

Title: A Study of the Effects of Students' Socioeconomic Status on the Online Learning Environment.

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Abstract

This study investigates how socioeconomic status affects online learning, and in turn how students' performance are influenced by accessibility and technology preparedness. Many of the students who are enrolled in online, hybrid, and face-to-face classes at California State University San Marcos come from low-income socioeconomic backgrounds. It is important to understand students' online learning experiences as these can have a negative impact on the learning process. The current study is based on data collected from two (2) surveys conducted among college students enrolled in online and hybrid courses in different disciplines that focused in the following areas: (1) problems with Internet connections and accessing online information, (2) household income, (3) status of the student, and (4) preference for online or face-to-face courses. Results demonstrate that there is a gap in Internet connectivity related to the socioeconomic status of the students.

Keywords: online learning, hybrid courses, socioeconomic status, first generation students

Introduction

The central idea of our work revolves around issues related to Internet connectivity and the implications for online learning. Our study investigates the impact that socioeconomic factors have on our students' online learning, as well as on the preference for face-to-face courses among students. By looking at the impact of these socioeconomic factors and the penchant for either learning platform, we seek to answer our research question, i.e., what is the impact of the low socioeconomic status on Internet connectivity and online learning among college students.

California State University, San Marcos (CSUSM) is a Hispanic Serving Institution (HSI), with thirty-five point eight percent (35.8%) of our students of Hispanic origin. Furthermore, many of our students are the first generation to attend a four-year college, and come from low-income socioeconomic backgrounds. While fifty percent (50%) of graduates are the first ones in their families to earn a bachelor's degree; sixty-seven percent (67%) receive financial aid, including scholarships, grants and loans.

The number of hybrid and online courses offered on our campus has increased since the academic year 2012-2013. Our research was conducted during this increase. The first survey was administered during the semesters of Fall 2012, Spring 2013, and Fall 2013. In this survey, three hundred and ninety-nine (399) students participated. These students were enrolled in a variety of online/hybrid courses offered in different disciplines, specifically, Anthropology, Biology, Chemistry, Communication, Computer Science, General Education, Global Studies, History, Human Development, Literature and Writing, Mathematics, Philosophy, Psychology, Sociology, Spanish, and Women's Studies.

We also conducted another survey in Spring 2014 as a follow up. For this second survey, results were obtained from three hundred and fifty-six (356) students enrolled in a variety of online/hybrid courses offered in different disciplines as stated above.

The results obtained will shed more light into the challenges that limited income students may face when enrolled in online classes. The findings may also help assess and address the needs of these students, which in turn may better serve a diverse student population. Indeed, this information may be used to better serve students by having resources readily available, to offer opportunities to prepare students for computer-mediated instruction and electronic literacy. Thus, these results may be relevant for other institutions of higher education with a similar student population as California State University San Marcos.

Previous work in the area of online learning has considered connectivity issues as they relate to access to resources, student's behaviors, and socioeconomic characteristics such as race and gender. However, previous work has not considered the role of low-socioeconomic income in Internet connectivity. Previous studies based on several major questions are summarized in the following paragraphs. These questions range from access issues, access according to socioeconomic factors, and access according to students' behaviors.

We found very few studies that concentrated on the definition of Internet accessibility and academic success. For instance, in a survey of forty-two (42) educators who taught graduate and undergraduate students, Berge (2005) explained that many barriers to learning and teaching at a distance are caused by lack of access to resources and support staff. Further, the most critical obstacles reported in Berge's survey were those related to resistance or fear of the many changes that must occur at the individual and organizational level. Muilenburg and Berge (2005) reported on a large-scale ($n = 1,056$) exploratory factor analysis. The study determined the underlying constrains that comprise student barriers to online learning. The eight factors found were: (a)

administrative issues, (b) social interaction, (c) academic skills, (d) technical skills, (e) learner motivation, (f) time and support for studies, (g) cost and access to the Internet, and (h) technical problems. Independent variables that significantly affected student ratings of these barrier factors included: gender, age, ethnicity, type of learning institution, self-rating of online learning skills, effectiveness of learning online, online learning enjoyment, prejudicial treatment in traditional classes, and the number of online courses completed.

In addition, there are several studies that document and discuss different factors for students' success when taking courses in an online environment. Diaz (2002) identified a variety of factors associated with the lack of "success" in online learning. These factors include: students' demographics, class quality, quality of instruction, socioeconomic factors, disabilities, discipline, and apathy. Moreover, Gibson (1998) studied a variety of factors, among them situational and educational, that influence the outcomes of online learning. On the other hand, Wojciechowski & Bierlein Palmer (2005) found greater success in online courses among students with a higher GPA who had attended an orientation session on online learning.

In our study, we approach student success in a different perspective. We considered having reliable Internet connectivity in order to have access to online courses (e.g. stable Internet connection, reliable computer, etc.) as an important factor for student success in the online learning environment.

Internet connectivity takes a number of different forms. When most people hear the terms "Internet connectivity" used in relationship to online education, they think about whether students have computers, i.e., the "digital divide". Contrary to what many believe, not all students have home computers with Internet connection. Some students who have Internet access only have dial-up connection. Public schools that operate educational programs available only through students' own computers are not truly available. Any virtual education program

that operates in a public school has a responsibility to make the program available to students who do not have their own computers, or who do not have the bandwidth to make participation in the online programs possible. As a matter of fact, Rose and Blomeyer (2007) mentioned that the assumption that all students have high-speed home Internet connection is a commonly held myth about students.

Besides the factors mentioned above, socioeconomic factors also play an important role for students' success in an online learning environment. Among the published work for online learning that addressed socioeconomic factors, race and gender have been studied. For example, Daymont and Blau's (2008) compared the performance between males and females for online classes; Zu & Jaggars (2013) studied the relationship between achievement gap and accessing technology among African American males. In addition, Holcomb, King and Brown (2004) studied the effect of gender between students and mentors on students' success, and found that female students who were mentored by female faculty members had a higher success rate for online courses. Furthermore, the study shows students who had previous computer experience had higher success rate for fully online courses.

With respect to Internet connectivity according to students' behavior, previously published work also studied the relationship between student behaviors and their success. For example, Morris, Finnegan and Wu (2005) tracked student behavior in online courses, and concluded that unmotivated students withdrew from classes. Their study determined that students who did not successfully complete the course were not active in participating in online activities. The authors of the above study explained that some students have obligations other than school and as a consequence, they had to withdraw from their online courses. Our study performed an analysis on the relationship between students' preference for online courses and their economic status.

As shown above, previous studies have focused on discrepancies in access to online learning. Our study, however, does not concentrate on how the socioeconomic background of online learners either inhibits or facilitates their learning. Our work takes a step forward by considering whether students' socioeconomic background prevents their connectivity to the Internet and in turn, to their enrolled online and hybrid classes.

Methods

We conducted two (2) surveys to understand students' Internet use. We decided to do the surveys online to obtain more students' responses. Since there are no similar published studies, we based our design on the general questions we had.

With the help of Institutional Planning and Analysis (IPA) at California State University San Marcos (CSUSM), we asked all students who have taken courses from different departments and colleges to complete two (2) surveys about their learning experience in online courses. These students were enrolled in hybrid and fully online courses.

We conducted the first survey during the Fall 2012, Spring 2013, and Fall 2013 semesters. Results were obtained from three hundred and ninety-nine (399) students enrolled in a variety of online/hybrid courses offered in different disciplines, specifically, Anthropology, Biology, Chemistry, Communication, Computer Science, General Education, Global Studies, History, Human Development, Literature and Writing, Mathematics, Philosophy, Psychology, Sociology, Spanish, and Women's Studies.

The second survey was conducted in the Spring 2014 semester. Results were obtained from three hundred and fifty-six (356) students enrolled in a variety of online/hybrid courses offered in different disciplines as the first survey. We compared the grade distributions among students who received financial aid and those that did not. These two (2) surveys focused on the

following areas: (1) access to courses and problems accessing online information; (2) household income and (3) status of the student (first generation or non-first generation).

Results and Discussion

In the following paragraphs, we present the results from the first surveys. Figure I. shows that of all the students who participated in the survey, seventy-four point seven percent (74.7%) were female, twenty-five percent (25%) were male, and point-three percent (0.3%) identified as hermaphrodite. Hermaphrodite was not a category in the survey, it was provided by the respondent.

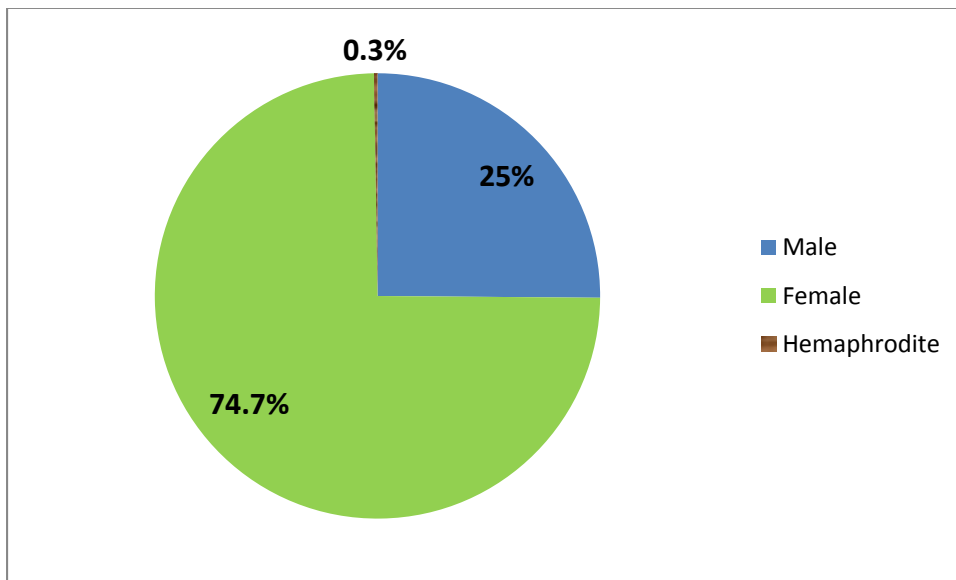


Figure I. Students' profile: Gender

Among the males who completed the survey, three percent (3%) were African American, five percent (5%) were biracial, eleven percent (11%) were Asian, twelve percent (12%) were Latino, twenty-six percent (26%) were white, and forty-three percent (43%) chose "other" (Figure II.).

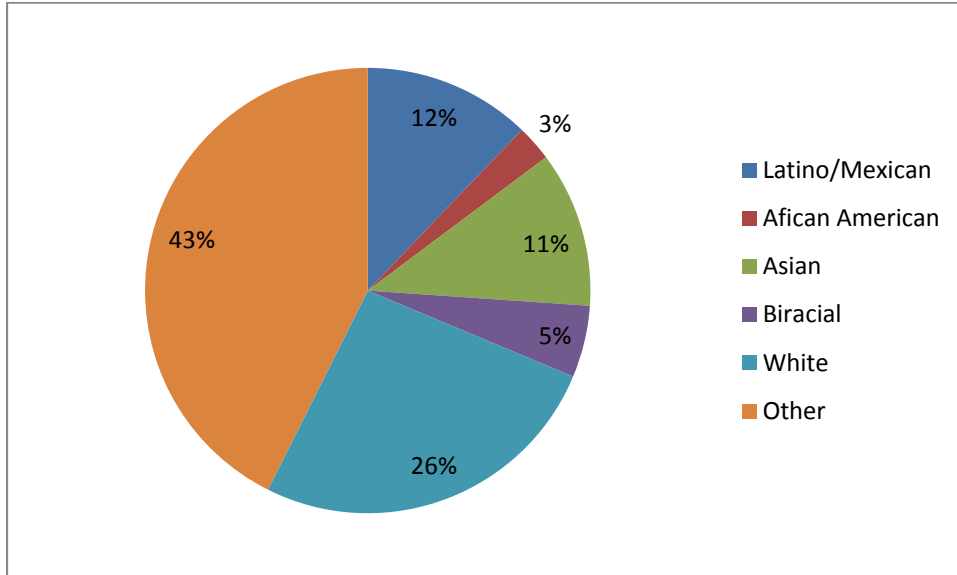


Figure II. Students' profile: Males' Race

Among the females who participated in the study, three percent (3%) were African American, three percent (3%) were Asian, three percent (3%) were biracial, thirty-four percent (34%) were Latino, and fifty-seven (57%) were white (Figure III). Perhaps the racial variation in the question among males could be attributed to the small sample of male respondents which represents 25% of the total sample.

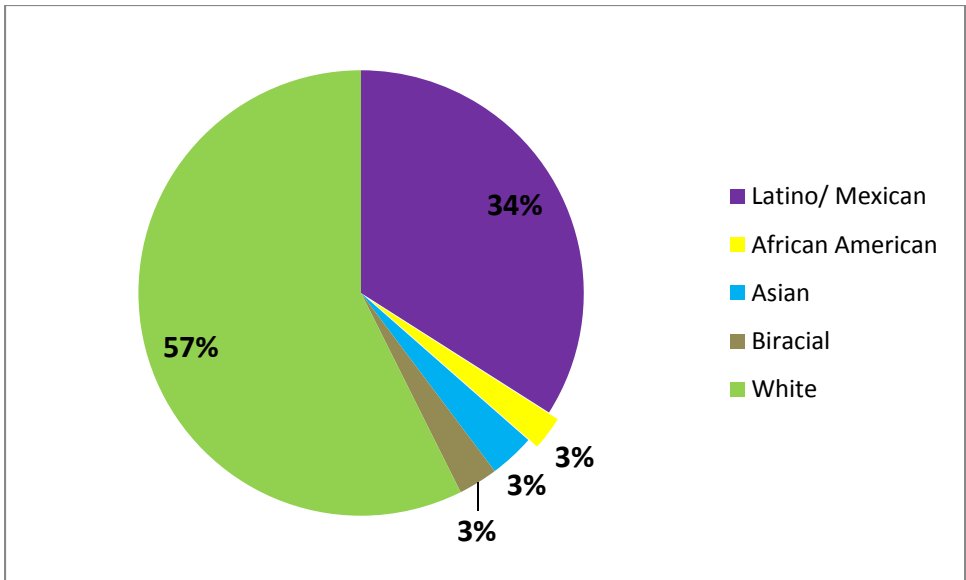


Figure III. Students’ profile: Females’ Race

Regarding where students access their online courses, ninety-one percent (91%) stated from home, four percent (4%) stated campus, three percent (3%) stated from the CSUSM campus library, one percent (1%) stated from work and one percent (1%) did not specify (Figure IV).

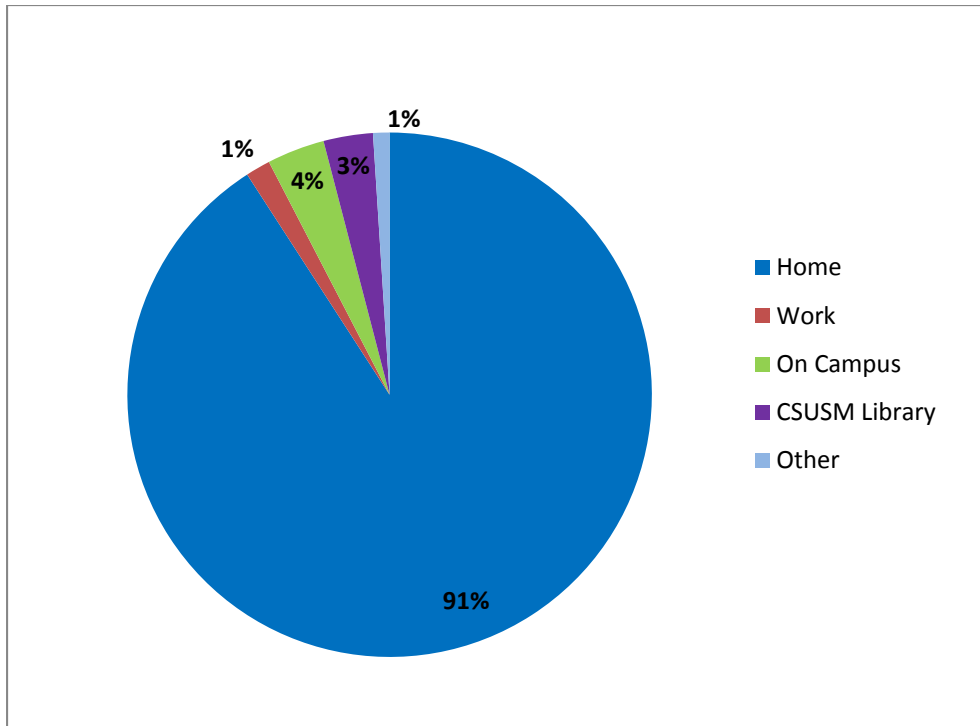


Figure IV. Location of preferred access to online courses

Among the participants who answered the question about problems accessing online courses material, eighty-three percent (83%) stated they did not have any problems accessing the information online. Only seventeen percent (17%) stated that they did have problems accessing the information online. Among the students who reported having problems accessing the information online, a variety of reasons were provided. Fifteen percent (15%) indicated that they had problems with their computers. Fifteen percent (15%) stated that they have limited access to computers and/or have limited Internet access. Three percent (3%) stated that they were not sure how online and/or hybrid courses work. Sixty-seven percent (67%) chose “Other Reasons” as an option. These results are illustrated in Figure V.

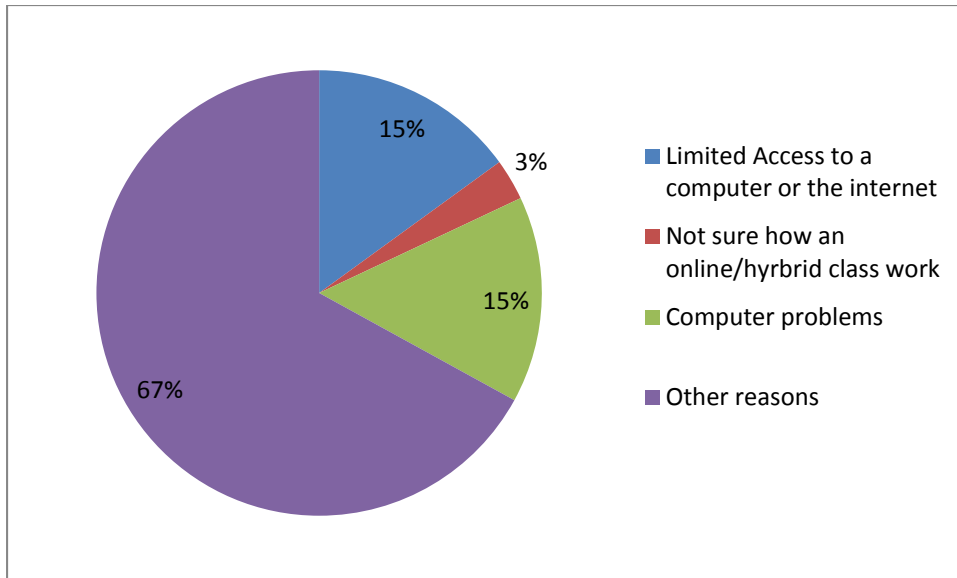


Figure V. Types of problems accessing information online

In addition to the above results from the survey, in order to understand the role of socioeconomic status in students' access to online courses, we compared annual income with problems accessing online material based on our survey data. According to the Department of Education, the low-income level for a family unit size of two, three and four members in 2015 was, respectively, \$23,895, \$30,135, and \$36,375) (U.S. Department of Education website). Based on the above information, \$30,000 was chosen as an approximate low-income level for a typical household. Among all the students who stated that they have trouble accessing material for the online courses, fifty-four percent (54%) have an annual household income below \$30,000, twenty-eight percent (28%) have an annual household income above \$30,000, and eighteen percent (18%) did not provide any information. The result of this study is illustrated in Figure VI.

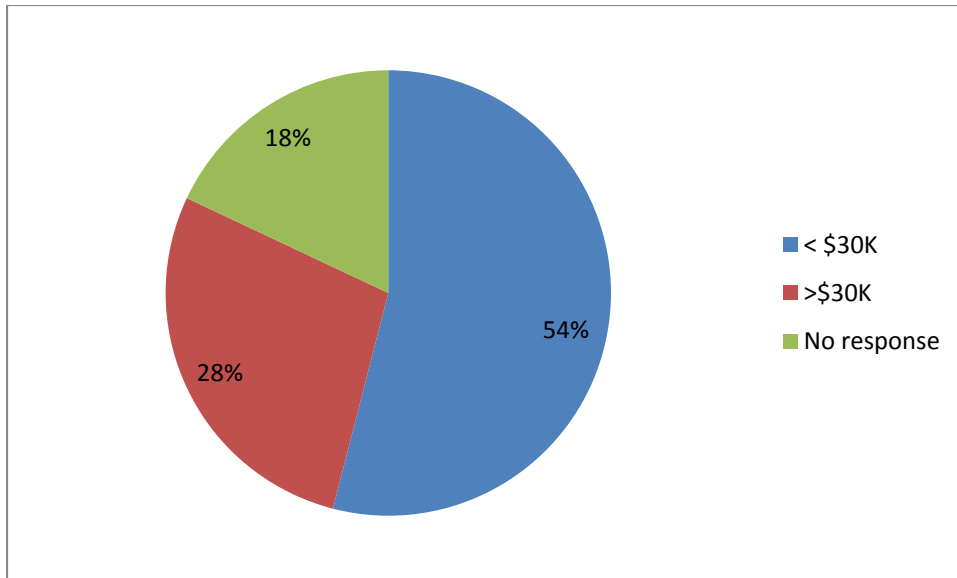


Figure VI. Percentage of students with problems accessing online material with annual income below and above 30K.

We found that our data show a tendency of a connection between the household income and problems retrieving material for online courses. The data show that of the three hundred and fifty-six (356) students surveyed who have taken courses online, fifty-four percent (54%) are at an economic disadvantage and have a higher tendency to encounter difficulties in accessing online course material and might need more support in accessing this educational material in online or hybrid courses.

Furthermore, we considered grade distribution between students who received financial aid (Pell Grant students) and students who did not. We found that eighty-one (81%) of Pell awarded earned a grade of “C” or above, and eighty-four percent (84%) of students without financial aid had earned a grade of “C” or above. The grades were for each course taken online. In addition, we found that twenty-eight (28%) of the PELL students had earned a grade of “A” while thirty-eight percent (38%) of the students without financial aid earned a grade of “A”. These results indicate that, while students from limited socioeconomic backgrounds might have

problems accessing our online or hybrid courses, these problems pose a challenge but are not an obstacle to obtaining a grade of C or above. And while family income and financial aid status are not exactly the same thing, it shows the financial need that students have due to limited family income. We will discuss the reasons for this positive result in the following section. Upon completion of the above survey, we decided to expand our study by distributing a second survey in Spring 2014. We concentrated on investigating the role of socioeconomic status on students' decision to take online courses. Three hundred and fifty-six (356) students answered the survey. They were enrolled in a variety of online hybrid courses offered in different disciplines as the first survey. Results of this survey are discussed below. The preference for online courses was compared among first-generation college students and non-first generation students. Sixty percent (60%) of the first generation students agreed with the following statement: "I take online courses because I am unable/prefer not to come to campus" compared to forty-one percent (41%) among non-first-generation college students. A summary of this data is presented in Figure VII and Figure VIII.

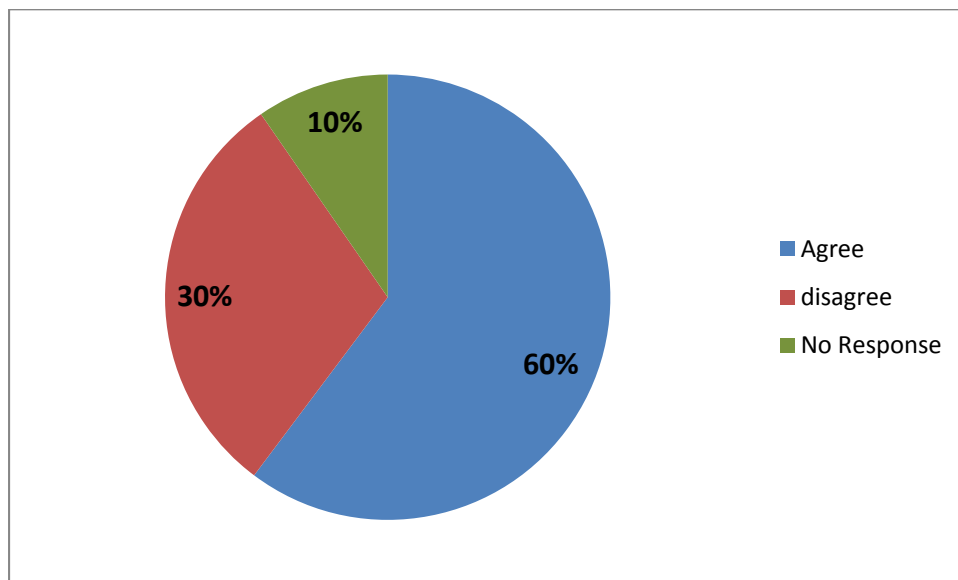


Figure VII. Preference for Online Courses among First-generation College Students

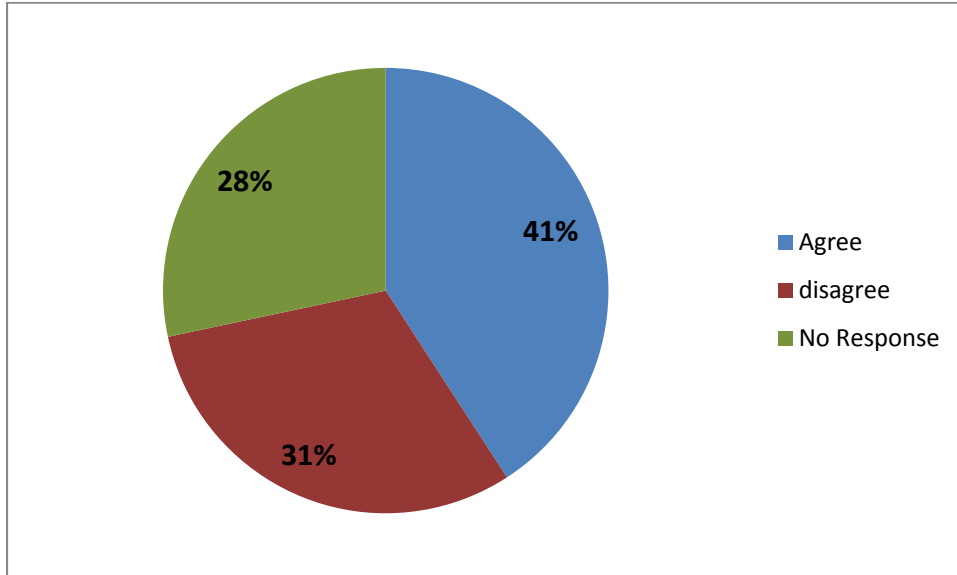


Figure VIII. Preference for Online Courses among Non-First-Generation College Students

The results indicate that a higher percentage of first generation college students take online courses because they are either unable to or prefer not to come to campus. This may be due to the fact that first generation college students may have family obligations and/or may have to work longer hours.

Conclusion

The data we collected make evident that a higher percentage of the students from limited socioeconomic backgrounds (with an annual household income lower than \$30,000) indicated that they have more problems accessing online/hybrid courses than those students that have household income greater than \$30,000. We found a connection between household income and

problems accessing materials for online courses; students that are at an economic disadvantage have a higher chance of experiencing difficulties accessing online course materials. However, in general, their grades are not affected by this challenge. In other words, the percent of students who earn a grade of “C” or above is about the same among the students who receive financial aid and those who do not.

Our findings give us a better understanding of some of the challenges that students face when taking online and hybrid courses. Thus, we want to be proactive in providing students with the support they need to successfully complete our online/hybrid courses. At the institutional level, we believe that some changes are already in place. For instance, we have been actively collecting data on students’ feedback on the resources or tools that they need the most when enrolled in an online/hybrid course. In addition, our campus offers workshops and courses dedicated to train instructors who are teaching online or who intend to teach online. In order to help students to be better prepared for online courses, we suggest the creation of a “How to guide” and an orientation for prospective students who are interested in online instruction.

Our survey results also indicate that the preference for online courses among first generation students is higher than the non-first generation college students. This difference in preference may be due to the fact that first generation students have relatively more economic and household responsibilities than non-first generation students. Since online courses provide more flexibility for students, they might fit better into the relatively more demanding schedule of first generation students than traditional face-to-face courses. Since first generation students may face more challenges and obstacles than non-first generation students, our campus offers a mentoring program for these students in order to provide additional support for them.

Overall, the responses and results of our study expand our knowledge of online learning among the specific population of students we serve on our campus. Furthermore, the findings expand our understanding of the relationship between access to online materials and socioeconomics in an online environment. In turn, we can use the results to educate our educators and experts in technology about the need to make technology accessible for students by having more computers, and through workshops on how to use the different resources available to improve students' access to their online courses.

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