LAW SCHOOL STUDENT'S PERCEPTIONS OF THE IMPACT OF PHYSICAL SPACE

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LAW SCHOOL STUDENT'S PERCEPTIONS OF THE IMPACT OF PHYSICAL SPACE

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ABSTRACT

LAW SCHOOL STUDENT'S PERCEPTIONS OF THE IMPACT OF PHYSICAL SPACE

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Physical classroom space can influence a student's sense of interconnectivity and can support learning. Social effects of the physical space have been infrequently researched regarding the role it has on student collaboration and therefore is not well understood by school personnel. This thesis shares results of a mixed method content analysis of data collected across three new law school buildings in the United States of America. Students from each law school completed a survey to determine the effects the new law school building had on their perceptions of the space, their ability to collaborate with peers and faculty, and the overall difference between their experience in the new building compared to the old law school building.

ACKNOWLEDGEMENTS

I would like to thank my thesis committee chair, Dr. Sawyer Hunley, and my other committee members, Dr. Molly Schaller and Dr. Susan Davies for their help and support in the completion of this thesis. I would also like to thank my secondary researcher, Trystan Norman, for her assistance conducting a content analysis of the data in this thesis.

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CHAPTER I

INTRODUCTION

The characteristics of physical space influence students' learning and interpersonal relationships. Such characteristics include construction of the building, classrooms, offices, and open spaces, as well as interior design, such as furniture configurations within the space that can influence learning and interaction. However, much remains to be learned about how the element of physical space impacts students' ability to learn and form interpersonal relationships with other students and faculty.

The aspect of the physical space in the classroom is a controversial subject that has sparked much debate and discussion amongst educational stakeholders. The research literature indicates that physical space plays a large role in creating a sense of interconnectivity and supporting learning. For instance, some students prefer face-to-face learning because it increases their engagement and is associated with the amount of time that they pay attention in class (Kariippanon et al., 2019). Students who participate in face-to-face learning are more likely to engage in collaborative learning, develop student-faculty relations, and have discussions with others (Dumford & Miller, 2018). In-person learning has been shown to encourage out-of-classroom communication which influenced the quality of learning and participation (Cui & Coleman, 2020).

The layout of the classroom physical space can be manipulated to create a sense of community and allow for ease of engagement among the students, but this can be more difficult to achieve in an online learning environment. During the recent COVID-19 pandemic when classes transitioned to online learning, concerns arose about students' social isolation because access to informal interactions was inhibited (Young & Bruce,

2020). The topic of online learning remains important as the prevalence of online courses increases, especially after the recent pandemic. Students are now lacking the same exposure to socialization and development of interpersonal skills that previous students gained through face-to-face learning.

In 2014, an architectural firm was interested in determining the impact of three new law school buildings within three different universities across the United States. The present study involves analysis of extant data that was collected from that study. The study was conducted over the course of three years and included survey data gathered from students, faculty and staff, and visitors to the schools during the periods of use in the old and the new buildings. The surveys inquired about different aspects of the current environments and perceptions of the new building compared to the old. Additionally, this thesis notes the complication of the pandemic and the switch to online learning when considering the importance of the physical space.

CHAPTER II

LITERATURE REVIEW

This literature review explores previous research related to designed factors in learning spaces and how these factors play a role in interpersonal relationships and student success. Next, it reviews modes of instruction and compares face-to-face and online learning. Finally, it examines other critical factors such as coronavirus and characteristics of law school students.

Design Factors in Learning Spaces

Cornell (2002) listed various attributes that need to be considered when designing learning spaces such as flexibility, technology, furniture, and natural elements. Student responses to the physical space in schools are influenced by the elements and intentions of the layout: interaction, design, cooperation, and collaboration (de Borba et al., 2020). In particular, the attributes of learning space size, flexibility and comfort, experiential learning opportunities, student engagement, active learning classrooms, and modes of instruction are indicators of the elements and intentions.

Size of the Space

There are a variety of learning spaces on college campuses, such as an auditorium classroom, a regular-sized classroom, a library, or even a small study space. The size of the space plays a crucial role in the organization of the classroom and the teaching methods used. Many students learn better when they engage and collaborate with their peers. Thus, in a large lecture hall the implementation of group work can be challenging (Young et al., 2017). Students who sit in the front of these large classrooms are typically highly motivated individuals. Less motivated students are frequently in the back of these

classrooms, which leads to lower performance (Armstrong & Chang, 2007). However, if active learning classrooms that encourage group work and collaboration with furniture like round tables are utilized, there will be no front or back row for students to influence student levels of participation.

Young and colleagues (2017) examined the effects of physical space on learning by students who received instruction in a regular sized classroom compared to a same-size class who received instruction in a large auditorium. The classroom had moveable desks, two projection screens, and high risers in the back. The auditorium was the largest space on campus including 300 unmovable seats each with a small folding desk, a large stage, and a projection screen. The study addressed grades, failure rates, withdrawal rates and attendance levels. Student grades revealed no statistically significant difference between the two rooms. However, attendance, which is an indicator of collaboration, academic performance, and motivation, was significantly higher than for students in the classroom than in the auditorium. One more student withdrew from the auditorium section than from the classroom section.

Flexibility and Comfort

As early as the 1960s, Stoke et al. (1960) found that the typical student prefers a space to study that has good lighting, comfortable temperature, comfortable chairs, adequate desk space, and is distraction-free with plain décor and furnishings. McArthur (2015) among others continued to develop insights about student preferences for spaces that allow them to make slight alterations such as moving the chairs and tables to allow for group work. As the flexibility of the physical classroom space increases, students' ability to learn and a teacher's ability to influence students increases.

Student group work can help students form relations with fellow students and learn the material in different ways. The flexibility of a room allows for adaptation during lectures and small group work (Rands & Gansemer-Topof, 2017). In a 2017 research study, two-thirds of students reported that flexible learning spaces allowed for ease of social interaction, learning, and motivation (Adedokun et al., 2017). Young et al. (2017) came to the same conclusion after they surveyed students on their perceptions of learning spaces. They found that group activities were awkward when the seats were unmovable or could not turn to face each other. The flexibility of a classroom with moveable furniture was superior for group work to the inflexibility of a large auditorium. (Young et al., 2017).

Hunley and Schaller (2009), focused on the connection between learning spaces, learning, and pedagogical methods. The study rotated classes of students across four different rooms with different furniture configurations. They found that students were more comfortable in a space that was open, flexible, and appealing to student emotions. Additionally, this study found that students were most engaged in the class when encouraged to build interpersonal relations (Hunley & Schaller, 2009). Conversely, when students were in a room with poor air circulation, uncomfortable temperatures, distractions, and noninteractive practices, they were disengaged.

When students who began taking classes in the comfortable and flexible room moved to a traditional classroom with the seats arranged in rows, they perceived the newer space negatively and felt less responsibility for participation (Hunley & Schaller, 2009). The more experience one has in comfortable and flexible spaces the less tolerance they have for learning spaces without these elements. However, students did not have a

positive opinion of one mixed furniture classroom regardless of when they had class in that space. They reported that the mixed furniture did not seem to have a coherent plan for their use. The results of this study reveal a coherent plan for student learning and engagement is critical when selecting and arranging furniture.

In a study seeking to understand the role of design for flexible classrooms to promote engagement and learning, a team of teachers and researchers examined new classrooms at Unisinos University in Brazil (de Borba et al., 2020). These new classrooms incorporated flexible seating, walls that could be used as chalkboards, projectors with wireless connections, LED lights, air conditioning, and access for persons with disabilities (de Borba et al., 2020). Student responses to a questionnaire and interviews revealed that faculty instruction and support was the primary factor for their engagement, and that elements of the physical space were also associated with academic engagement (de Borba et al., 2020). This study showed that simple elements like moveable chairs became crucial to student comfort and ease of interactions.

Experiential Learning

Beichner et al. (2007) described effective classrooms as active learning spaces that can be utilized for lecture, group work and lab work (Beichner et al., 2007). When students participate and interact with the material of the classroom through active, experiential learning, they develop a deeper understanding that can also have an impact on their social and academic skills.

Experiential learning is a social process that occurs through participation and social interaction (Pearson & Brew, 2002). Students gain experience working in a team. When faculty develop relationships with students and other faculty, their interactions

encourage cooperation, active learning, group involvement, networking, and shared experiences (Umbach & Wawezynski, 2005). Through socialization and interaction, students can gain more information, increase interpersonal communication, improve decision-making skills, and develop personal and leadership skills (Schuller, 2001). Learning spaces facilitate experiential learning when they allow for multiple pedagogical practices and are designed for flexible, active learning.

Active learning classrooms (ALCs) are learning spaces designed to increase the frequency of student collaboration and technology-enhanced instruction to engage students in the learning process (Beichner, 2014). ALCs can affect the ways that students and faculty members interact with one another. In active learning environments, students participate in individual or group activities that require them to collaborate and reflect on the task at hand (Bonwell & Eison, 1991).

Unlike in the traditional classroom, active learning minimizes lecture-based instruction, allowing the students to become engaged participants. Active learning spaces have common features such as round or curved tables, moveable chairs, a layout to support group work, access to whiteboards or projectors and wireless internet, and room microphones if needed (Baepler et al., 2016). Active learning has had positive effects on student performance, satisfaction, and motivation (Freeman et al., 2014, Sabagh & Saroyan, 2014). It is associated with attitudinal shifts in which students perceive their class as a community (Eddy & Hogan, 2014); and allows students to interact with each other and with faculty members in the classroom by engaging in group discussions and activities that allow for relationship-building (Metzger, 2015).

Although ALC strategies have been shown to increase student learning even in the traditional, non-ALC setting (Stolzfus & Libarkin, 2016), both students and faculty preferred ALC methods in classrooms setup for this purpose (Odum et al., 2020). An analysis of observations from over 2,000 classes taught across 25 institutions, revealed that providing the infrastructure alone does not change instructional practices (Stains et al., 2018). The major deciding factor for classroom infrastructure preference is the instructional practice used to create a student-centered environment (Metzger & Langley, 2020). A change from a professor information delivery focus to a strategy in which students interact actively in the classroom learning process can lead to greater motivation and accountability (Cotner et al., 2013).

For a space to be considered a flexible learning space it must allow for different pedagogical approaches and learning styles that can fit the needs of the students and faculty members. These spaces increase learning by facilitating student creativity, innovation, communication, and problem-solving (Kariippanon et al., 2019). Students spend less time in whole-class settings and more time collaborating and interacting with peers (Kariippanon, 2019). Flexible spaces encourage student-centered pedagogical approaches to increase collaboration, motivation, and experiential learning for students in the classroom.

Student Engagement

Student engagement with the material, classmates, and instructor is a significant predictor of success. For instance, Masika and Jones (2016) found that when interpersonal relationships provide students with a sense of belonging, they become more interested in their studies. Student engagement in the classroom can vary based on the

environment created by the teacher and the learning opportunities they implement in the classroom (Nasir et al., 2011).

There are three domains of student engagement: cognitive, emotional, and behavioral engagement (Cooper, 2014). Cognitive engagement focuses on the student's learning process, understanding, and mastery of the skills. Emotional engagement focuses on the students' feelings of belonging in their classroom or school. Behavioral engagement can have an impact on both cognitive and emotional engagement.

Behavioral engagement encompasses student participation and the ability to follow the expectations of the classroom (Cooper, 2014). Engagement behaviors are associated with classroom instructional factors such as how students interact with the instructor, other students, and the content. Student interactions with their instructor can create a positive relationship that increases student engagement in the classroom, and that can result in better cognitive engagement and increased learning (Crosnoe et al., 2004). For instance, in the Reyser et al. study (2008) students stated that when they received feedback from faculty and collaborated with them, it helped improve their skills. They indicated that not receiving this feedback and lack of collaboration was problematic and ended with a limited understanding of the issues (Ryser et al., 2008). Opportunities for interactive experiences with instructors allows for emotional support and collaborative work.

Student interactions with their peers can lead to a positive interpersonal climate that increases the likelihood of both emotional and behavioral engagement (Davis & McPartland, 2012). As students develop relationships with their peers, they are more likely to work together when they need assistance, and their willingness to participate

will increase. A sense of community and interactions between students' and faculty can have a positive effect on student motivation (Grantham et al., 2015).

Coronavirus Pandemic

A coronavirus pandemic (COVID-19) began in 2019 rapidly spread worldwide throughout 2020. The pandemic will likely have an impact on educational systems for years to come. Individuals were required to undergo lockdowns and school shutdowns that resulted in an abrupt shift from face-to-face learning to virtual platforms. As a result, teachers who were not previously instructing through an online platform had to transfer their lessons to Zoom or other platforms for online lectures, notes, and material. The interruption of students' education required that the students and faculty had to adjust.

One example of the impact of the pandemic occurred in the Virginia Community College System (VCCS). In one of the 23 VCCS colleges, the move from in-person to virtual learning resulted in a 6.7 percentage decrease in course completion, with larger impacts for students with previously lower GPAs (Bird et al., 2020). Before COVID-19, students at this VCCS college were already more likely to withdraw and not complete their online courses in comparison to in-person students. When the COVID-19 pandemic occurred, this college experienced even lower rates of course completion and lower grades resulting in a meaningful negative impact on students (Bird et al., 2020). This study is one of the early examinations of the impact of the pandemic on higher education, but it does illustrate the value of having a good understanding of learning preferences and the resulting impact on student engagement.

The full extent of the results from this abrupt shift in student learning delivery is not yet known. However, online learning through Zoom or hybrid courses may be the

future for many courses. Although not the topic of the current study, it will be crucial in future studies to understand the role that COVID-19 had in social isolation, as well as the way different methods of instruction impact learning and social relations.

The Present Study

This study targets a special population of graduate students and faculty in law schools. In order for a student to be admitted into a law school to earn their Juris Doctorate, they must meet the following expectations: 1) complete a bachelor's degree, 2) pass the Law School Admission Test (LSAT), 3) complete their application (letters of recommendation, resume, personal statement, etc.), and 4) apply to law schools. The LSAT is used to test the skills necessary for students to succeed in law school (LSAC). Once in law school students are categorized by 1 L, 2 L, and 3 L. These labels represent their year in law school, for example, a 1 L is a first-year law student. The data used in this research study utilizes these categorization terms to differentiate the effect the physical space has on students in each year of law school. It is essential to understand the characteristics of the students at each of the three law schools within this study to analyze the research.

An unpublished report by Hunley and Schaller (2019) built on their earlier findings that something as simple as a space with moveable furniture can allow students to utilize new spaces to allow for social interaction and community (Webb et al., 2008). They found that a change in the layout of the building caused some students to respond positively or negatively and, in the survey, stated that the layout inhibited or promoted group work based on the way the seating was arranged in the common spaces. If the

space is comfortable, furniture is movable, and allows for easy formation of groups it can facilitate student success.

For this thesis, the focus will be on the student survey results from the Schaller and Hunley (2019) study. It is an analysis of data collected from a mixed-methods study involving three new law schools built in 2015 and 2016. The data gathered in the first year were from those engaged with the old law school building. Data from the second and third years were from occupants in the new law school buildings. The purpose of this study is to analyze the perceptions of student occupants across the three new law school buildings to determine patterns of space characteristics that contribute to or limit socialization and interpersonal relationships.

The purpose of the current study is to investigate the importance that space has with forming interpersonal connections that foster increased learning. Specifically, we investigated whether 3 new law schools designed to encourage interaction and engagement in learning would be perceived as an improvement over the older law school settings that were replaced. Many learning institutions have large investments in face-to-face instructional strategies. Instructional strategies in physical spaces may need to change due to the new opportunities and challenges created by the pandemic. Data for this study were collected prior to the pandemic. They are useful for understanding the perceptions of occupants in higher education brick and mortar spaces. In fact, the results of this study can be useful as a baseline when compared to future studies investigating the impact of the physical attributes of spaces that encourage social interaction. The dramatic shift in the higher education environment requires a reconsideration of how to structure or restructure brick and mortar locations to fit the changing needs of learners.

CHAPTER III

METHODS

Research Questions

This study aimed to answer the following questions:

1. What were students' perceptions of their ability to collaborate with other students or work in groups in the old building versus the new building?
2. What were students' perceptions of their ability to collaborate with faculty in the old building versus the new building?

Research Design

This was a mixed method study utilizing a quantitative analysis to examine Likert scale responses to the student survey based on data previously collected by Hunley and Schaller (2017), across three old and new law school buildings. The quantitative analysis was utilized to determine if the physical space had an effect on student perceptions in the old building compared to the new building. Additionally, we used a qualitative thematic analysis. The content analysis developed a description of students' perceptions of how physical space affected their ability to collaborate with other students and faculty members. Content analysis allows for patterns or trends across the qualitative data to be discovered allowing for interpretation of the results (Schreier, 2012). The researcher utilized a phenomenological approach with focus on students' perceptions of the physical space. This approach was selected to understand the experiences of the students as they perceived them (Grossoehme, 2014) in both the old and new law buildings. The researcher relied on the students' experiences in both law buildings and used the survey

responses to allow patterns or trends to emerge as well as data results. Hunley and Schaller (2017) gathered the data utilized in this thesis through focus groups, interviews, and student/faculty surveys. For this thesis, the focus was on the student surveys to examine how space affects students' perceptions of interpersonal connections and learning.

Participants and Setting

Participants in this study included students from three old and new law school buildings built in 2015 and 2016 in the United States of America.

University of Utah

The university is located on the outskirts of downtown Salt Lake City, Utah. The S.J. Quinney School of Law has a full-time program with student cohorts in 1 L or upper level. The university does not have a part-time program. The first-year students learn in intimate settings and have at least one class in a small group setting of no more than 25 students (SJ Quinney College of Law).

This graduate program provides students with an intensive writing experience, one-on-one meetings with faculty, instruction on the basics of the law and legal system, and early practical training (SJ Quinney College of Law). As their students advance to upper-level courses, they have specialty courses they can choose from such as Family Law. Higher-level students can learn international law, cross-train through a dual degree program, and have access to research centers. The upper-level curriculum has seven specialized proficiency programs and allows students to earn a certificate in specialized legal study in the following: business law, criminal law, environmental and natural

resources law, international law, intellectual property law, litigation and dispute resolution, and public interest law and policy.

In the 2014-2015 academic year there was a total enrollment of 353 students. In 2017, the enrollment was 292 students with 92 First-Year Law students. Approximately 13% of 2017 students were racial/ethnic minorities. Males encompassed 56% of its student population. The current median undergraduate GPA is 3.82 and the mean LSAT score is 163 (SJ Quinney College of Law). This thesis includes response data from 47 students at the University of Utah, that attended law school in both the old and new buildings.

Georgia State University

The university is located in downtown Atlanta, Georgia. The Georgia State College of Law program is available for full-time and part-time students. Students earn the Juris Doctorate after successful completion of 90 law credits with a minimum GPA of 2.0, scholarly writing requirement of C+ or better, completion of required courses, experiential learning, and additional requirements (Georgia State College of Law).

Prior to 2021, 1 L students took a variety of courses that included 14 credit hours in the fall and 16 credit hours in the spring. 2 L students took a variety of courses that included 16 credit hours in the fall and 15 credit hours in the spring. 3 L students took 15 credit hours in the fall and 14 credit hours in the spring (Georgia State College of Law). Students can receive certificates in the following areas: advocacy, entertainment/sports & media law, environmental & land use law, health law, intellectual property law, legal analytics & innovation, and public interest law & policy.

The median GPA for the 2021-22 entering class is 3.55 and the median LSAT score was 160. The student-faculty ratio is 6.34 to 1 (Georgia State College of Law). The law school enrollment for the 2014-2015 academic year was 659 students. In 2017, there were 617 students enrolled. GSU has a relatively large number of part-time students, 34% of the 2017 student population. Georgia State enrolls nearly 30% racial/ethnic minorities, and just over 50% of the students are female. This thesis includes response data from 29 students at Georgia State University that attended law school in both the old and new buildings.

American University

The university is located in Washington D.C. The Washington College of Law at American University (AUWCL) is available for both full-time and part-time law students. Students receive their Juris Doctor (JD) after completion of 86 semester hours with a GPA of 2.0 or better, residence for at least three academic years, and a faculty recommendation (American University Washington College of Law). The 1 L curriculum is composed of courses to introduce the essential areas of law. Classroom participation is an integral part of WCL's method of instruction. The areas of study are the following: advocacy, arbitration & dispute resolution, business law, corporate compliance/governance & ethics, criminal justice, environmental & energy law, gender & the law, health law, human rights & humanitarian law, immigration law, intellectual property, international & comparative law, international trade & investment law, law & government, public interest law, and technology law.

The enrollment in the Washington College of Law at American University is the largest of the three schools, encompassing 1277 students in 2017. The average median

GPA is 3.56 and LSAT score is 161 (American University Washington College of Law). Washington College of Law student enrollment is made up of approximately 62% women and 19% part-time students. This thesis includes response data from 56 student at American University that attended law school in both the old and new buildings.

The Research Team

The architectural firm that designed the three new law school buildings approached Dr. Hunley and Dr. Schaller to initiate the study. Representatives from the firm worked closely with Dr. Hunley and Dr. Schaller to design and implement the study. Based on the concept of grounded theory, researchers acknowledge their role in the research by interpreting the data from the viewpoints expressed by the participants in the study. Researchers avoided preconceived codes of the data to allow accurate data results to present themselves (Charamz, 2014). The research team consisted of Dr. Hunley and Dr. Schaller who have professional experience and training in conducting qualitative research. The investigators have conducted previous qualitative and quantitative research and have worked in the higher education settings.

Instrument

The survey (Appendix A) used in this study was adapted from surveys used for past research (Schaller & Hunley, 2008). The survey was adjusted slightly to accommodate the three different settings and by writing the survey in past tense to reflect previous experiences in the old law building and present tense for the current law building. The survey was validated based on a previous research study performed by the researchers and existing surveys in the literature (Schaller & Hunley, 2008). The survey

was validated through triangulation data collection of observations, surveys, and interviews of students and faculty.

The surveys were sent during the first year of the study while students were still in the old law school buildings. Surveys were sent again during the first and second year that they occupied the new buildings. The student survey (Appendix A) was anonymous and was sent electronically. The student survey was expected to take 15 minutes to complete via Survey Monkey, an online survey generating site. The survey consisted of both open ended and Likert scale type questions regarding their: (1) demographic information; (2) time spent in the buildings inside and out of class; (3) opinions regarding factors that are important to their learning; (4) activities in class at both buildings; (5) opinions about how well the building spaces facilitate learning and collaboration; (6) preferences for the best spaces to study and collaborate; and (7) comparison of the old law school building to the new.

Procedures

The Institutional Review Boards (IRB) at the University of Dayton and the three law schools approved the study and annually renewed it throughout data collection. Students at the three law buildings completed a survey via email, at multiple points during the 3-year study. The survey results were compiled in excel files per school and year for the student responses. The investigator selected the survey questions that aligned with the research questions and the irrelevant questions from the survey were eliminated. Both primary and Trystan Norman, secondary researcher, were trained in coding in a Research Methods course. Additionally, the primary researcher trained the secondary researcher regarding the information specific to this study.

Data Analysis

Once the survey questions were selected based on relevance to the thesis topic, the questions were separated into quantitative and qualitative sections. The primary and secondary researchers independently conducted descriptive analyses of quantitative survey responses. One sample *t*-tests were conducted using an online SPSS statistical tool software. One sample *t*-tests compares the mean of a single sample to a predetermined value to determine whether there is a greater or less than significance to that value. Results from the student responses on the Likert Scale questions were added into the SPSS software where one sample t-tests were conducted. The predetermined value utilized when conducting the one sample *t*-tests was 3, which is the neutral response. The results of the one sample *t*-test were utilized to determine whether there was a significant response regarding the students' perceptions in the old and new building when compared.

The primary and secondary researchers also independently used content analysis to determine patterns or trends among the answers by grouping content into words, concepts and themes as recommended by Schreier (2012). In phase 1 of coding, we used a line-by-line procedure to analyze the qualitative data collected from student surveys. In phase 2 of coding, responses that were coded the phase 1 resulted into patterns and trends.

Triangulation of research coding provides validity and additional perspectives to the data (Carter et al., 2014). In phase 3, after both the primary and secondary researchers completed their phase 1 and 2 analyses, they compared patterns and themes to look for similarities and discrepancies to assist in the validation of the interpretations. They came to agreement in the cases of discrepancies through a discussion and follow up review of

the survey responses. When needed, the primary and secondary researcher recoded the responses to resolve any differences. In the final phase, the patterns were further analyzed to generate answers to the research questions.

CHAPTER IV

RESULTS

The results are presented according to each of the research questions that were described in Chapter III. Descriptive statistics were used to analyze the quantitative data within Microsoft Excel and charts were created using SPSS. The results of this study can serve as a baseline for future studies examining the effects of the physical space on law students. Tables and figures are provided to illustrate results reported in this chapter.

Research Question 1

What were students' perceptions of their ability to collaborate with other students or work in groups in the old building versus the new building? Selected questions from the student response survey (Appendix A) on the student survey aimed to answer this research question. Students responded to the following Likert-scale questions regarding the impact of the new physical space on their ability to collaborate with other students or work in groups. Questions explored how students valued collaboration and the subsequent questions concerned their reflections on the differences between the old and the new buildings. The quantitative results were analyzed using one-sample t-tests to compare the results from each of the three universities to the neutral mean of the Likert scale. Qualitative analyses provide a more in-depth view of student perceptions.

How important to your learning was discussion with other students (1 = not important – 5 = extremely important)? There was a significant difference (t (32) = 2.58, $p < .05$ between the neutral response (3) and the Georgia State University mean (mean=3.52, SD=1.15). This indicated that at Georgia State, the students viewed

discussion with other students as important to their learning (d = .45, moderate effect). The one-sample t-test for the University of Utah and American University were not significantly different.

How important is engaging with other students outside of class (1 = not important – 5 = extremely important)? There was a significant difference t (28) =3.92, p < .001, between the neutral response (3) and the Georgia State University mean (mean=3.83, SD=1.14). This indicated that at Georgia State, the students viewed engaging with other students outside of class as important to their learning (d = .73, moderately large). The one-sample t-test for the University of Utah and American University were not significantly different.

What is the average amount of time you spent in class engaging and collaborating with fellow students in the new building (1 = almost never – 5 = almost always)? There was quite a range of times with approximate means in all three buildings of 2.96 and large standard deviations between 1.02 and 1.13. There was no conclusion drawn from these results.

What is the average amount of time you spent in class engaging and collaborating with fellow students in the old building (1 = almost never – 5 = almost always)? There was quite a range of standard deviations between 1.04 and 1.16. There was no conclusion drawn from these results.

How well did the old building non-classroom spaces facilitate your discussions with other students (1 = not well – 5 = extremely well)? The results indicated that there was a significant difference t (24) = 6.35, p < .001 between the neutral response (3) and the University of Utah mean (mean = 4.12, SD = .88). This

indicated that at the University of Utah, the students thought that the classroom spaces in the old building facilitated discussions with other students well (d = 1.27, large effect). The one-sample t-test for Georgia State and American University were not significantly different.

How well did the new building's non-classroom spaces facilitate your discussions with other students (1 = not well – 5 = extremely well)? There were significant differences between the neutral response (3) and the means for the University of Utah (t (46) = 3.33, p = .002), Georgia State (t (28) = 6.60, p < .001) and American University (t (80) = 8.62, p < .001). The effects were moderate for the University of Utah (d = .49) and Georgia State (d = .34), and large for American University (d = .96). The results indicated that all three of the non-classroom spaces in the new buildings facilitated discussions with other students very well: University of Utah (mean= 4.12, SD = .88) Georgia State's (mean= 4.12, SD = .88) and American University's (mean= 3.96, SD = 1.00)

How well did non-classroom spaces facilitate discussions with other students? Figure 1 compared the results from the old and the new buildings for each university law school. American University and Georgia State scores show a marked increase in the ability of the non-classroom spaces in new buildings to facilitate discussions with other students. Although the results for the University of Utah were above the neutral score of 3 in both the old and the new buildings, the ratings decreased in the new building.

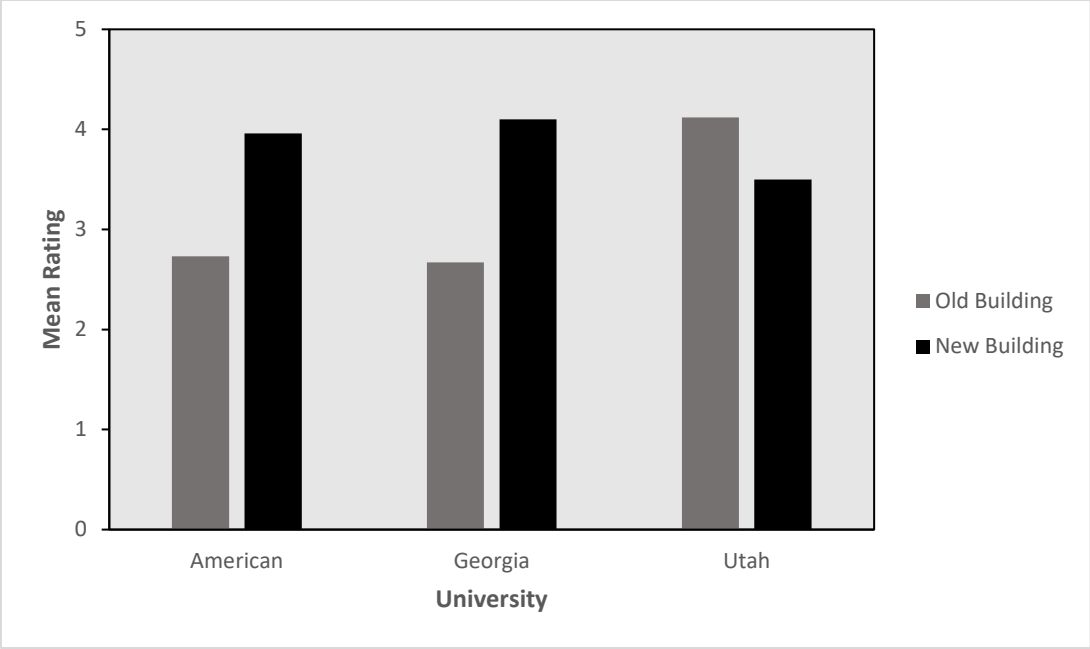

Figure 1. How well did non-classroom spaces facilitate discussions with other students?

In sum, students at Georgia State University Law School viewed discussions with other students and engaging with students outside of class as important to their learning while students at American University and the University of Utah had neutral opinions about this aspect. Students at American University and Georgia State rated their new buildings higher in facilitating their discussions with other students. Although both the new and the old buildings at the University of Utah facilitated these types of discussions, the ratings decreased in the new building.

Qualitative Analysis. The following qualitative common topics emerged from the three universities regarding the importance of peer collaboration to their learning and provide a more in depth understanding of the quantitative results. Students were also asked to identify the best place to engage in group discussion outside of the classroom was in the new building. From the responses of all three schools, common topics emerged such as the “study rooms”, “conference rooms”, “common areas”, “cafés”, and the “student lounge”. Outside of the classroom, a common place that students indicated they

collaborate with peers was the library. A student indicated that the new library is "easier to collaborate in" and another student indicated that "they had better meeting rooms". In contrast, one student indicated that the new library space created "less of a sense of community" due to lack of space.

A few students indicated that the new classroom spaces made it "easier to collaborate and communicate" with peers and faculty. Some indicated that the new rooms were "conductive to productivity" and "had more space" when attempting to collaborate with peers.

Research Question 2

What were students' perceptions of their ability to collaborate with faculty in the old building versus the new building? Selected questions on the student survey aimed to answer this research question. Students responded to the following Likert-scale questions regarding the impact of the new physical space on their ability to collaborate with faculty. The results were analyzed using one-sample t-tests to compare the results from each of the three universities to the neutral response on the Likert scale, followed by qualitative analyses of the survey responses.

How important to your learning was discussion with faculty (1 = not important – 5 = extremely important)? The results indicated that there was a significant difference (t (46) = 6.18, $p < .001$ between the neutral response (3) and the University of Utah (mean=3.95, SD=1.06). This indicated that at the University of Utah, the students viewed discussion with faculty as important to their learning (d = .9, large effect). There was a significant difference (t (32) = 6.53, $p < .001$ between the neutral response (3) and the Georgia State University mean (4.06). This indicated that at Georgia

State, the students viewed discussion with faculty as important to their learning (d = .93, large effect). The results indicated that there was a significant difference (t (102) = 8.3, p < .001 between the neutral response (3) and the American University (mean=3.95, SD=1.07). This indicated that at American University, the students viewed discussion with faculty as important to their learning (d = .821, large effect). The results indicated that students at all three universities believe discussions with faulty inside of class are important to their learning.

How important is engaging with other faculty outside of class (1 = not important – 5 = extremely important)? There was quite a range of large standard deviations between .97 and 1.2. There was no conclusion drawn from these results.

What is the average amount of time you spent in class engaging and collaborating with faculty in the new building (1 = almost never – 5 = almost always)? There was quite a range of large standard deviations between .83 and 1.05. There was no conclusion drawn from these results.

What is the average amount of time you spent in class engaging and collaborating with faculty in the old building (1 = almost never – 5 = almost always)? The results indicated that there was a significant difference t (21) = -2.1, p < .05 between the neutral response (3) and Georgia State University mean (mean = 2.5, SD = 1.12). This indicated that at Georgia State University, the students spent significantly less time engaging with faculty in the old building (d = -.47, moderate effect). The one-sample t-test for University of Utah and American University were not significantly different.

How well did the old building non-classroom spaces facilitate your discussions with faculty (1 = not well – 5 = extremely well)? The results indicated that there was a significant difference t (17) = -2.2, $p < .05$ between the neutral response (3) and Georgia State University mean (mean = 2.53, SD = .87). This indicated that at Georgia State University, the students thought that the classroom spaces in the old building did not facilitate discussions with faculty well (d = -.54, moderate effect). The one-sample t-test for University of Utah and American University were not significantly different.

How well did the new building's non-classroom spaces facilitate your discussions with faculty (1 = not well – 5 = extremely well)? There were significant differences between the neutral response (3) and the means for the University of Utah (t (47) = 3.6, p = <.001), Georgia State (t (28) = 5.3, $p < .001$) and American University (t (81) = 11.2, $p < .001$). The effects were moderate for the University of Utah (d = .53) and large for Georgia State (d = .99) and American University (d = 1.24). The results indicated that all three of the non-classroom spaces in the new buildings facilitated discussions with faulty very well: University of Utah (mean= 3.6, SD = 1.07) Georgia State's (mean=3.8, SD = .78) and American University's (mean= 4.01, SD = .81) The results indicated that the new buildings at all three universities facilitated discussions with faculty well.

How well did non-classroom spaces facilitate discussions with faculty? Figure 2 compares the results from the old and the new buildings for each university law school. All three law school's scores show a marked increase in the ability of the non-classroom spaces in new buildings to facilitate discussions with faculty.

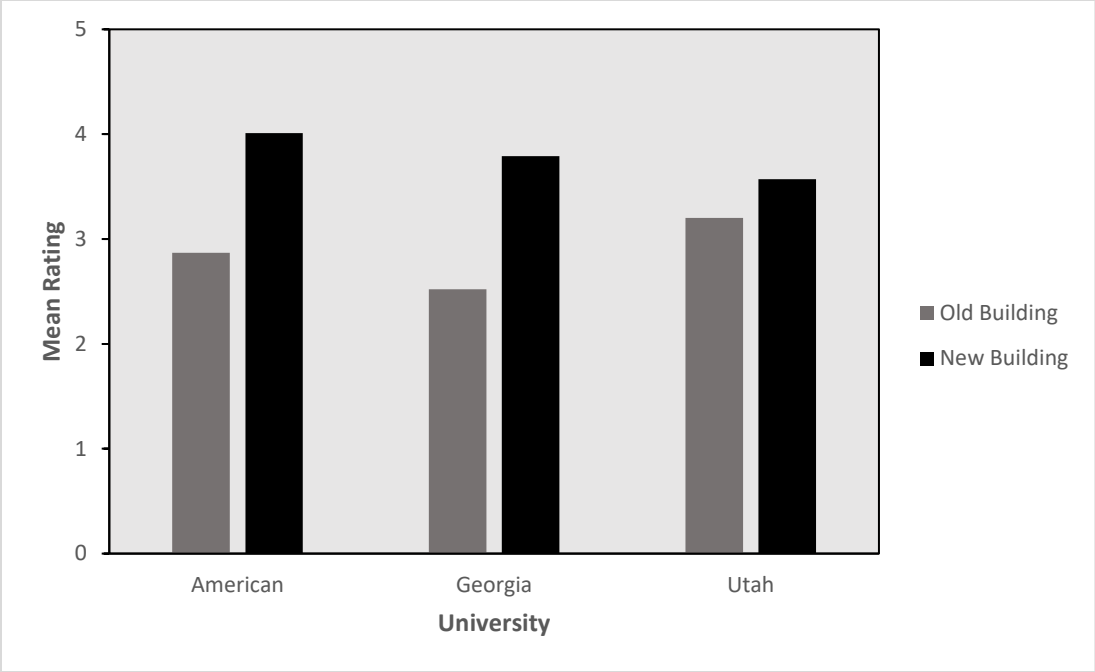

Figure 2. How well did non-classroom spaces facilitate discussions with faculty?

In sum, students at all three Law Schools viewed discussions with faculty inside of class as important to their learning. All three schools had a neutral response regarding the importance of engaging with faculty outside of the classroom. All three law schools found that the new non-classroom spaces facilitate discussion and collaboration with faculty more than the old law school buildings.

Qualitative Analysis. The following qualitative common topics emerged from the three universities regarding the importance of faculty collaboration to their learning and provide a more in depth understanding of the quantitative results. Students were also asked to identify the best place to engage in discussion outside of the classroom with faculty was in the new building. From the responses of all three schools, common topics emerged such as “their office”, “seminar room”, “atrium”, and the “faculty lounge”.

A few students indicated that the new classroom spaces made it “easier to collaborate and communicate” with peers and faculty. Specifically, they indicated that the

new law school provided “free access to the professor”, “had natural light which makes it easier to pay attention”, and “had more space” which allowed for more opportunities to collaborate with faculty members.

CHAPTER V

DISCUSSION

Review of Purpose and Major Findings

The current study examined the effect that the physical space of the three new law schools had on the students' perceptions of their ability to collaborate with faculty and peers. The new law schools were designed with research-based elements in mind. This study investigated the impact of research-based law school buildings designed to facilitate collaboration.

Results of this study found that Georgia State University students viewed discussion with other students as important to their learning both in and outside of class. However, University of Utah and American University did not have a significant difference from the neutral response regarding the importance of peer engagement in and outside of the classroom. There were no conclusions drawn from the average amount of time spent in class engaging and collaborating with peers in the old or new building for any of the three universities due to large standard deviations in responses. University of Utah indicated a significant response for the old and new buildings' classroom space to facilitate discussion with other students. Georgia State University and American University indicated a greater significant response for the new building classroom spaces to facilitate discussion with peers well when compared to the old building.

The results of this study involving collaboration with faculty concluded that American University students viewed discussion with faculty as important to their learning. There were no results concluded from the average amount of time spent engaging with faculty or how important engaging with faculty members outside of class

was to student perception. Results also indicated that at Georgia State University, the students spent significantly less time engaging with faculty in the old building and that classroom spaces in the old building did not facilitate discussion with faculty well. Results from the new building indicated that all three of the non-classroom spaces in the new buildings facilitated discussions with faulty very well.

Previous studies have shown that student responses to the physical space in schools are influenced by the elements and intentions of the layout: interaction, design, cooperation, and collaboration (de Borba et al., 2020). Certain elements such as the size of the space impacts a student's ability to engage and collaborate with peers (Young et al.,2017). Additionally, student group work can help students form relations with fellow peers and learn the material in different ways. The flexibility of a room allows for adaptation during lectures and small group work (Rands & Gansemer-Topof, 2017).

In a study conducted by Hunley and Schaller (2009), they found that students were more comfortable in a space that was open, flexible, and appealing to student emotions. Additionally, this study found that students were most engaged in the class when encouraged to build interpersonal relations (Hunley & Schaller, 2009). Conversely, when students were in a room with poor air circulation, uncomfortable temperatures, distractions, and noninteractive practices, they were disengaged. The current research expanded the earlier research by Hunley and Schaller, and sought to highlight the change in student perceptions of the effect of the physical space on their ability to collaborate with faculty and peers.

Interpretation of Findings

The results of this study corroborated previous research that reported a link between the physical space and student ability to collaborate with peers and faculty (Crosnoe et al.,2004, Reyser et al., 2008). In fact, the results of this study revealed that students from Georgia State University viewed discussion with other students as important to their learning. Georgia State University students also indicated that engaging with other students outside of class is important to their learning. However, the other two universities did not indicate discussion with peers as being significantly different than the neutral response. While surprising, there could be multiple explanations for this unexpected result. Previous research has shown that student engagement with the classmates and the instructor is a significant predictor of success (Masika & Jones, 2016). Therefore, the disconnect could be due to limitations of this study that will be discussed further in this section.

When examining how well the old building non-classroom spaces facilitated discussion with other students, University of Utah students indicated that the old building facilitated discussions well. In contrast, the respondents from other two universities did not perceive that the old building facilitated discussion with peers well in non-classroom spaces. However, when asked how well the new building's non-classroom spaces facilitated discussion with other students, all three universities indicated of the non-classroom spaces in the new buildings facilitated discussions with other students very well. These results reveal that when the physical space was designed to facilitate discussion more effectively in the new building, students recognized this benefit. These results support the hypothesis that well designed physical space influences student

perception of their ability to collaborate with peers. A comparison of student answers regarding how well the non-classroom spaces facilitated discussion with other students in the old versus the new building resulted in American University and Georgia State scores show a marked increase in the ability of the non-classroom spaces in new buildings to facilitate discussions with other students. While the University of Utah ratings decreased in the new building, the results still indicated an above neutral score.

Students from all three universities indicated that discussion with faculty inside of the class is important to their learning. This finding supports the importance of interaction with faculty members to student learning. Faculty instruction and support is the primary factor for student engagement (de Borba et al., 2020). Student engagement in the classroom can vary based on the environment created by the teacher and the learning opportunities they implement in the classroom (Nasir et al., 2011). Students at Georgia State University indicated that in the old building they spent significantly less time engaging with faculty in class and in non-classroom spaces than in the new building. In contrast, respondents in all three universities indicated that the new building's non-classroom spaces facilitated discussion with faculty well. These results indicate that all three law schools found that the new non-classroom spaces facilitate discussion and collaboration with faculty more than the old law school buildings, which is a limitation to online students. The results of this study supports the researcher's hypothesis that the well-designed physical space effects student perceptions of their ability to collaborate with faculty members.

Limitations

A limitation of this study included the limited access to students involved in the study as the data was previously collected and additional questions were unable to be examined. Additionally, there was a limitation of access to all data files such as the student interviews that were conducted during the collection of data in 2015-2017 when the research was conducted. Lastly, there is not a vast amount of research on student perceptions of the effect of physical space when comparing an old and new building which does not allow for a comparison in data from this study to another of similar nature. More conclusions could be drawn if there were additional data for comparison. More research would need to take place in order to determine if there is a significant difference between collaboration and the effect of the physical space. Additionally, the response rate was unable to be calculated for the surveys as there is no record of how many student surveys were sent out originally.

Lastly, this research was completed using only the data from three law school universities in the United States in the years 2015-2017. This means that the results of this study may not be generalizable to other law school universities or universities in general. However, generalizability was somewhat increased by the fact that the three schools were located in three distinctly different geographic areas and represented different types of graduate students. In order to determine if the findings generalize further, it would be important to broaden the sample to other universities.

Implications for Learning Space Design

Based on the current finding that students' perception of the effect of physical space has on their ability to collaborate with peers and faculty, it is prudent to plan for the

elements of campus spaces. Stakeholders need to advocate for conductive layouts to encourage student engagement and motivation because those elements are also associated with academic productivity (de Borba et al., 2020). Results from this study indicated the importance of non-classroom spaces when collaborating with peers and faculty members. As a result, it is essential to ensure the development of these spaces on campus.

Future Research

This study focused on examining the effect the physical space had on student perception of their ability to collaborate with faculty and peers. Future research engaging different participants and types of facilities (e.g., undergraduate, K-12 buildings) could be conducted to generalize the findings regarding the relationship between the physical space and student collaboration with peers and faculty. This would encourage k-12 and undergraduate learning spaces to be designed for collaboration with peers and faculty.

In addition to widening the scope of the sample, future studies should aim to look at the effects over time. This study examined the comparison of student perceptions from the old and new building but did not examine the change over time as students became more acclimated to the new law school buildings.

Conclusion

This study offered an analysis of the perceptions of student occupants across three new law school buildings compared to the older building that the new buildings replaced. The new buildings were designed to improve socialization and interpersonal relationships with faculty and peers. Students believed that discussions with faculty inside of class is important to their learning. Respondents from one university indicated they spent significantly less time engaging with faculty in their old building than in the new law

school building. Overall, results from all three universities indicated that the new non-classroom spaces facilitated discussion and collaboration with faculty more than the old law school buildings.

Students from only one of the three universities viewed engaging with other students outside of class in non-classroom spaces as important to their learning. Students from two of the three universities rated their new buildings higher for being able to facilitate discussions with other students. Additionally, results from all three universities indicated that the new buildings overall facilitated discussion with other students very well.

These results indicated that student perceptions of the physical space in the new buildings facilitated collaboration with both peers and faculty more effectively than the old buildings. This will likely lead to informed decision making when developing physical spaces that positively impact the students' ability to collaborate with peers and faculty members.

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APPENDIX

Sample Student Survey

1. **What is your class status (Select one below):**
    A. I am a first-year law student
    B. I am a second-year law student
    C. I am a third-year law student
    D. I am a fourth-year law student
    E. LLM student
    F. SJD student
2. **Are you a part-time student or full-time student? (Select one below)**
    A. Part-time day
    B. Part-time evening
    C. Full-time student
3. **What year did you begin taking law classes at _____ (insert law school name)?**
    A. Open ended response
4. **Did you attend _____ (insert school) in both the old and the new law school buildings? (Select one)**
    A. Yes
    B. No
5. **How important to your learning in class are each of the following: (Likert scale: not important-very important)**
    A. discussion with other students in class
    B. discussion with the instructor in class
6. **Please rate the average amount of time that you spend in class this year doing the following. (Likert scale: Almost Never-Almost Always)**
    A. Engaging in conversation with other students
    B. Engaging in conversation with the instructor
    C. Other (please specify)
7. **If you were a student in the law school last year, please rate the average amount of time that you spent in class doing the following in the OLD law school (Likert scale: Almost Never-Almost Always)**
    A. Engaging in conversation with the instructor
    B. Engaging in conversation with other students
8. **If you were a student in the law school last year, please describe how the old classrooms differ from or are the same as the new classrooms.**
    A. Open ended response
9. **How important to your learning outside of class are each of the following: (Likert scale: Not important- Extremely Well or Very Important)**
    A. discussion with/collaborating with other students outside of class
    B. discussion with/collaborating with faculty outside of class
10. **How well do the new law school non-classroom spaces facilitate the following? (Likert scale: Not important- Extremely Well or Very Important)**
    A. discussion with/collaborating with other students outside of class

B. discussion with/collaborating with faculty outside of class
C. Other (please specify)

11. If you attended the law school last year, how well did the OLD law school non-classroom spaces facilitate the following? (Likert scale: Not important-Extremely Well or Very Important)

A. discussion with/collaborating with other students outside of class
B. discussion with/collaborating with faculty outside of class

12. Where is the best place in the law school outside of class to engage in group discussion? Please explain your choice.

A. Open ended response

13. Overall, how would you compare the new law school building to the old law school building?

A. Open ended response