THE ANTECEDENTS OF STUDENT SATISFACTION WITH ONLINE COURSES: IMPLICATIONS FOR PROGRAM DESIGN AND MARKETING

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ABSTRACT

Similar to other disruptions to traditional business models, the online education model has been gaining ground as a supplement to and in some cases, a replacement of, the traditional face-to-face learning modality. Previous research has identified that online education is particularly attractive to certain demographics that have historically been underserved in education. This study identifies and seeks to ascertain whether and to what extent recipients of online education are satisfied with their online courses, and if there are differences in satisfaction with online courses between various groups of students. Differences in satisfaction with online courses were found between various segments, with historically underserved student groups expressing greater satisfaction with online courses as compared to other students.

INTRODUCTION

Online education at the college level has been on the rise over the past decade. With universities across the world seeking to take advantage of remote delivery of education to expand their reach, and students seeking opportunities of advancing their education with less disruption and expense than would be required of traditional, location-based education. The onset of the COVID-19 epidemic further acted as a shock to the system, forcing educational institutes to switch to online education (Ronkowitz & Ronkowitz, 2021). Since the beginning of the millennium, online university education was already becoming a fait accompli, with universities joining the bandwagon with differing levels of enthusiasm and commitment. However, the pandemic has left little doubt that online education is not only here to stay but may become the preferred mode of instruction in the future (Li & Lalani, 2020). For example, a spring 2020 survey of faculty members found that 83% of faculty had moved a Face-To-Face (FTF) course to online delivery on an emergency basis, with over a third still teaching one or more courses online during the fall 2020 semester. A majority of the faculty believed that online learning would continue past the pandemic (Pearson, 2020). 2020 marked a change in attitudes of faculty and administrators towards online instruction, with online delivery commanding increasing attention and university resources.

Growth in online course enrollments has been considerably higher than the growth in overall enrollments for the past two decades (Seaman, et al. 2018; Wavle & Ozogul, 2019). Irrespective of the circumstances brought about by the COVID-19 pandemic, online education is particularly attractive to students who are employed, are female, and/or have substantial other commitments (Clinefelter & Aslanian, 2017).

The flexibility of an online education enables students to pursue a degree that they may not have been able to obtain in an FTF environment (Tucker, 2001), as does the lower cost (Deming, et al. 2015).

Among other benefits of online education are the fact that taking online classes helps in students' completion of their degrees (Shea & Bidjerano, 2019; Wavle & Ozogul, 2019). Even though some employers have shown a reluctance for considering online degrees on par with traditional degrees, especially for new hires (Roberto & Johnson, 2019), the preference for online education is only likely to grow in the future.

As with any educational or market offering, it behooves the provider to assess the level of student/customer satisfaction with their offerings. Universities consider student satisfaction to be a desirable outcome (Parahoo et al. 2016) and attempt to create student satisfaction through various means, both academic and non-academic oriented. In the case of a still-developing product category, such as online education, where students have a greater choice due to the irrelevance of geographic location, any given educational institution must ensure student satisfaction with their offerings to help attract and retain students. Thereby not only maintaining and increasing their enrollments but also receiving favorable ratings and reviews that may help in increasing future enrollments. The primary objective of this paper is to confirm the antecedents of student satisfaction with online courses, thereby incrementing the body of knowledge on satisfaction and providing guidance to the course designers, university administrators, and faculty teaching online courses. In particular, we are interested in exploring the effect of student differences on satisfaction with online courses.

LITERATURE REVIEW

The growth of online learning in the business disciplines and other disciplines has spawned a limited but growing body of academic research into various aspects of online education. Here we briefly review the literature as a prelude to the research questions addressed by the present study.

The Attraction of Online Courses

It has been stated that only half of the students who embark upon a college education finish it, with the proportion being even lower for first-generation college students (Milliron, 2010). There has been a growth in college enrollment among certain students (i.e., who are members of a minority, are lower-income, work full time, and/or have significant other obligations) (Milliron, 2010). In this scenario, online education has appeared as a partial savior, enabling convenience, affordability, and reduced disruption of lives for individuals intending to pursue a college degree. Additionally, it is believed that the generation of millennials, having grown up with information technology, have the requisite felicity of the use of online learning management systems. They have the aptitude for online interaction that allows them to take advantage of online learning much better than previous generations (Harvey, et al. 2017).

Satisfaction with Online Courses

Student satisfaction is generally considered a desirable goal for institutions of higher learning to pursue (Chadwick & Ward, 1987).

Not only is satisfaction a manifestation of the professional service quality of the institution (Hampton, 1993; Popli, 2005), but also because it has been found to affect student success outcomes (Thomas & Birchenough, 1996) and ultimately, build the student-institution relationship (Henning-Thurau, et al. 2001; Wiese, 1994).

With the rapid growth in online offerings by universities, an emergent body of research has been investigating the nature of student satisfaction with online courses, and its relationship with other variables of importance. It has been reported that students did not see

online and FTF classes as being equivalent (Platt, et al. 2014). Similarly, a divergence has been found in the reported antecedents of student satisfaction between online and FTF classes (McFarland & Hamilton, 2005). Parahoo et al. (2016), in a study of online students, found the important factors behind student satisfaction to be university reputation, physical facilities of the institution, faculty empathy for students, and student interaction. According to Beqiri, Chase, and Bishka (2009), students reporting greater satisfaction with online courses were more likely to be graduate students, married, male, and living more than one mile away from campus.

However, in a three-year study of undergraduate and graduate students, Cole, et al. (2014) reported finding no differences in satisfaction between undergraduate and graduate students; neither was any significant difference in satisfaction observed based on age and gender. In a study of graduate students in the United States, Bolliger & Martindale (2004) found the antecedents of student satisfaction to be related to the instructor's performance, enabling technology, and interactivity in the course. In a study of online MBA students, Endres et al. (2009) found a multi-factored structure of the antecedents of student satisfaction, arising out of antecedents related to faculty competence and practices, course material quality, student learning styles and behavior, student interaction, and technology tools. At this stage, the study of student satisfaction with online courses appears to be a "*work-in-progress*", with a variety of antecedent areas being explored, but the findings being far from conclusive. The fact that online education is not restricted by geographical limits, it is interesting that the growing research has also covered various countries.

Research Objectives and Hypotheses

In light of the existing research on the subject of student satisfaction with online courses, the present study seeks to replicate and expand a very specific line of inquiry: whether the population groups, that may a priori be expected to be significant beneficiaries of online courses, experience greater levels of satisfaction from online courses than other groups. Therefore, the study seeks to ascertain if there are differences in attitude towards online courses across several demographic categories based on their predilection for online education and whether there are differences in satisfaction with online courses across said categories. Consequently, we expect to provide insights that can help University administrators improve and enhance their distance education offerings.

Prior Experience and Student Satisfaction

The move from FTF classes to an online modality can be daunting the first time, possibly leading to students making a distinction between the equivalence of FTF and online classes (Platt et al. 2014). To determine if there would be a difference between satisfaction with FTF and online classes, we propose the following hypothesis:

H_1: *Overall satisfaction with an online course will be greater than with an FTF course in general.*

Minority Students and Satisfaction

Do minority student sub-populations see online courses as satisfactory? Some of the purported benefits of online classes – flexibility, absence of a potentially intimidating atmosphere, reduced expense burden of commuting to school, maybe presumed to appeal particularly to minority students. Thus, we propose the following hypothesis:

H_2:   Overall satisfaction with online courses will be higher for minority students than for students in general.

Income level and satisfaction

Prior research reveals little about the difference in satisfaction levels between various income groups. While the reduced burdens of time and opportunity cost may be lower for online classes and therefore may appeal more to lower-income students, it is also plausible that higher-income students would have greater demands on their time, and maybe relieved of greater opportunity costs by online courses than lower-income students. To provide some clarity on the issue and explore the plausible relationship between income and satisfaction with online courses, we propose the following hypothesis:

H_3:   *Overall satisfaction with online courses will be higher for higher-income students than for lower-income students.*

Demands on students, and satisfaction

Online courses have been found to hold a special appeal for students who have multiple and pressing demands on their time, due to the flexibility of learning and the consequent ability to maintain a balance between the demands of life and learning. In this regard, we propose the following hypotheses:

H_4:   *Overall satisfaction with online courses will be higher for married students than for unmarried students.*

H_5:   *Overall satisfaction with online courses will be higher part-time students versus full-time students.*

H_6:   *Overall satisfaction with online courses will be higher among transfer students versus non-transfer students.*

H_7:   *Overall satisfaction with online courses will be higher for first-generation college students.*

H_8:   *Overall satisfaction with online courses will be higher for students working full-time versus those working part-time.*

H_9:   *Overall satisfaction with online courses will be higher for students who commute from out of the university campus/town than those who live in the university campus/town.*

H_{10}:   *Overall satisfaction with online courses will be higher for non-traditional students versus traditional students.*

H_{11}:   *Overall satisfaction with online courses will be higher for those students who had children less than 13 years old living at home versus those who do not.*

RESEARCH DESIGN

To empirically test the above-stated hypotheses, a survey was conducted of students at a large, public university in one of the large metropolitan urban agglomerations of Texas. A self-administered web-based questionnaire was utilized and was completed by 618 student respondents. Respondents were asked to report their demographics and rate their satisfaction

with the various online educational offerings. Additionally, students were asked to compare online vs F2F courses on numerous attributes.

Sampling

The population under study consisted of all students at the focal university. To alleviate anonymity concerns, the e-vite to participate was directly made by the client (i.e., the campus unit that managed the online teaching infrastructure). In other words, the researcher did not collect email addresses of students. All currently enrolled students received the e-vite. Based on our pretest, we anticipated that the questionnaire would take between 10-15 minutes to complete. A follow-up e-vite was sent a week later, reminding them to complete the questionnaire. A comparison of the sample profile with the population profile is presented in Table 1 below. As we can observe, the sample is significantly different from the population. It is older, has a higher percentage of females, higher percentage of whites, but lower percentage of undergraduates, and lower percentage of U.S. citizens. Although the sample percentages do not match the population percentages perfectly, they are all in the right direction and represent the future demographics of online students.

Table 1 COMPARISON OF THE SAMPLE (N=618) WITH THE POPULATION (N=36,168)		
Characteristic	Sample	Population
Average Age in years	29.1	24.1
% Female	71.1%	53.0%
% White	62.2%	53.6%
% Undergraduate	65.5%	81.5%
% U.S. Citizen	88.6%	91.9%

The Research Instrument

To facilitate survey participation and data analysis, the questionnaire was organized into three sections: comparison between F2F and online courses, satisfaction with online courses, and personal data and demographic information of the respondent. The questionnaire consisted of several "*check-all-that apply*" and "*check only one*" type questions along with some 7-point Likert-type questions.

ANALYSIS AND RESULTS

Frequency Analysis

Basic *frequencies* were computed using SPSS 25.0. Concerning the respondent's classification, 65.5% of the sample were seeking undergraduate degrees, 21.2% were seeking Masters, 10.1% were doctoral students, and 3.2% were other. Out of the 618 students who responded, 16.8% were business majors; 14.25% were part-time students; 25.4% were transfer students; 23.5% were first-generation students; 22.7% were non-traditional students, 28.2% were married, and 18.2% had young children under 13 years old. Additional demographic breakup showed Caucasian=62.2%, African American=9.8%, Hispanic 12.1%, Asian-pacific Islander=5.6%, and 10.2% other. In terms of gender, the sample consisted of 71.1% female and 28.9% male respondents.

Descriptive

A test of basic *means* revealed the following: The average age of the respondents was 29.14 years. The average time students spend per week outside of class on a F2F class was 8.96 hours versus the average time spent per week outside of class on an online class was 8.20 hours. The average reported GPA was 3.49/4.0.

The average commute time was 36.15 minutes. To better gauge their familiarity with various course modalities, students were asked to indicate their experiences with various types of courses. Table 2 revealed that while the sample was most familiar with FTF classes, they indicated sufficient experience with online classes to cast their judgement.

Table 2 SUMMARY OF CLASS MODALITIES			
Institution	**F2F classes**	**Hybrid classes**	**Online classes**
Previous	21.32	0.96	2.72
Current	11.68	1.38	2.14

Mean Difference

Independent sample t-test (if 2 sub-groups) and ANOVA (if more than two sub-groups) were used to conduct the analysis. The dependent variable was *overall satisfaction*. While the sample size was 618, individually, at least 500 students answered each of the questions. Based on the central limit theorem, it can be assumed that the data came from normally distributed populations. The results are presented in Table 3 below.

Table 3 SUMMARY OF MEAN DIFFERENCES				
Hypotheses	**Independent variable**	**Test Statistics**	**p-value**	**Conclusion**
H_1	Online courses	t-test=11.59	0.000	Highly significant
H_2	Ethnicity	F-test=0.99	0.429	Not significant
H_3	Household Income	t-test=3.27	0.001	Highly significant
H_4	Marital Status	t-test=-2.84	0.005	Highly significant
H_5	Semester Hours	t-test=-4.13	0.000	Highly significant
H_6	Transfer	t-test=-2.59	0.010	Significant
H_7	First-generation	t-test=1.21	0.230	Not significant
H_8	Employment Status	t-test=4.97	0.000	Highly significant
H_9	Zip code	t-test=3.92	0.000	Highly significant
H_{10}	Traditional student	t-test=-2.08	0.036	Marginally significant
H_{11}	Young children	t-test=-2.99	0.003	Highly significant

Overall satisfaction was significantly higher (p-value=0.000) for all students; whoever took any form of *online courses* (hybrid, completely online). It did not matter whether they took the course at the current or another institution. The two most important reasons provided were "flexible schedule for their employment situation" and "reduction in transportation cost." That is, we found support for H_1.

While *overall satisfaction* was slightly higher for some *minority* groups (i.e., Native Americans, Asian Americans, African Americans), there was no significant difference (p-value=0.429) between the various ethnic groups. That is, we did not find support for H_2.

Overall satisfaction was significantly higher (p-value=0.000) for those who reported *annual household income* $> \$50K$ versus those who reported annual household income $\leq \$50K$. That is, we found support for H_3.

Overall satisfaction was significantly higher (p-value=0.005) for those who were *married* versus those who were unmarried (i.e., single, divorced, separated). That is, we found support for H_4.

Overall satisfaction was significantly higher (p-value=0.000) for *part-time students* (i.e., those taking < 12 undergraduate semester hours or 9 hours graduate semester hours) versus full-time students. That is, we found support for H_5.

Overall satisfaction was marginally significant (p-value=0.010) for *transfer students* versus non-transfer students. That is, we found support for H_6.

While *Overall satisfaction* was slightly lower for *first*-generation college *students* (when compared to all students), there was no significant difference (p-value=0.230) between them and those who were not first-generation college students. That is, we did not find support for H_7.

Overall satisfaction was significantly higher (p-value=0.000) for students *working full-time* (> 40 hours a week) versus those working part-time. That is, we found support for H_8.

Initially, we found no significant difference (p-value=0.757) between *commuters* and non-commuters. When we dug further into the data (analysis by zip codes), the results supported our hypotheses. That is, *Overall satisfaction* was significantly lower (p-value=0.000) for those that *lived in town* versus those who commuted from out of town. The average commute time reported was 36.15 minutes with a maximum commute time of 4 hours. That is, we found support for H_9.

Overall satisfaction was higher and marginally significant (p-value=0.038) for *traditional students* versus non-traditional students. That is, we found partial support for H_{10}.

Overall satisfaction was significantly higher (p-value=0.003) for students who had *children less than 13 years old living at home* versus those who did not. That is, we found support for H_{11}.

N-way ANOVA

Unlike the *independent sample t-test* (which allows us to compare only two means at a time), the *n-way analysis of variance* (ANOVA) allows us to compare multiple independent (discrete) variables "simultaneously." While each independent t-test produces its own p-value, repetition of independent sample t-test results in a much larger overall α (type I error rate) value (e.g., $1-0.95^k$). Since we identified ten independent variables (H_2-H_{11}), the overall $α=1-0.95^{10}=0.401$, which is significantly larger than the conventional α=0.05. Therefore, for the purpose of determining the overall significance of the model; we evaluated the significance of the main effects of all the independent variables simultaneously on the continuous dependent variable (i.e., overall satisfaction). The results are presented in the Table 4 below.

Table 4 N-WAY ANOVA				
Source	**F-value**	**P-value**	**Conclusion**	**Power**
Overall Model	2.695	0.000	Highly significant	1.000
Zip code	6.224	0.002	Highly significant	0.892
Transfer	6.522	0.011	Highly significant	0.721
Employment Status	2.423	0.066	Marginally significant	0.601
First-generation	3.152	0.077	Marginally significant	0.425
Semester Hours	1.193	0.276	Not significant	0.193
Household Income	1.124	0.348	Not significant	0.482
Marital Status	0.605	0.437	Not significant	0.121
Ethnicity	0.964	0.450	Not significant	0.381
Young children	0.232	0.630	Not significant	0.077
Traditional student	0.009	0.925	Not significant	0.051

Levene's Test of Homogeneity of variance (p-value=0.216).

The overall model is highly significant with a R^2=0.175, F-value=2.695, p-value=0.000, and power=1.000. The analysis indicates that the two most significant variables to predicting the overall satisfaction with online classes are commuting and transfer status. Additionally, employment (part-time) status and first-generation students may also be used to predict overall satisfaction. It is interesting to note that while some variables (e.g., income, marital status) were independently significant, when combined with other demographic variable, did not show up as significant predictors of satisfaction.

DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The increase in popularity of online education as a supplement to, if not a replacement for traditional FTF courses is undeniable and unstoppable. The appeal of online courses stems from the ease of taking the courses, and the reduced demands on students' time and increasingly scarce resources. Considering that the legitimacy of online courses has been increasing in recent years due to considerable investments in technology and improvements in pedagogy in recent years, it is not surprising that enrollment in online courses has been growing apace.

While previous research has found evidence of appeals of online courses for certain demographic and lifestyle categories, our study has demonstrated that the degree of satisfaction with online courses is indeed higher for the very same demographic segments. Demographically, higher income, part-time married students with children who work full-time and commute from out of town are the most satisfied with online education. Since these same groups of students have historically been less able to afford and avail of the benefits of higher education, findings of the present study appear to indicate that those aiming at and serving these underserved groups may do so with the assurance that the satisfaction of students with online courses higher than for FTF courses.

Universities may use these findings as an assurance that current students are satisfied with their online course offerings. Universities may then focus on maintaining and enhancing this satisfaction. University administrations may find it worthwhile to ensure rigor in their course expectations and pedagogy to confirm the legitimacy of their online offerings vis-a-vis their FTF offerings, and assure other stakeholders, employers being prominent among them. Considering that student satisfaction with their learning has been known to lead to overall positive outcomes and a favorable attitude towards universities, it is encouraging to learn that the underserved populations are receiving a satisfactory education, and not getting short-shrift because of their education modality.

The present study admittedly has limitations that offer opportunities for future studies. The study did not make distinctions between the delivery systems used for online courses – synchronous or asynchronous. In addition, it did not consider the subject and content of the courses, which may lead other researchers to make these distinctions and investigate if satisfaction might differ between different disciplines and courses.

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