flexible seating from traditional seating; and to determine the number of students engaged, compliant, or off-task at the time the researcher was present. Presentation of data and an analysis of findings are detailed in Chapter Four. In Chapter Five, the conclusions and recommendations for further research are addressed.

Chapter Four: Analysis of Data

Richardson (2016) remarked, "Learners of all ages now have almost complete agency over the what, how, when, and who of learning in ways that didn't exist a generation ago. Access to and the sharing of information are now virtually uncontrollable" (p. 8). Richardson discussed powerful learning and the answer to his question, "How do we learn most powerfully and deeply in our lives?" (2016, p. 2). Richardson stated, "We've learned most deeply those things that we truly cared about, those things that had relevance in our lives. We've learned those things with other people with whom we shared that interest" (2016, p. 3). Gregory and Kaufeldt remarked, "Choice is empowering and engaging" (2015, p. 126).

Problem and Purpose Overview

The purpose of this study was to investigate if type of seating and student choice in seating made a significant difference in student engagement. The engagement level of American workers in 2014 and the engagement level of American students in 2015, according to Gallup, were similar with only about one-third of workers and students engaged in their environment (Adkins, 2015). Pink discussed the importance choice has in engagement and said, "If we really want engagement rather than compliance, we have to increase the degree of autonomy that people have over what they do; over how, when, and where they do it; and over whom they do it with" (as cited in Adkins, 2015, p. 13). Schmoker (2011) quoted Schlechty (1990), "Too many children leave school without having developed the skills, attitudes and habits of mind that will equip them for life in the 21st century (p. 29). The industrial-age school model, or traditional classroom, includes chairs and desks as the main furniture for learners (Horn & Staker, 2015). The

data collected for this study showed about 50% of the classrooms in the study had a traditional set-up, while the other half had couches, bean bags, crates, rugs, or other flexible spaces for learners.

Data Collection

The researcher conducted a non-participant observation study employing quantitative methods. Fraenkel et al. (2015) stated, "In a non-participant observation study, researchers do not participate in the activity being observed by rather 'sit on the sidelines' and watch; they are not directly involved in the situation they are observing" (p. 444). In this non-participant observation study, the researcher was in the role of complete observer. According to Fraenkel et al. (2015), "The researcher observes the activities of a group without in any way participating in those activities" (p. 444). A data collection sheet was used to identify the following areas: choice or no choice in seating; traditional or flexible seating; and the level of student engagement identified as either engaged, compliant, or off-task. Fraenkel et al. (2015) recommended using simple observation forms on a trial basis before collecting data for a study.

Following the Lindenwood University IRB approval, all data collected were analyzed and protected according to guidelines. Before the researcher observed individual classrooms, site principals identified the number of regular education classrooms in their buildings and supplied the researcher with maps of the buildings. The maps were used to number the classrooms, and then the researcher calculated the total number of regular education classrooms per building to determine how many classrooms would make up 30% of the total, rounding to the nearest whole number. Random assignment, according to Fraenkel et al. (2015), is when "every individual who is

participating in an experiment has an equal chance of being assigned to any of the experimental or control conditions being compared" (p. 267). After the researcher calculated the number of classrooms to be observed, random numbers were generated using an online random number generator and matched to classrooms numbered on the building map. For example, if a building had 24 general education classrooms, the classrooms on the map were numbered from one to 24. Thirty percent of 24 classrooms is 7.2 classrooms, therefore a random number generator was used to select seven of the 24 classrooms for observation.

Table 2

School, Number of Regular Education Classrooms, and Total Classrooms Observed

School	# of Regular Education Classrooms	Total Classrooms Observed
1	19	6
2	18	6
3	14	4
4	17	4
5	12	4
6	10	3
7	8	3
8	8	3
9	10	3
10	21	6
11	21	6
12	20	6

Note. Data collected from 12 sites at District A.

In consideration of the observer effect, as described by Fraenkel et al. (2015), the teachers were notified an observer would be coming to their classrooms, but they were not told the purpose of the observation. Fraenkel et al. (2015) explained, "The behavior

of those who are being observed might be influenced by the researcher's purpose" (p. 446). Fraenkel et al. (2015) added, "It is for this reason that many researchers argue that the participants in a study should not be informed of the study's purposes until after the data have been collected" (p. 446). Considering observer bias, the "possibility that certain characteristics or ideas of observers may bias what they 'see'" (Fraenkel et al., 2015, p. 446), the researcher developed a rubric to define student engagement, as shown in Table 3.

Table 3

Rubric For Observing Student Engagement

Engagement Descriptor	Student Behaviors/Observations
Engaged	Higher level of activity and collaboration with others
	Persists in the work, even if it is difficult
	Signs of accomplishment
	Appears to be interested in the work
	Usually a performance event, product, problem-solving activity, or group work
	Work is authentic and appears to be meaningful
Compliant	Does the work to avoid negative consequences
	Does the work because it is required
	Work may or may not have meaning
	Low level of learning or high level, but superficial
Off-Task	Not compliant
	May not be disrupting others
	Expends little or no energy to demands

Note. Observer-based information on this rubric using the work of Schlechty (2011).

Organization of the Chapter

This chapter began with an overview of the analysis of the quantitative data collected from the 12 schools observed in the research, totaling 961 students. Fraenkel et al. (2015) explained, "Quantitative data are obtained when the variable being studied is measured along a scale that indicates how much of the variable is present" (p. 188). The data from the observations are presented by research question. The end of Chapter Four presents a summary of the data findings as they relate to the research questions.

Research Site Demographics

Twelve school administrators agreed to participate in the research, for a total of 100% of the schools identified for the study. From these 12 schools, 961 students were observed. The student numbers in each classroom ranged from 12 students to 26 students. The 12 schools studied were considered Year Three IGNiTE schools. In a personal communication, Dr. Ben Hackenwerth (2017) defined the IGNiTE initiative in District A:

> Most people would call IGNiTE a one to one technology initiative. It provides students with personal devices to access digital content both at school and at home. The reason we don't use the phrase "one to one" is because we believe it places the focus on the device rather than what the device enables students and teachers to do. So, we call IGNiTE a teaching and learning initiative. While we believe we have developed a robust infrastructure and have selected reliable devices, we try to focus our attention on the support we provide teachers and leaders as they

become proficient in this digital and interconnected environment, rather than the devices themselves.

According to Hackenwerth (2017), IGNiTE is an acronym for Inspire, Grow, Network, Integrate, Transform, Engage.

Observation Setting

A narrative of each type of classroom setting is painted for the purpose of helping the reader to understand what assigned seating, choice in seating, traditional seating, and flexible seating look like in a classroom. When entering the classroom, the researcher first identified if seats were assigned or whether the students chose their own spot. Many desks or tables held a name card, which was covered in clear tape so it would not move from its place, indicating that the seat was assigned. In some classrooms, name cards were laminated but not secured to the desk or table. Students took their name plate with them when moving to a new spot, indicating their spot was not assigned. In classrooms without name plates, the researcher asked either the teacher or the principal if the students had assigned seats or choice in where they were sitting. Next, the researcher identified the type of seating: traditional or flexible.

Traditional seating was defined as desks in rows, desks and chairs pushed into groups, or tables with chairs. Traditional seating consisted of a hard surface with a hard chair; the hard surface may or may not have been connected to the chair. One classroom with traditional seating had six tables with four chairs at each table. The researcher noticed there was a reading area at the back of the room with a couch and saucer chairs, but the students were all sitting at tables for instruction and independent work. A chart on the wall identified the reading area as a center rotation during a literacy block.

In a classroom featuring flexible seating, four students were at a lowered table with students sitting on cushioned crates to work. At the back of the room was a bar height table with two students standing to work. Two more students were sitting on pillows at a coffee table, and several more students were sitting on a couch and a carpeted area around the couch. Two students were sitting in traditional desks, and the principal indicated the desks were provided at the request of the students.

Data Analysis

To answer the three questions for this study, chi-square tests of independence were conducted to determine if there was a significant difference between the variables in the research questions. Investopedia (n.d.) reported, "Specifically, a set of data becomes statistically significant when the set is large enough to accurately represent the phenomenon or population sample being studied" (para. 2). Chi-square independence tests are utilized by researchers to test the independence between two variables (Bluman, 2011). Bluman (2011) defined two assumptions for chi-square independence tests: the data must be obtained from a random sample, and the expected value in each cell must be five or more. This study involved over 900 students in randomly selected classrooms, and all values (actual and expected) were greater than five for each of the three questions.

According to the American Psychological Association Publication Manual, "When reporting statistics, (e.g., *t* tests, *F* tests, χ^2 tests, and associated effect sizes and confidence intervals), include sufficient information to allow the reader to fully understand the analyses conduction" (2010, p. 116). Statistically significant is defined as, "The likelihood that a relationship between two or more variables is caused by something other than random chance" (Investopedia, n.d., para. 1). Statistical significance "means

that a result from testing or experimenting is not likely to occur randomly or by chance, but is instead likely to be attributable to a specific cause" (Investopedia, n.d., para. 7). However, "statistical significance can be misinterpreted when researchers do not use language carefully in reporting their results" (Investopedia, n.d., para. 9).

Investopedia (n.d.) described a possible problem with using statistical significance for making decisions and used the term practical significance, which means there may be a statistical significance for the sample studied, but there may not be a practical difference that generalizes to other samples or populations. Therefore, a final step "the contingency coefficient, symbolized by the letter C" was calculated for each research question (see Tables 4-6) (Frankel et al., 2015, p. 238). The contingency coefficient "is a measure of the degree of association" in chi-square analysis (Frankel et al., 2015, p. 238).

Findings from Research Question One

The first research question (What is the difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating at non-IGNiTE sites?) was analyzed using a chi-square independence test of the following two variables: choice in seating and assigned seating. The observer noted choice and non-choice classrooms and whether students were engaged or not engaged. Students who were compliant were considered to be non-engaged students. The variables were put into a contingency table, and the null hypothesis was tested using the chi-square independence test with two degrees of freedom and 95% confidence level. Since the *p*-value ($1{,}03147 \times 10^{-17}$) was less than the significance level (0.05), the null hypothesis was rejected. Thus, there was a positive statistically significant difference in engagement between students in classrooms offering choice compared to

students in classrooms with assigned seating. While the chi-square independence test revealed a statistically significant difference, the contingency coefficient of $C = 0.28$ indicated the practical significance of the relationship was weak. Therefore, if the chi-square test were used with a different sample of students, there is a weak chance that a statistically significant difference in engagement between students in classrooms offering choice in seating and students in classrooms with assigned seating would exist.

Table 4

Research Question One: Engagement or Non-Engagement of Students with Choice in Seating Compared to Students Who Have Assigned Seats

	Engaged	Non-Engaged
Choice	357	93
	289.85	160.15
	15.56	28.16
Assigned	262	249
	329.15	181.85
	13.70	24.80

Note. Cell contents: Count, expected count, contribution to Chi-square. $\chi^2 = 82.22$, $df = 1$, $p = 1.03 \times 10^{-17}$. $C = 0.28$.

Findings from Research Question Two

The second research question (What is the difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables at non-IGNiTE sites?) was analyzed using a chi-square independence test of the following two variables: flexible seating for students and traditional desks or tables for seating. Since the *p*-value (1.20082×10^{-25}) was less than the significance level

(0.05), the null hypothesis was rejected. Thus, there was a positive statistically significant difference in engagement between students in classrooms offering flexible seating and students in classrooms with traditional seating. While the chi-square independence test showed there was a result that would be considered statistically significant, the contingency coefficient of $C = 0.37$ indicated the practical significance of the relationship was moderate at most. These data indicated if the chi-square test were used with a different sample of students, there is a moderate chance that a statistically significant difference in engagement between students in classrooms offering flexible seating and students in classrooms with student desks or tables would exist.

Table 5

Research Question Two: Engagement or Non-Engagement of Students with Flexible Seating Compared to Students Who Have Traditional Seating

	Engaged	Non-Engaged
Flexible	391	72
	298.23	164.77
	28.86	52.23
Traditional	228	270
	320.77	177.23
	29.98	8.03

Note. Cell contents: Count, expected count, contribution to Chi-square. $\chi^2 = 156.47$, $df = 1$, $p = 1.05379 \times 10^{-33}$. $C = 0.37$.

Findings from Research Question Three

The third research question (What is the difference in engagement of students in the following categories: flexible/choice classrooms, flexible/non-choice,

traditional/choice, traditional/non-choice classrooms at non-IGNiTE sites?) was analyzed using a chi-square independence test of the following variables: flexible/choice classrooms, flexible/non-choice classrooms, traditional/choice classrooms, and traditional/non-choice classrooms. Since the *p*-value (7.34×10^{-36}) was less than the significance level (.352), the null hypothesis was rejected. Thus, there was a positive statistically significant difference in engagement between students in the following categories: flexible/choice classrooms, flexible/non-choice classrooms, traditional/choice classrooms, and traditional/non-choice classrooms at non-IGNiTE sites. While the chi-square independence test revealed a statistically significant difference, the contingency coefficient $C = 0.40$ indicated the practical significance of the association was moderate. Therefore, if the chi-square test were used with a different sample of students, a moderate chance there would be a positive statistically significant difference in engagement between students in the following categories: flexible/choice classrooms, flexible/non-choice classrooms, traditional/choice classrooms, and traditional/non-choice classrooms exists.

Table 6

Research Question Three: Engagement or Non-Engagement of Students with Flexible Seating and Choice, Flexible Seating and Assigned Seating, Traditional Seating and Choice, or Traditional Seating and Assigned Seating

	Engaged	Non-Engaged
Flexible/Choice	297	64
	232.53	128.47
	17.87	32.35
Flexible/Assigned	94	8
	65.70	36.30
	12.19	22.06
Traditional/Choice	60	29
	57.33	31.67
	.124	.225
Traditional/Assigned	168	241
	263.45	145.55
	34.58	62.60

Note. Cell contents: count, expected count, contribution to Chi-square. $\chi^2 = 181.999$, $df = 3$, $p = 7.34 \times 10^{-36}$. $C = 0.40$.

Summary

From the data collected and analyzed in this study, there was positive statistical difference in the engagement of students who had choice versus assigned (non-choice) seats. There was a positive statistical difference in the engagement of students who had flexible seating compared to traditional seating. There was also positive statistical difference in the engagement of students who had flexible seating and choice in where they sat, students who had flexible seating and assigned spots, students who had traditional seating and chose their own seats, and students who had traditional seating with assigned spots.

In Chapter Five, a summary of the research analysis and data analysis is provided and implications for practice are discussed. Recommendations for future studies involving student engagement and classroom environment are made based on the results of the study. Suggestions for modifications to this study for future research are made to improve the level of student engagement in the classroom.

Chapter Five: Summary and Conclusions

The major elements of the study are reviewed in this chapter, and an explanation of how the major elements relate to student engagement in the elementary classroom is outlined. This study was designed to determine if flexible seating and choice have an impact on student engagement. Observations of students in their classrooms were used to collect data for the study, and classrooms were randomly selected. This concluding chapter consists of a review of the research questions, summaries of the findings of the research questions, the researcher's conclusions, and an outline of proposals for further research.

Review of the Study

By high school, only four out of 10 students report being engaged in school (Busteed, 2013). Achor (2011) reported, "The Mercer's 'What's Working' survey found that one in three US employees is serious about leaving their current jobs" (para. 1). Conklin (2015) concluded allowing choice relevant to students' interests and allowing students to direct their own learning causes students to have greater motivation and more positive school experiences. Fredricks (2014) observed, "I have seen classrooms in which students were off-task, bored, and using only superficial strategies to regurgitate the material for an upcoming test, seemingly with little hope for deep learning over time" (p. ix). Fredricks (2014) asked, "Is it possible to create classroom environments where all students are engaged" (p. x)? Teachers do not have the ability to change the inherent characteristics of their students, but educators can make changes to the classroom environment and provide opportunities for students to be engaged (Fredricks, 2014).

Current research about flexible office spaces, “the idea of creating a workspace free of dividing walls” (Entis, 2016, para. 4), indicates the need for collaborative spaces as well as the need for privacy (Kim & Dear, 2013). In a workspace satisfaction study by Kim and Dear (2013), it was concluded, “In general, satisfaction level with workspace environment was the highest for those in enclosed private offices” (p. 25). Kim and Dear (2013) noted, “Our results categorically contradict the industry-accepted wisdom that open-plan layout enhances communication between colleagues and improves occupants’ overall work environmental satisfaction” (p. 25). Bacevice, Burow, and Triebner (2016) explained, “The design and outfitting of workspace is a major capital investment for any organization that can affect a number of business outcomes, including productivity, employee satisfaction, engagement, talent recruitment, and brand impact” (para. 23).

This study adds to the body of research on the impact of alternative seating on student engagement. Educators can use this study to make decisions about learning spaces for students and whether or not learning space is the driving instrument behind student engagement. The purpose of this study was to answer three questions pertaining to student seating and student choice. The first research question centered on giving students choice in where they sit each day. The purpose of the question was to explore the possibility of increased engagement due to motivation by choice and the social implications of working in proximity to peers of their choice.

The second question centered on the type of seating available to students. The purpose of the question was to identify if providing flexible seating instead of traditional classroom seating results in higher levels of engagement of students. The third question was researched to cross-check to see if there was any significant difference in

engagement due to the combination of offering choice, or not, and the type of seating provided.

Non-IGNiTE sites were chosen because of the district training and support received by teachers who practice in IGNiTE schools (Hackenwerth, 2017). According to Hackenwerth (2017), IGNiTE sites have two model classroom teachers who support the staff in blended learning as well as a blended learning specialist who visits and trains the staff on a weekly basis. Fredricks (2014) defined blended learning as "an instructional approach that incorporates authentic learning tasks" (p. 100). Through blended learning, students experience authentic tasks where students "often work together collaboratively to solve real-world problems, they use technology based tools, and they are guided by teachers who scaffold instruction" (Fredricks, 2014, p. 99). Fredricks (2014) recommended authentic tasks as a way to increase student motivation and engagement. The researcher differentiated between IGNiTE sites and non-IGNiTE sites in order to ensure students who were observed were not exposed to daily authentic tasks which could lead to higher levels of engagement.

In order for the research questions to be answered, the researcher observed a total of 916 students in 12 schools, collecting data in 30% of the general education classrooms at each of the sites. The schools were chosen because they were not yet involved in the IGNiTE initiative at District A. The classrooms were chosen using a random number generator, and the researcher obtained written permission from each of the building principals. The researcher used an observation form, noting the type of seating in the classroom and whether the students were engaged, compliant, or off-task. After collecting the data, the researcher used a spreadsheet to gather all of the information in

one place, and chi-square tests of independence were applied to each of the three research questions to determine whether student choice or of seating had significance in student engagement.

Findings

The first research question was answered by collecting data on an observation form. The researcher noted the total number of students in the classroom; if they had a choice in where they were seated or if their seats were assigned; and whether the students were engaged, compliant, or off-task at the time the researcher entered the classroom. The null hypothesis $H1_0$ was rejected, demonstrating there was a positive significant difference in the engagement of students who had a choice in where they were sitting as compared to those who were assigned seats.

The second research question was answered by collecting data on an observation form. The researcher noted the total number of students in the classroom; what kind of seating was offered to the students; and whether each student was engaged, compliant, or off-task at the time the researcher entered the classroom. The null hypothesis $H1_0$ was rejected, demonstrating a positive significant difference in the engagement of students who were sitting in flexible seating in comparison to students who were sitting in traditional desks or at tables.

The third question was answered by collecting data on an observation form. The researcher noted the total number of students in the classroom; what kind of seating was offered to the students (traditional or flexible); if they had choice in where they sat or assigned seating; and whether each student was engaged, compliant, or off-task at the time the researcher entered the classroom. The null hypothesis $H1_0$ was rejected.

Conclusions

The purpose of this study was to investigate if type of seating and student choice of seating made a positive significant difference in student engagement. The findings of this study could be used by teachers and district leaders when deciding what the design of classrooms will look like and how the environment will function for students. The findings of this study can also bring awareness to student engagement and what factors impact learning in the classroom. The conclusions regarding each of the research questions based on the data analysis and the review of literature are discussed in the following section.

Choice in seating versus assigned seating. It was shown by the data 450, or 47%, of the students observed had choice in where they sat and 511, or 53%, of the students had assigned seats. Upon analysis, the data showed there was positive significant difference in the engagement level of students with choice in seating compared to students with assigned seats.

Flexible seating versus traditional seating. The data revealed close percentages in the kinds of seating offered in the classrooms observed. There were 463 students (48%) using flexible seating and 498 (52%) students sitting in traditional desks or at tables with chairs. Upon analysis, the data showed there was a positive significant difference in the engagement level of students who were using flexible seating in comparison to students who were in traditional seating.

Flexible seating with choice versus flexible seating with assigned seats versus traditional seating with choice versus traditional seating with assigned seats. The third question was investigated to cross-check all of the possible configurations of seating

and choice. In comparing all of the possible configurations using chi-square tests of independence, there was a significant difference in the engagement level of students during the observations by the researcher.

Implications

There were statistically significant findings for all three of the research questions. There are many opportunities to learn from this study and to change educational practices based on the theoretical framework about student engagement and the decline in student engagement according to Gallup polls (Gallup, 2016). A literature review "helps researchers glean the ideas of others interested in a particular research question, but also lets them read about the results of similar or related studies" (Fraenkel et al., 2015, p. 38). Disengagement was a recurring theme throughout the review of literature. Fredricks (2014) expressed frustrations with educational research on learning and engagement, "Although the research community has made great advances in the understanding of motivation and engagement, much of this work has had a minimal effect on educational practices" (p. x). Richardson (2016) referred to the Gallup Poll data on disengagement and declared, "We should all be asking what causes children to lose their zeal for learning… in school" (p. 15). Bray and McClaskey (2015) also referred to Gallup Poll data and dropout rates in the United States, revealing, "In the United States one child drops out of high school every twenty-six seconds, equaling 1.2 million learners a year" (p. 171).

Gregory and Kaufeldt (2015) explored the brain research behind student motivation and engagement and cited the work of Quaglia and Corso, "Engagement entails being fully involved in the learning process and being enthusiastic and willing to

take steps forward" (p. 69). Pink (2009) wondered if humans are born wired to be engaged and asked, "Have you ever seen a six-month-old or a three-year-old who's not curious and self-directed?" (p. 87). Pink (2009) believed something happened to cause passiveness, perhaps through a boss, school, or family. Richardson (2016) said, "I'm convinced that kids don't lose their love of learning in general just because they get older" (p. 15). Administrators and teachers can use information about the importance of student engagement in many ways throughout the school environment. The Gallup Poll (2016) statistics tell educators there is a critical problem with student engagement. The following topics are highlighted as areas that may help educators increase the engagement of learners.

Engagement through relevance. Glick (2014) encouraged purposeful and relevant work for students and recommended, "When work is seen as purposeful and relevant and when associations made with the work are meaningful and cognitively challenging, our engagement peaks… We have not survived as a species by doing meaningless, irrelevant work" (para. 7). Drapeau (2014) advised, "Students are motivated when they feel there is meaning behind what they are doing, which results in taking action… All students are motivated when they attach value to what they are doing and when they feel they can be successful" (p. 63). Students who are given the opportunity to ask questions that are specific to their needs and interests are more engaged in problem-solving and project-based learning (Chase & Lehmann, 2015). Chase and Lehmann wrote, "All of these questions could have relevance to the students in our classes, and all of them open students up to received wisdom of not just the teacher, but also the world at large" (2015, p. 121). Chase and Lehmann (2015),

advocating to ensure kids are connected to what they are learning, stated, “It is up to the teachers to help the students make the connections between the world of school and the rest of their lives” (p. 148). Richardson (2016) wrote, “We’ve learned most deeply those things that we truly cared about, those things that had relevance in our lives. We’ve learned those things with other people with whom we shared that interest” (p. 3).

Chase and Lehmann (2015) compared the classroom to a professional learning session for teachers. If the session for adults is not interesting, the adults “will look as disengaged as any stereotype of a teenager in a high school class could be” (Chase & Lehmann, 2015, p. 148). If the session includes authentic learning interesting to the adults, then “you will see the learners we want to see in our own classrooms” (Chase & Lehmann, 2015, p. 148). Marshall (2013) explained the importance of meaningful learning and brain development and wrote:

> When students passively take notes, complete low-level tasks and activities, spout back rote facts with no connections to their real life or prior knowledge, or simply confirm what they have been told, their brains are actively trimming (pruning) unnecessary neural connections—an anti-learning of sorts. (p. 23)

Kingore (2013) explained, “Engagement in school-based learning means that students primarily like what they are doing, as in extracurricular activities and interactive projects, so it is doubtful that students experience flow when completing a skill sheet” (p. 178). Church et al. (2011) wrote, “School no longer is about the ‘quick right answer’ but about the ongoing mental work of understanding new ideas and information” (p. 28). Halpern et al. (2013) said, “It [research] confirms that learning works best when young people can focus in depth on a few things at a time; when they see a clear purpose in learning

activities" (p. 3). Magana and Marzano (2014) stressed the importance of deeper learning and added, "In order for students to use new knowledge on their own, they must practice and deepen their understanding of the content after it has been introduced" (p. 67).

One practice related to relevance that is gaining momentum is project-based learning. Bray and McClaskey (2015) described project-based learning (PBL) as "a dynamic approach to teaching in which learners explore real-world problems and challenges" (p. 32). Chase and Lehmann (2015) revealed, "It [PBL] is about asking what we can make and want to make, and how we will find the ways and tools to do that (p. 132). Fredricks (2014) described three characteristics of project-based learning:

1. A driving questions that is meaningful to the learner and anchored in real-world context,
2. Student-conducted investigations that result in the development of artifacts or products, and
3. The use of cognitive tools, particularly technology, to represent ideas. (p. 100)

Fredricks (2014) explained, "Project-based instructional approaches can increase engagement because students are involved in solving authentic problems, working with their peers, and creating artifacts" (p. 100).

Another practice is personalized learning, a "controversial term that means different things to different people depending on where and how it is referenced" (Bray & McClaskey, 2015, p. 7). Robinson (2015) described personalization as a way teachers individualize for students, thinking about each student's different needs. Robinson and Aronica (2015) added, "It also means allowing for flexibility within the curriculum so

that in addition to what all students need to learn in common, there are opportunities for the to pursue their individual interests and strengths as well" (p. 88). Church et al. (2011) suggested placing the learner at the center of the focus instead of the material the student needs to learn, adding, "Our role as teachers shifts from the delivery of information to fostering students' engagement with ideas" (p. 26). Marshall (2013) noted, "Since long-term academic success is largely dependent on students' engagement, it makes sense that we build our learning environments so that students are thinking, analyzing, creating, and exploring" (p. 23). Finding out the talents and passions of students, according to Robinson and Aronica (2015), is an important piece of personalization. Robinson and Aronica (2015) wrote, "Profound things can happen when students are given room to explore their own interests and capacities" (p. 89).

Engagement through the physical environment. Magana and Marzano (2014) proposed, "A classroom's physical layout sends a strong message to students about a teacher's beliefs and values regarding the learning process" (p. 41). Learning spaces that encourage creativity and teamwork, along with spaces with less clutter, can impact teaching and learning, according to Dillon et al. (2016). Dillon et al. (2016) advocated for transformation of learning spaces because of the need for career readiness:

> The children headed to success in the next century will be both creative and curious. They will be citizens who can devise solutions and care deeply. These essential growth areas will be strengthened when students have been in learning spaces throughout their school career that foster these traits and others. The ideal spaces will nurture student choice and voice and bring audience into the learning. (p. 30)

Considering the psychology of physical learning environments, Graetz (2006) discussed the emotional connection students may have in reaction to their environment, "Environments that elicit positive emotional responses may lead not only to enhanced learning but also to a powerful, emotional attachment to that space" (para. 4).

Graetz (2006) concluded, "In any learning environment, physical characteristics that cause discomfort can be expected to interfere with learning; environments that produce positive emotional states can be expected to facilitate learning and the development of place attachment" (para. 4). Dillon et al. (2016) warned, "All innovative work in schools produces unintended consequences. Some of these are positive while others create challenges. Flexible learning spaces amplify the impact of poor teaching, and this is especially true when a classroom facilitator manages through control" (p. 32). Magana and Marzano (2014) recommended, "Although many teachers arrange the classroom before students arrive for the first day of class, asking students to be involved in the design process can help them feel invested and comfortable" (p. 42).

Engagement through access. Magana and Marzano (2014) highlighted the engagement of students using instructional technology and commented, "Some argue that engaging students has gradually become more challenging with the rise of fast-paced Internet connections and other media outlets" (p. 105). Bray and McClaskey (2015) defined access as "how a learner first processes information by accessing content through digital media, visual media, maybe through printed text, and sometimes through audio or touch" (p. 58). Bluestein (2014) noted, "Although young people once depended on a handful of adults to give them information on every subject, nowadays an entire world of data and resources is only a click away" (p. 4). Richardson (2016) warned of the

limitations put on students when digital access is limited, along with limiting them to "only the teachers we provide in their physical classrooms" (p. 27). Richardson (2016) added, "We need only look to our students and their immersion in devices and social networks to understand the necessity of bringing those devices and networks into our own lives" (p. 11). Graetz (2006) observed, "The classroom is becoming an interactive, collaborative environment where knowledge is created actively by students, many of whom have devices that are as much a part of them as their own skin and that can be a very important part of this process" (p. 5). Bluestein (2014) declared, "It's long past time for our interactive and instructional strategies to catch up to the kids we're teaching—and to the marketplace for which we are ostensibly preparing them" (p. 4). Covey et al. (2014) said, "Whether sitting on a plane, waiting for a bus, working at a desk, or living in a thatched hut, people can now access more facts in a matter of seconds from pocket-sized devices than they could from spending an entire month in a university library" (p. 4).

Relating access to flow, video game research makes a case for engagement. Kotler (2014b) explained, "Video game players get into flow so frequently that Csikszentmihalyi's ideas have become the most widely accepted theoretical framework for explaining the lure of the joystick" (p. 98). Kotler (2014b) continued, stating flow and the engagement experienced during flow applies to designers of software, network design, coding, and circuits in the tech world. Kingore (2013) said, "One of the reasons that games are so motivating is because they are planned for people to experience success early and understand that the game is designed so they can continue being successful as they work at later stages" (p. 123). Instructional designers like

Rogers (2015) aim for the flow effect when designing educational software. Rogers (2015) said, “The challenge for instructional designers is to determine how to use the potentiality of videogames to engender flow for educational purposes” (para. 5).

Magana and Marzano (2014) addressed engagement and technology and stated, “Some argue that engaging students has gradually become more challenging with the rise of fast-paced Internet connections and other media outlets” (p. 105). Magana and Marzano (2014) added, “When carried out properly, best practices for instructional engagement are still effective in the classroom. Furthermore, teachers can harness the engaging potential of technology for instructional purposes” (p. 105). Magana and Marzano (2014) recommended using polling technology to re-engage students who appear disengaged. They also recommended measuring engagement with polling technology by getting feedback from students about their current levels of engagement (Magana & Marzano, 2014).

Engagement through shifting the control to the student. Bluestein (2014) noted, “Whether we’re talking about children or adults, the need for some degree of power or autonomy is standard issue on all models and comes preinstalled at birth” (p. 6). Autonomy, according to Bedell (2013), “develops when students perceive they have a choice over their actions and that their behavior is freely-chosen, rather than imposed by the teacher” (p. 9). Marshall (2013) wrote, “One of the greatest fears for teachers in losing control-control of instruction, control of students, control of the class” (p. 109). Covey et al. (2014) said, “For some educators it is a real shift to view themselves as a ‘guide on the side’ rather than the ‘sage on the stage’ the one who is always in control versus the one who lets others lead out” (p. 231). Ritchhart et al discussed putting

students at the center of the learning and focusing on the learner instead of the content and curriculum, "With the learner at the center of the educational enterprise, rather than at the end, our role as teachers shifts from the delivery of information to fostering students' engagement with ideas" (2011, p. 26). Richardson (2016), advocating for students to follow their interests and passions, asked:

> So let me ask you, given the choice between a learning environment in which someone or something tells you what you should be interested in and concerned about and one where you have the freedom to pursue what you find interesting or important, which would *you* choose? (p. 29)

Gregory and Kaufeldt (2015) recommended giving students voice in order to build trust, to increase engagement, and to tailor the environment to individual interests. Fredricks declared, "We can continue to focus on ensuring compliance and providing superficial coverage of the content, or we can invest our time, efforts, and talents into creating schools – classroom by classroom – where all students are deeply engaged" (2014, p. 230).

Continuing the theme of choice and freedom for students, Richardson (2015) added, "A school should no longer control the process of what is to be learned as much as it should make sure that every student can take full advantage of his or her own freedom to learn" (pp. 16-17). Gregory and Kaufeldt (2015) advised, "The best route for teachers is to offer choices and a good variety of options so students can choose from something that will engage them and also help them learn" (p. 67). Engel (2015) discussed what a school would look like if she designed the space, "I would begin by thinking about how to create a physical and social environment that was pleasant—a place a child would like

to spend the bulk of each day, where learning and trying hard would be a pleasure, not a duty" (p. 137). Thinking about giving students choice, Engel (2015) added, "That would mean putting their ideas and work everywhere, and creating comfortable places to sit, to socialize, and to eat" (p. 137).

Richardson (2016) provided a strong argument for why schools are disconnected from today's learners in his book, *Freedom to Learn*. Teachers could participate in a collaborative book study and engage in conversations about ways to begin connecting the learning students do at school with the learning they do when they leave school. The book provides probing questions about traditional schools, recommends ways to find out what students are passionate about, and provides studies of schools that are finding academic success with putting learners at the center and shifting the role of the teacher (Richardson, 2016).

Recommendations for Future Research

Other ways to measure student engagement could be explored, since student engagement is a topic closely associated with the push to look differently at how schools function for 21st-century learning. One recommendation is to tie qualitative data with a study of student choice and the learning environment. How do students feel about their ability or inability to choose where they sit? Where do they feel they learn best? Fraenkel et al. (2015) explained, "Qualitative researchers are more concerned with understanding situations and events from the viewpoint of the participants" (p. 10). Another recommendation is to use mixed-methods research to gain student feedback using open-ended questions for qualitative data and using attendance, student surveys, or achievement scores for quantitative data. Fraenkel et al. (2015) recommended, "Its

[mixed methods] advantage is that by using multiple methods, researchers are better able to gather and analyze considerably more and different kinds of data than they would be able to using just one approach" (p. 11).

Fredricks (2014) recommended survey tools for teachers as ways to assess student engagement. Fredricks (2014) recommended self-report measures where students fill out surveys about their behavior, emotion, and cognition. Fredricks (2014) noted, "Self-report methods are widely used because they are the most practical and easy to administer in classrooms" (p. 21). Self-reports cause concern about students being honest in their answers, and self-report surveys tend to include broadly worded items, making it hard to pinpoint certain tasks when students may or may not feel engaged in (Fredricks, 2014). Most self-report surveys contain Likert-response items and scaled scores to make the data quantitative in nature (Fredricks, 2014).

Fredricks (2014) also recommended observational data such as using a time-sampling procedure, "in which the observer records whether a certain behavior occurs for an individual during a specific time interval, which usually ranges fifteen to thirty seconds" (p. 26). Fredricks (2014) recommended teachers conduct their own time-sampling observations, because they see students day-to-day and can better identify behaviors and see whether students are displaying the behaviors they typically display. Fraenkel et al. (2015) warned, "Studies using children as participants present special issues for researchers" (p. 67), and guidelines such as informed consent of parents are required. Authors Horn and Staker (2015) discussed other types of research needed when designing a school setting to match the needs of students. Horn and Staker (2015) recommended:

> Researchers can help with this effort by studying which experiences are the most effective in a range of circumstances. For example, some teachers report that in circumstances where behavior problems and attention deficit disorders are rampant, the shift to giving students more choice and control makes a big difference. They say that offering options—like allowing students to use standing desks, opt for a beanbag chair, more around more, eat a snack when hungry, and choose among learning modalities—can be more powerful than Ritalin. (pp. 151-152)

Another recommendation is the use of Schlechty's (2011) Levels of Engagement on a smaller sample size of students. The Schlechty Center on Engagement (n.d.) "focuses attention on student motivation and the strategies needed to increase the prospect that schools and teachers will be positioned to increase the presence of engaging tasks and activities in the routine life of the school" (para. 1). For purposes of this study, observations were made for three of the five levels defined by Schlechty (2011). The omitted levels of engagement required longer observations and engaging students in conversation which was beyond the scope of this study due to time and sample size. A study utilizing the five levels defined by Schlechty (2011) with a smaller sample size could provide an individual teacher a better picture of how he or she is engaging students. The five levels identified by the Schlechty Center on Engagement (n.d.) are engagement, strategic compliance, ritual compliance, retreatism, and rebellion (see Table 7).

Table 7

Five Levels of Student Engagement as Defined by Schlechty

Authentic Engagement—students are immersed in work that has clear meaning and immediate value to them
Ritual Compliance—the work has little or no immediate meaning to students, but there are extrinsic outcomes of value that keep them engaged
Passive Compliance—students see little or no meaning in the assigned work but expend effort merely to avoid negative consequences
Retreatism—students are disengaged from assigned work and make no attempt to comply, but are not disruptive to the learning of others
Rebellion—students refuse to do the assigned task, act disruptive, and attempt to substitute alternative activities

Note. Information from the Schlechty Center on Engagement (n.d.).

By encouraging educators to identify the levels of student engagement in their classrooms as well as obtaining engagement feedback from students, teachers can begin adjusting practices to improve engagement in the school setting.

Summary

The concept of student engagement has gained attention through the advancement of digital technology, the shift in the career sector, and the access students have to information of which teachers were once the keepers. Richardson (2015) stated, "Today, by and large, students themselves own the tools and technologies they need to learn, and they carry many of them in their backpacks and pockets" (p. 8). Engel (2015) declared, "Children who have experienced the rewards of deep engagement are likely to seek out that experience again and again" (p. 93). Teachers look for ways to make learning more

engaging, and one of those ways is in making changes in the learning space. The data from this study indicated choice in space and type of seating offered make a statistically significant difference in the engagement of students. In addition, the teacher and his or her understanding of the students' need to collaborate and create has been shown to make a difference in the levels of student engagement. Robinson and Aronica (2015) wrote, "The challenge is to create and sustain those experiences [of learning] within schools. The root task is to create the conditions in which the relationship between students and teachers can flourish" (p. 72).

Two out of three adults are disengaged at work and two out of three students are disengaged by the time they are in their junior year of high school (Adkins, 2015). Fredricks discussed the gradual process of student disengagement which may lead to dropout, "It is important to resist disengagement in the classroom because of the severe negative individual and societal consequences of dropping out of school" (2015, p. 194). Achor (2011) and Csikszentmihalyi (2014) studied happiness and both concluded happiness is directly linked to engagement. With a disengaged workforce and disengaged nation of students, many researchers are looking for ways to create a culture of engagement. In Chapter One, the importance of flow and the relationship flow has to happiness at work was introduced. Chapter One included a background of the study with a discussion of early schooling, the Industrial Revolution and its effects on the educational system, and the concept of learner-centered classrooms that surfaced in the 1960's. The theoretical framework tied together choice, motivation, well-designed spaces, and the biology connected to sitting too long. Chapter One concluded with a statement of the problem and purpose of the study. The intention of this study was to determine if giving

students a choice in where they sit will cause them to be more engaged and if allowing students to choose a space that allows them to learn in a social, rather than isolated setting, will cause greater engagement for the students.

In Chapter Two, alternative forms of seating, physical space, educational reform, the evolving workplace, engagement, flow theory, motivation, neurology, creativity, compliance, and choice were studied for the review of literature. In Chapter Two, a review of existing literature confirmed choice is important to motivation and engagement. A Gallup Poll provided further evidence there is a strong link between engagement and school success (Gallup, 2016).

Chapter Three included an overview of the methodology in this study. The purpose of this study was to investigate the relationship between student choice in seating, flexible seating, and level of engagement in traditional classrooms compared to classrooms offering choice. Quantitative methodology was utilized to discover if allowing choice for students resulted in higher levels of student engagement. In this study, data were collected to determine if offering choice in seating to students leads to higher levels of engagement. This dissertation adds to a body of research about student choice that can help teachers decide if students will benefit from restructuring of classrooms into less traditional learning environments.

Chapter Four revealed there was positive significant statistical difference in the engagement of students who had flexible seating versus traditional seating, and there was positive significant statistical difference in the engagement of students who had choice in where they sat versus assigned seats. There was also positive significant statistical difference in the engagement of students who had flexible seating and choice in where

they sat, students who had flexible seating and assigned spots, students who had traditional seating and chose their own seats, and students who had traditional seating with assigned spots. While there was positive statistically significant difference found for the three research questions, the practical significance for question one was weak. The practical significance for research questions two and three was moderate. Therefore, while there may be statistical significance for the sample in this study, the results may not generalize to all populations.

Through the review of literature, it became clear engagement is important, and one of the factors that affect engagement is student choice. The data showed a positive statistical difference in student engagement based on student choice in seating or type of seating, and additional educational practices to lead to higher engagement were provided. The areas highlighted in this chapter included engagement through relevance, engagement through the physical environment, engagement through access, and engagement through shifting control to the student. When teachers begin to identify the levels of student engagement in their classrooms, they can begin adjusting practices to improve engagement in the school setting.

Appendix A

IRB Approval

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	October 25, 2016
TO:	Joellyn Travis, EDD
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	Student Choice and Student Engagement
IRB REFERENCE #:	[818980-1]
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	October 25, 2016
REVIEW CATEGORY:	Exemption category # *1*

Thank you for your submission of New Project materials for this research study. Lindenwood University Institutional Review Board has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix B

Site Permission Letter

To: Joellyn Travis

From: [redacted]

Date: October 3, 2016

Subject: Request to Conduct Research

Your request to conduct research proposal titled, Student Choice and Student Engagement, submitted for consideration has been approved.

Please understand this letter constitutes district approval, but the final decision for participation rests with the building principal. You will need to seek approval from the building principal and teachers before conducting your research and present this letter.

Feel free to contact [redacted] at [redacted] if you have questions or need additional information.

[redacted]
Coordinator of Accountability
[redacted]

Appendix C

Principal Informed Consent Letter

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Student Choice and Student Engagement

Principal Investigator Joellyn Marie Travis
Telephone: [redacted] E-mail: [redacted]

Participant_____ Contact info _____

1. You are invited to participate in a research study conducted by Joellyn Travis under the guidance of Dr. Kathy Grover. The purpose of this study is to compare classrooms in District A to determine if choice and flexible seating increases student engagement in the classroom. Some of the classrooms to be observed have traditional seating and some of the classrooms have flexible seating and choice.

2. a) Your participation will involve Ms. Travis observing in classrooms in your building using a data collection form produced by the researcher using Google Smartsheet.

   b) The amount of time involved in your participation will be limited to:

   - providing a list of classrooms according to the random number generator and a building map for help in locating the sample classrooms.
   - forwarding an email message containing the Adult Informed Consent for Teachers document to teachers of the randomly selected classrooms in your building and collecting the signed consent forms prior to the observation date.
   - signing this document indicating your consent to participate in the study.

   Observations will be less than five minutes per classroom.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about choice, alternative seating, and

engagement in the classroom.

5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study and the information collected will remain in the possession of the investigator in a safe location.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Joellyn Travis, at [redacted] or the Supervising Faculty, Dr. Kathy Grover, at [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____	_____
Participant's Signature Date	Participant's Printed Name
_____	_____
Signature of Principal Investigator Date	Investigator's Printed Name

Appendix D

Teacher Informed Consent Letter

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Student Choice and Student Engagement

Principal Investigator Joellyn Marie Travis
Telephone: [redacted] E-mail: [redacted]

Participant_____ Contact info _____

1. You are invited to participate in a research study conducted by Joellyn Travis under the guidance of Dr. Kathy Grover. The purpose of this study is to compare classrooms in District A to determine if choice and flexible seating increases student engagement in the classroom. Some of the classrooms to be observed have traditional seating and some of the classrooms have flexible seating and choice.

2. a) Your participation will involve Ms. Travis observing in your classroom using a data collection form produced by the researcher using Google Smartsheet.

   b) The amount of time involved in your participation will less than five minutes.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about choice, alternative seating, and engagement in the classroom.

5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study and the information collected will remain in the possession of the investigator in a safe

location.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Joellyn Travis, at [redacted] or the Supervising Faculty, Dr. Kathy Grover, at [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature Date	Participant's Printed Name
Signature of Principal Investigator Date	Investigator's Printed Name

Appendix E

Participant Recruitment Letter

Dear Building Principal (Insert name):

Thank you for your participation in the Student Choice and Student Engagement study. Using a random number generator, the following classrooms have been selected for observation:

XXX
XXX
XXX

I will be contacting you within the next few days to set up a time to observe in the classrooms. There will be no identifying information connected to the data collected, and the observation will not be evaluative in any way. As the primary investigator, I will be observing the seating in the classroom; will observe the choices students have in seating; and will identify the number of students who are engaged, compliant, or off-task.

In order to collect data in classrooms, you and teachers of the selected classrooms must give permission. Please provide the teachers of the selected classrooms with the attached adult consent form for teachers and obtain their signatures indicating their consent before I arrive at your building.

You will also find the adult consent form for principals attached to this message. Please print, read, and sign the document to indicate your willingness to participate in the study.

Thank you for your participation. Please feel free to contact me if you have any questions or concerns about the selection process or the observations.

Thank You,
Joellyn Travis, Primary Investigator
[redacted]

Appendix F

Student Choice and Student Engagement

Observation Data Collection Sheet

Sample Classroom Number	Choice or Non-Choice Seating	Flexible or Traditional Seating	Total Number of Students in Classroom	Number of Students Engaged	Number of Students Compliant	Number of Students Off-Task

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Vita

Joellyn Travis is the principal at Truman Elementary School in Springfield, Missouri. She holds a Bachelor of Science degree in Early Childhood and Elementary Education as well as a Master of Science degree in Educational Administration, both from Missouri State University in Springfield, Missouri. Joellyn taught for 14 years at Hubble Elementary and Webster Elementary in Marshfield, Missouri, followed by two years as an assistant principal at Esther Elementary in Lebanon, Missouri. Joellyn also spent two years as the lead elementary principal and Director of Title One Services at Pleasant Hope Elementary in Pleasant Hope, Missouri, before her current position at Truman Elementary where she has served for four years. As a principal, she has the privilege of leading a staff who loves children and works hard to meet all their needs. She has the joy of serving hundreds of students and families each year, making sure kids have engaging and memorable elementary school experiences that set the stage for them to be lovers of learning for the rest of their lives.

In addition to her love for education, Joellyn loves to travel and explore new places. Her favorite places to visit are St. Pete Beach and New York City. Joellyn's dream retirement includes living part of the year in Florida to escape the cold Missouri winters. Residing in Springfield, Joellyn's family is an important anchor in her life: daughter Bentley; fiancée' John Caster and his daughter, Lauren; and parents, Jim and Maureen Travis. Her life would be incomplete without her best friend and sister, Jessica Powers, who lives in Providence, Rhode Island.