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Identifying Discrepancies between Student Technology Expectations and Current Resources

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Abstract: *This paper is an investigation into the technologies necessary to support the academic success of students entering college classrooms. Students beginning college bring a variety of technologies to campus and have varied expectations as to what the college will or should provide. This research seeks to discover the technology students own, expect, and need to successfully participate in academic courses. Furthermore, this research seeks to identify relevant gaps and determine the technology resources that are necessary for colleges to fund in order to provide equitable learning for success of students of all socioeconomic levels.*

PURPOSE OF THE STUDY

This study reviews the technologies students are bringing to campus and which technologies they are using on campus and if these technologies are contributing to academic success. Findings of the study will support decisions determining the future funding requests for collegiate technology resources.

Review of Relevant Literature

Educational content providers predict the use of technology in the classroom will continue to increase and provide teachers the opportunity to create lessons that engage students with learning styles best suited to their individual needs (EDUCAUSE, 2018). The role of the teacher is critical in creating meaningful lessons to engage and support all learners (Keneman & Waller, 2016). The role of the institution must be to increase the availability of technology to students of all socioeconomic backgrounds.

Studies of undergraduate students and information technology indicate the student experience can be enhanced and individualized through classroom use of technology. Students have positive opinions toward technology and ownership of digital devices continues to grow (Christopher Brooks, 2016). Conversely, students report a preference for print texts over e-textbooks and spend more time per week reading if the textbook is in a print format (Abuloum, Farah, Kaskaloglu, & Yaakub, 2019).

Research Methodology

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Researchers employed a mixed methods approach allowing for collection of both quantitative and qualitative data. At the beginning of the Fall 2019 semester, researchers conducted an online survey of college students over 19 years of age who were registered in one or more on-campus courses. The survey link was provided via email to 695 college students with one follow-up reminder. The final response rate for the electronic survey was 24.8%.

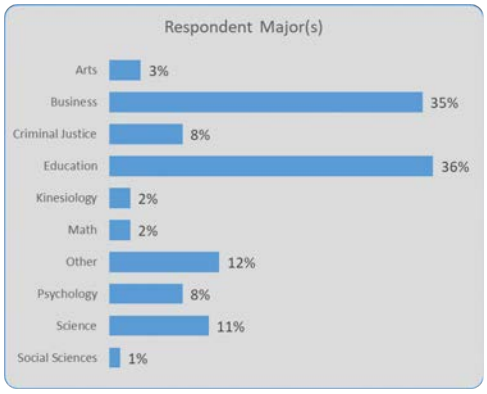
In addition to questions providing quantitative-type data, researchers provided open-ended questions allowing respondents the opportunity to provide feedback on additional technology resources the campus should provide to support student academic needs.

Furthermore, researchers interviewed college admissions staff to discover what information prospective college students are asking about campus technology to also identify any predetermined gaps.

Results/Conclusions

Realizing technology is often connected to financial resources, it is imperative to first understand the student profile. For comparison purposes, data from the Integrated Postsecondary Education Data System (IPEDS) is accessed for the student body. The percentage of students participating in the study who are receiving student loans is 69%, compared to 60% IPEDS comparison group median.

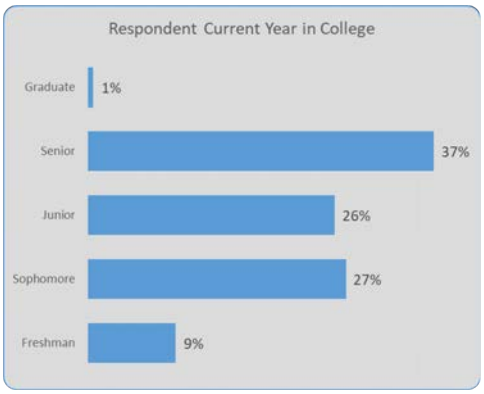
Figure 1. Respondent major



The percentage of first-generation students at the institution is 44%, and the percentage of student receiving Pell Grants is 57%. In comparison, 39% of students receive Pell Grants at a *sister institution*, an institution within our three-college State System, and 34% nationwide (National Center for Education Statistics, 2017-18).

From the employed survey with 173 respondents, Figures 1 and 2 provide insight into some demographic data such as their identified major/area of study and year in college.

Figure 2. Respondent current year in college



Technologies are changing the way today's students viee and interact with the world. Students entering college have digital expectations and anticipate a basic level of campus provided technological support. Figures 3 and 4 provide insight into survey respondents' preconceived notions regarding technology prior to their attending college.

Figure 3. Pre-attendance: Student success in college is dependent upon owning technology

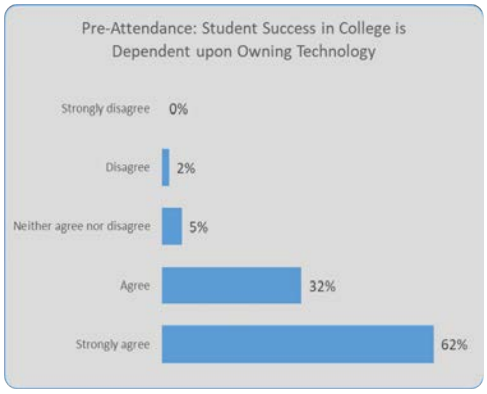
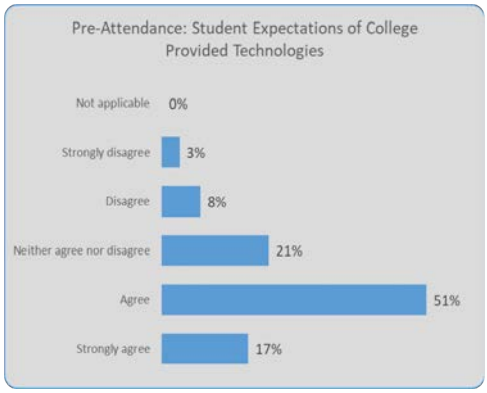


Figure 4. Pre-attendance: Student expectations of college-provided technologies



After being enrolled in college and experiencing higher education expectations, student expectations are seen to slightly shift at a minimal level. In comparison to data from Figure 3, student perceptions post-attendance regarding their success in college being dependent upon owning technology is as follows: Strong disagree- 0%; Disagree- 3%; Neither agree nor disagree- 6%; Agree- 27%; and Strongly agree- 64%.

Based upon survey data, the following technologies were brought to campus by students when entering classes: laptop- 95%; smartphone- 87%; gaming system- 21%; printer- 18%; tablet- 15%; and desktop computer- 3%. More specifically, students also noted they deliberately made purchases of some technology for their college experience: laptop- 84%; printer- 16%; none- 12%; tablet- 10%; smartphone- 3%; and desktop computer- 1%. Furthermore, data shows students strongly prefer to use their own technology (79%) in comparison to the college laptops or computer labs (5%), and a few indicated no preference (16%).

Classroom requirements, or instructor preference, also plays a role in student use of technologies. Students routinely carry the following items to classes with them: smartphone- 97%; laptop- 86%; tablet- 10%; and no technologies- 0%. A small majority of students (51%) indicated they have classes with instructors who ask students to bring technologies to class.

Knowing some students do still choose to utilize college resources, or they may not have another viable option, gauging use of such facilities is also important. The following figures, Figures 5 and 6, demonstrate the availability and usage level of campus computer labs.

Figure 5. Computer lab hours meet student needs

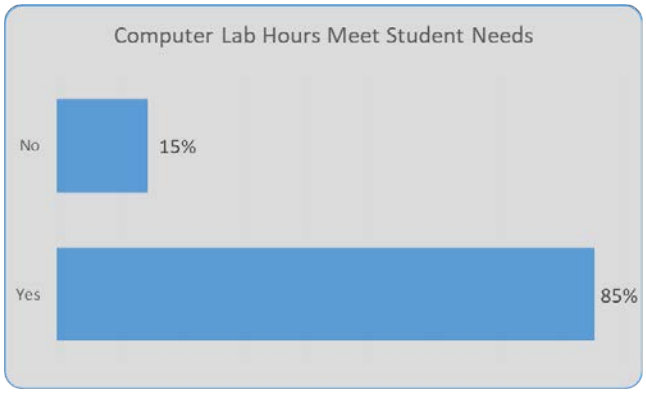
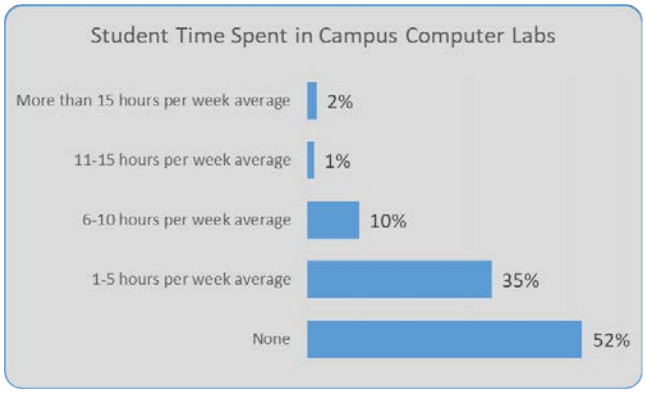


Figure 6. Student time spent in campus computer labs



Themes from open-ended survey questions regarding student desires for additional campus-provided technologies include the following: long-term laptop rentals, additional printers, free professional versions of Microsoft Office software, labs with dual monitors, scanners, and audio/visual equipment.

When prospective students visit campus, Admissions personnel provide an overview or tour of campus technology available and defers specific questions on hardware or software to program faculty. Admissions representatives indicated questions from prospective students regarding technologies on campus center around the type of technology hardware and/or software required to purchase and if there is an expectation to have technologies in the classroom (Cammack, 2018 & Dunekacke, 2018).

Educational Importance of the Study

Literature notes the student experience can be enhanced and individualized through classroom use of technology, and educational content providers predict the use of technology in the classroom will continue to increase and provide teachers the opportunity to create lessons that engage students with pedagogical methods best suited to meet their learning styles. In order for this prediction to become a reality, devices must be owned or readily available for students. Research such as this study helps to identify student expectations and needs at the present time. It is obvious technology funding is a major obstacle for many students; therefore, it is critical for institutions to understand what they could provide in order to fill the gap to support student success. The 2016 ECAR Study of Undergraduate Students and Information Technology states that "students view [technology] critical to their learning experiences" (Brooks, 2016, p.8). While students have positive opinions toward technology and personal ownership of digital devices continues to grow (Brooks, 2016), it may not be at the same pace in order to remain competitive with peer institutions.

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