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BM-02 Spartanburg Methodist College: Evaluation of Classroom Space Efficiency

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Abstract

In 2019, Spartanburg Methodist College converted from a two-year to a four-year institution. As the college grows, more classrooms are needed to satisfy the course requirements for students. A research study was conducted to answer the following question: What is the best option to implement additional class times/locations for traditional undergraduate students for both student and faculty. Through out the semester, the student researchers analyzed various types of data address the problems of space and later class time allocation opportunities. An evaluation of the last eight semesters class location and times were conducted to identify any gaps in times and to verify space distribution. The analysis that was performed to find additional times and locations that classrooms would be available.

Upon conclusion, it was determined that class times and locations were not being used efficiently. The data that was collected was divided into different sections. These sections being which are the best times for working students, online classes, in-person retention, and class size. According to the data gathered, students have time in the afternoons for classes, but due to their responsibilities and schedules, online classed were preferred.

Literature Review

Best Class Times for Working Student

Working a part-time or full-time job while going to college can be difficult. Students usually experience issues balancing schedules for both work and college class times. According to an article in "The Atlantic," "nearly 14 million Americans working while taking classes. They make up about 70 to 80 percent of college students, and nearly 10 percent of the overall labor force." (White, 2015, 1). Students that both work and attend school tend to develop stress and this in turn increases mental health pressure. An article by Penny Loretto supports this by stating the following, "Creating a work-life balance is even more important during times of stress. It is a known fact that a high incidence of illnesses occurs in college during periods when students are under additional pressure…" (Loretto, 2019, 1). For students who are not able to work fewer hours, it is more convenient to take online classes. According to Research, online classes can work better for learning the material without having to sacrifice your work hours. (Landry, 2019, 1).

Online Class

Many recent studies have focused on the problem of retention for online students. In the past couple of years, due to the pandemic, some of the reasons noted for low data retention are family emergencies and change in financial situations. These reasons led to an increase in demand for online courses. However, there was also an increase of complaints regarding the content and quality of the courses. According to research, "...29% of students dropped out." (Sorensen, 2017, 1); however, many students may re-enroll later when things slow down. Dropping out of online courses has been associated with factors such as students' private lives, course factors, and environmental factors. Students' private lives involve personal or family emergencies, mental breaks, and issues with the course, such as the course layout, support, and interactions. Studies show, "Students taking online and on campus classes [were] 1.5 times more likely to complete a degree" (Walve & Ozogul ,2019, 2). Despite the acceptance of online courses, the lack of acceptance of technology regarding retention suggests the incorporation of visual assistance like animated images and sounds to encourage the prolonged use of the system. Visual aids also offer colorful programs and present quality information. These changes can lead to an increase in positive effects on the student. (Mondini & Scarpin, 2018). High satisfaction equals less frustration and a lower probability of the students dropping either the course or the entire semester. Other specific studies on online learning amid the Covid-19 pandemic state that higher education institutions consider student satisfaction to be one of the main factors determining online learning quality, linked to interactions, student-student, student-instructor, and student-content. (Herman & Taoy, 2021).

In Person Retention

Since the start of the pandemic in March 2020, many classes look different than how they did before the pandemic. Before the pandemic, desks were close to other students, and you did not have to wear a mask to school. A lot has changed and now you must wear a mask and some schools are still under a mask mandate for their students. According to an article written by T. Q. Tan in 2020, "As the COVID-19 pandemic continues to surge in many states around the United States and as the incidence of disease is significantly increasing in the 10-to-18-year-old population" (Tan, 2020, pg.1). Studies show that teachers are especially important to the success of students, but the content has been proven to not be of a high enough quality. (Liu, M. 2013). Through research, it has come to the light that there is not really any difference between the effectiveness and success of classes regardless of if they are online or in person. Success of the students varies based on the needs and motivations of each individual and does not relate to the location and platform the classes take place. (Diaz, & Entonado, 2009) When the pandemic hit, many students were forced to switch to online school for an extended period. In turn, most of the students fell behind in their learning. Many students need more individual attention from professors to be successful. In their writing, Wyner states, "Once students began programs, colleges could plan to staff the specific number of courses in each block through the end of that program" (Wyner, 2012, pg.2).

Class Size

Research shows that class size matters in a few diverse ways such as comfortability, retention, and personalization. (Zubizarreta, 2008, 147). As far as online classes, studies have shown that larger classes are more efficient in immediate recall of information, but smaller classes are better for retention, problem solving, and critical thinking. In his writing, Zubizarreta discusses the pros and cons of class size including the skill development for efficiently solving real world problems and the long-term memorization and retention of the material being taught in classes. A vast majority of the articles that were used for research have shown that smaller class size is better suited for long-term memory of information and a better understanding of the information presented. An advantage of larger class sizes is having less of a budget needed for extra teachers, class times and room use. One article states that as classes get smaller, "learning level rises, while learning that moves beyond factual knowledge to the development of students' abilities to exercise critical thinking and judgment, often in the face of complexity, calls for smaller student–faculty ratios." (Taft, Kesten, 2019, 4).

Class Allocation

Class allocation for students will be a big deciding factor on which classes should be added to the course schedule during the afternoon times, if SMC were to implement that new option. The biggest grade level for SMC every year is their freshman class, so looking at which classes freshman in South Carolina are taking is a good first step in seeking what classes should be offered. The best numbers available are ones found in the State Library referencing the first-year courses taken by college students from the previous school year's high school graduating class. In the 2018-19, the last full school year pre-covid, 69.5% of high school graduates, roughly 34,173 students, went into their freshman year of college. The main classes that were outliers in the data were English and Language Arts (16,044), Mathematics and Computer Science (15,654), Natural Science (15,270), Social Science and Social Studies (17,932). Another highly represented group with an allocation of 21,087 was Other Subjects, which are classified as majority electives. The next highest-class allocation is roughly half of the five previously stated alignments. (SC State DOE, 2019).

Underrepresented College Students

There are several factors to consider with underrepresented college students, both in and outside of the classroom. Before diving into these factors and how they correlate with academic performance, let us first define what is an underrepresented group in college. First generation students, low-income, LGBTQ+, and minorities make up the overall underrepresented group in a college setting (Holley, 2022, 1). One's race can have a significant impact on one's experience as a student. Students at predominantly white schools could potentially feel alienated and intimidated to attend school events or join clubs (Ju et al., 2020). Whereas most HBCUs have an increased desire to collaborate with one another because of the ethnic culture instilled within their program(s). Aspects of subjective experiences, experiences of racism and feeling of welcome are all determinants of how comfortable an underrepresented student can be. Interaction with; students, peers, faculty, financial stress, and drive were all considered when studying the issues of recruitment and retention (Diefenbeck et al., 2016). Some studies on the experiences of traditionally under-represented students have reported correlations between reflection of racial, cultural, gender and other forms of student diversity are key indicators of student success (Simmons & Chau, 2021).

Ellis Hall

	FA19	SP20	FA20	SP21	FA21	SP22	FA22	SP23
M/W/F 8 a.m.	78%	78%	67%	78%	67%	33%	33%	33%
M/W/F 9 a.m.	11%	56%	33%	22%	22%	33%	100%	100%
M/W/F 10 a.m.	0%	78%	22%	22%	0%	11%	89%	67%
M/W/F 11 a.m.	33%	100%	33%	89%	22%	78%	89%	0%
M/W/F 12 p.m.	22%	33%	56%	11%	33%	11%	10%	89%
M/W/F 1 p.m.	22%	44%	33%	33%	33%	33%	67%	78%
M/W/F 2 p.m.	22%	33%	67%	67%	22%	22%	67%	11%
M/W/F 3 p.m.	78%	89%	89%	89%	89%	89%		22%
T/R 8 a.m.	56%	44%	0%	56%	33%	44%	56%	33%
T/R 9:25 a.m.	0%	33%	33%	22%	11%	22%	78%	67%
T/R 10:50a.m.	22%	11%	33%	33%	11%	22%	89%	67%
T/R 12:15 p.m	0%	56%	56%	11%	22%	11%	67%	78%
T/R 1:40 p.m.	11%	33%	67%	44%	33%	33%	89%	67%
T/R 3:05 p.m.	89%	100%	100%	89%	67%	78%	11%	89%

Figure 1. Chart representing classroom space usage for Ellis Hall from the last eight semesters.

Walker

	FA19	SP20	FA20	SP21	FA21	SP22	FA 22	SP23
MWF 8	33%	67%	33%	89%	44%	56%	56%	56%
MWF 9	44%	44%	22%	33%	44%	56%	67%	56%
MWF 10	22%	33%	0%	44%	22%	33%	67%	67%
MWF 11	0%	78%	0%	100%	44%	100%	67%	0%
MWF 12	22%	22%	22%	44%	33%	33%	67%	67%
MWF 1	67%	44%	11%	67%	56%	56%	33%	56%
MWF 2	67%	67%	56%	89%	67%	89%	56%	33%
MWF 3	89%	78%	78%	100%	100%	100%		0%
T/R 8 a.m.	44%	56%	56%	67%	67%	78%	33%	56%
T/R 9:25 a.m.	11%	22%	0%	67%	22%	11%	0%	0%
T/R 10:50 a.m.	11%	11%	0%	44%	22%	11%	89%	0%
T/R 12:15 p.m.	33%	44%	22%	33%	44%	56%	78%	78%
T/R 1:40 p.m.	44%	78%	56%	78%	89%	78%	33%	78%
T/R 3:05 p.m.	78%	89%	78%	100%	100%	100%	44%	33%

Fig 2. Chart representing classroom space usage for Walker Hall from the last eight semesters.

Montgomery

	FA19	SP20	FA20	SP21	FA21	SP22	FA22	SP23
M/W/F 8 a.m.	70%	80%	40%	70%	60%	50%	20%	10%
M/W/F 9 a.m.	40%	10%	20%	50%	50%	40%	50%	60%
M/W/F 10 a.m.	40%	30%	30%	50%	50%	40%	40%	50%
M/W/F 11 a.m.	40%	90%	0%	80%	80%	50%	90%	30%
M/W/F 12 p.m.	30%	30%	40%	60%	40%	50%	60%	50%
M/W/F 1 p.m.	30%	20%	40%	80%	50%	50%	30%	40%
M/W/F 2 p.m.	20%	50%	40%	70%	40%	50%	60%	20%
M/W/F 3 p.m.	60%	100%	60%	100%	100%	100%		
T/R 8 a.m.	40%	60%	60%	80%	20%	80%	30%	30%
T/R 9:25 a.m.	10%	30%	40%	40%	50%	70%	80%	40%
T/R 10:50 a.m.	20%	20%	40%	30%	40%	60%	50%	90%
T/R 12:15 p.m.	20%	30%	30%	50%	50%	70%	80%	50%
T/R 1:40 p.m.	40%	40%	30%	90%	30%	40%	10%	50%
T/R 3:05 p.m.	70%	90%	60%	100%	60%	100%	20%	20%

Fig 3. Chart representing classroom space usage for Montgomery Science Building from the last eight semesters.

Design and Methods

This research project utilized both secondary and primary data collection and analysis. Data was collected from the Registrar's Office on class schedules (date, time, location, et al.). Data was provided in paper format and the researchers converted this by hand to excel. The data was then sorted and put into pivot tables to analyze classroom utilization in counts and percentages. See Figures 1-3.

A survey was conducted to determine students' feelings about online versus on-ground classes, and alternate time for classes. Similar questions were asked to faculty members. There were 161 number of student participants and there were 36 number of faculty that participated in the survey. Frequency tables, and crosstabulation tables were analyzed. Correlations tables were developed to determine which variables were significant.

Results

Upon conclusion of the research, it was found 70.8% of students worked during the week and 54% on worked on weekends. Also, it was discovered that 63.8% neutral, disagree, and strongly disagree to having family responsibilities that prevent them from attending class. It was also discovered that 58.8% of students are not willing to participate in classes that take place after 4 p.m. The reasoning given for this is because many students feel that evening classes would interfere with activities outside of school. About 92.3% of students said that they strongly agree, agree, or feel neutral about online courses offered. Meaning that they preferred online courses. This provides students that do have responsibilities outside of school to still have the flexibility to continue classes. Students also showed great interest in the hybrid class model with classes being held in-person and online. This also provides a degree of flexibility that students would find appealing. The majority of respondents (29.3%) answered a four out of five in favor of having a hybrid schedule. A total of 161 responses were gathered with 73.7% of them being freshman and sophomores, while the other 26.3% were juniors and seniors.

In regards to the faculty surveys, a total of 36 responses were collected. Many of the faculty indicated that the they are comfortable with teaching classes in the evening, but they preferred not to do so for safety reasons. Faculty also expressed that they feel student are capable of learning online. The data collected also showed that faculty were interested in teaching asynchronous courses in am online format. Faculty also indicted that they felt that students could learn and retain information as well in an online course as they do in on-ground courses.

Recommendations

Hybrid Classes

During the height of covid, to increase retention, SMC attempted a Hyflex model. The hyflex model consist of having an entirely online course with students having the option to attend in-person classes. Due to the hyflex model, when asked about the hybrid model it appealed more to both faculty and students. The hybrid model consists of an entirely online course load, with the requirement of attending one in-person class a week. Both students and faculty alike showed interest in this class scheduling being the new norm.

Allocation Software

It seems that every year the way classes are allocated changes drastically, from manual documentation to online database reviewal, there aren't any consistencies with the space we have available. A new allocation software could more efficiently place classes and make it easier overall for the user. Most major campuses utilize some form of software with the thought of faculty preference or student comfort in mind.

Campus Safety & Call Boxes

When it comes to later on-ground classes, there is some concern about the safety on campus at night. To sum up, there either needs to be more police presence or conduct regular safety meetings to generate some sense of reassurance about the safety on campus. With that said, more call boxes and repairs on the current broken boxes are needed to further encourage safety on campus. This is especially imperative when it comes to permitting later classes. Another suggestion would be to regularly send out a message stating the locations of current call boxes and an explanation of how it works. Applying for a grant could be used to offset the costs of the recommendations listed above.

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