

# What Determines Students' Preference of Online to F2F Class?

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## ABSTRACT

With a significant increase in both demand and supply of online classes, previous studies identified a number of factors affecting students' choice of online vs. F2F classes. These studies, however, ignored the fact that students' preferences are different from actual enrollment. This study, therefore, reexamines the issue of class delivery mode based on students' preference. Using data from 497 MBA students, this study identified a set of variables that help to predict students' preferences of class delivery mode. Based on such empirical results, implications of the findings to both instructors and administrators are discussed.

**Keywords:** class delivery mode, students' preference, barriers and motivators, business education

## INTRODUCTION

As the demand for online classes has increased significantly over the past two or three decades, so has the supply of online classes offered by institutions of higher education (Allen and Seaman, 2013; Allen et al., 2016). Traditional face-to-face (F2F) lectures are replaced with online classes by an increasing number of institutions in higher education. In extreme circumstances, online becomes the only option available for students when the F2F classes are not offered in the term, site, or location of their convenience.

Do our students choose online because they indeed prefer it? Most of the previous studies assumed that students choose classes based on their preference, while anecdotal evidence suggest otherwise. Students' preference may be different from students' actual class selection behavior, but it is not properly considered in the design of previous studies. Students' class selection behavior is largely conditional to the classes being offered by the institution at the time of decision. The research design employed by previous studies, however, would not allow us to address this question largely due to the lack of data on students' preferences.

The lack of empirical evidence on students' preference of class delivery mode provides a motivation for this study. Most of previous studies addressed the issue with a focus on students' actual class enrollment, while ignoring their preferences. Some researchers even used these two terms, class selection behavior and class preferences, interchangeably. Findings from previous studies such as common characteristics of online students or discriminant factors that differentiate online students from F2F students requires caution in interpretation as they are incomplete, if not misleading.

The methodological challenge is how to define and operationalize students' choice of class mode, online vs. F2F. There is ample anecdotal evidence suggesting that some students are forced to take online classes against their preference. Thus, preference cannot be defined solely based on their actual enrollment. Few studies have addressed the choice of class delivery mode from the perspective of students' preferences in a setting where both options are available. Unlike previous studies, this study addresses the choice of class delivery mode in terms of students' preference. This study extends prior literature by incorporating other important factors along with the barriers and motivators. The new discriminant variables considered are dis-satisfiers of F2F, learning styles, and select demographic variables.

## LITERATURE REVIEW

Early researchers identified several barriers or negative factors that prevent students from taking F2F classes (Bryant, Kahle, and Schafer, 2005; Mann and Henneberry, 2012; Wallace, 1996). Examples of such situational barriers are conflict of class schedule with their work and family, physical distance, and traffic relative to the location at which the course is offered. In addition, the researchers have identified institutional barriers (such as time, place, and term availability) that hinder students' ability to take their preferred F2F class.

Studies on selection of class delivery mode suggest, however, that students' choice of online or F2F classes cannot be explained fully with these barriers only since the class selection behavior is rather complicated. Accordingly, studies mostly from the mid-2000s and to the present have identified a list of motivating factors of online learning as another plausible explanation for students choosing online versus F2F (Mann and Henneberry, 2012; Pontes et al., 2010).

Learning style refers to how a learner perceives, interacts with, and responds to the learning environment (Broad, Matthews, and McDonald, 2004; Honey and Mumford, 1992; Kolb, 1999; Mupinga, Nora and Yaw, 2012; Neuhauser, 2002). Online courses require students to take greater responsibility for their learning. For instance, students who preferred to look for abstract concepts rather than concrete learning experiences performed better in online learning (Honey and Mumford, 1992; Kolb, 1999).

In addition, individual characteristics of learners that affect the students' class selection behavior have also been documented in studies in education. Examples of these individual characteristics include: undergraduate major (DiRenzo and Lilly, 2014; Fish, 2016); gender (Ashlong and Commander, 2012; Gonzalez-Gomez et. al., 2012); age (Dutton, Dutton, and Perry, 2002; Mann and Henneberry, 2012); and full-time work status (Liu, 2011; Pontes et al., 2010).

## RESEARCH METHODOLOGY

### Subjects and Data:

Participants are graduate students enrolled in a core accounting course at a state university located in the southwest United States. Final sample consists of 497 students who clearly stated their preference for either online or F2F. Table 1 shows the distributional characteristics of the final sample of 497 students. Students who prefer online (*CPREF*=Online) are likely to have the following characteristics: undergraduate degree from business, female, 30 years or older, working full time, and residing in the US for more than 10 years. Similarly, students who are likely to be enrolled online (*CTYPE*=Online) have the following characteristics: having an undergraduate degree from non-business, female, 30 years or older, working full time, and residing in the US for more than 10 years.

**Table 1: Distributional Characteristics: By Class Preferred (*CPREF*) and Class Enrolled (*CTYPE*)**

	All (N=497)	Class Preferred		Class Enrolled	
		Online (N=203)	F2F (N=294)	Online (N=326)	F2F (N=171)
<b>Undergraduate major (<i>UMAJOR</i>)</b>					
0: Non-Business	265	93	172	178	87
1: Business	232	110	122	148	84
<b>Gender (<i>GENDER</i>)</b>					
0: Female	238	107	131	166	72
1: Male	259	96	163	160	99
<b>Age entered to program (<i>AGE</i>)</b>					
0: Less than 30	225	89	136	141	84
1: 30 or more	272	114	158	185	87
<b>Working Status (<i>FULLTIME</i>)</b>					
0: Non-Full Time	108	40	68	59	49
1: Full Time	389	163	226	267	122
<b>Years in US (<i>RESIDENCE</i>)</b>					
0: Less than 10	129	35	94	68	61
1: 10 or more	368	168	200	258	110

### Class Delivery Mode: Online vs. F2F

Class delivery mode, online or F2F, is an outcome status of this study. Pedagogical characteristics of the online and F2F class are consistent with the classification used by extant literature (Allen et al., 2016). For instance, in an online class, the entire course content is delivered online without any face-to-face meetings. In contrast, in the traditional F2F class, no online technology is used and the content is delivered in writing or orally. The coding for the students' preference is based on a questionnaire item with 5-point Likert scale. Using a measure representing students' preference is unique in this study, thus, it extends prior studies that defined the students' choice of class delivery mode based on the actual enrollment only.

One notable finding is that a substantial number of students enroll in a class delivery mode against their preference. As reported in Table 2, in excess of one third of students (193=158+35 or 38.8%) enrolled in the mode they do not prefer.

**Table 2: Class Delivery Mode: Class Preferred vs. Class Enrolled**

Class Preferred ( <i>CPREF</i> )	Class Enrolled ( <i>CTYPE</i> )		
	Online	F2F	Total
Online	168	35	203 (40.8%)
F2F	158	136	294 (59.2%)
Total	326 (65.4%)	171 (34.4%)	497 (100%)

### Predictor Variables and Measurement

This study used a structured survey to measure students' perceptions toward online learning. The questionnaire includes 24 items regarding students' preference and actual class selection. These variables are grouped into six categories that represent situational barriers of F2F, institutional barriers of F2F, online preference, online satisfiers, dis-satisfiers of F2F, learning styles, and students' individual characteristics. Cronbach's alphas computed to check the reliability of those six categories of variables are greater than the acceptable level of .60.

*Satisfiers of Online Learning:* Four items are used to measure attributes of satisfaction from online classes. They include: learn more (*SO\_LEARN*); get better grades (*SO\_GRADE*); more convenient (*SO\_CONVENT*); and, more responsive to their needs (*SO\_RESPONSE*).

*Facilitators of Online Learning.* Five items are used for attributes that ease the process of learning. In online class, students learn: at their own pace (*FO\_OWNPACE*); better from printed materials (*FO\_PRINTED*); with written work than spoken work (*FO\_WRITTEN*); in a new way (*FO\_NEWWAY*); and, on their own (*FO\_STUDYOWN*).

*Dis-Satisfiers of F2F Learning.* Three factors attributable to dis-satisfactory outcome of F2F classes are included. It is not particularly important: to have F2F interaction with their instructor (*DSF\_S2I*) or fellow students (*DSF\_S2S*) or classroom discussion (*DSF\_DISCUSS*).

*Situational Barriers to F2F Learning.* Five situations barriers of F2F classes are included. When taking an online course, it is easier to meet work commitments (*SBF\_WORK*) and family commitments (*SBF\_FAMILY*). Location (*SBF\_LOCATION*) and transportation (*SBF\_TRANSPORT*) makes it difficult to get to campus from home/work.

*Institutional Barriers of F2F Learning:* Four items associated with the institutional setting are included. Students are unable to enroll the F2F course because: it was full (*IBF\_CLASSFULL*); not offered at a convenient time (*IBF\_TIME*); in the preferred location (*IBF\_CAMPUS*); or term (*IBF\_TERM*).

*Individual Learning Style:* Learning styles developed by Kolb (1999) are employed in the survey. Items represent being: a leader who is taking charge (*LS\_LEADER*); a social specialist who prefers strong interactions with people (*LS\_SOCIAL*); an organizer of specific project (*LS\_ORGANIZER*); or adaptive when working within a team (*LS\_ADAPTIVE*).

*Students' Biographical Characteristics:* Undergraduate major (*UMAJOR*); Gender of students (*GENDER*); age entered to the program (*AGE*); full time work status (*WORKFULL*); and number of years of residence in US as a proxy for the level of competency in English language and American culture (*RESIDENCE*).

### FINDINGS AND DISCUSSIONS

This study employs a series of logistic regression analyses against students' preference in order to identify discriminants that helps to predict students' preference. Results from logistic regression are reported in Table 3. A total of ten variables that represents all five discriminating factors are statistically significant.

**Table 3: Logistic Regression Analyses: By Class Enrolled (CTYPE)**

Parameter	Class Enrolled (CTYPE)					
	All (N=497)		Online (N=326)		F2F (N=171)	
	Estimate	Wald Chi <sup>2</sup>	Estimate	Wald Chi <sup>2</sup>	Estimate	Wald Chi <sup>2</sup>
<i>Intercept</i>	4.6565	23.9888***	5.1562	6.4608**	3.3514	5.8478**
<i>SO_LEARN</i>	-0.4688	10.9406***	0.4106	1.7568	-0.4886	8.0730**
<i>SO_GRADE</i>	0.0436	0.1108	0.4529	2.0195	-0.3106	2.6869
<i>SO_CONVENT</i>	-0.0233	0.0268	-0.6053	3.7801*	-0.1644	0.9083
<i>SO_RESPONSE</i>	0.2546	3.3628*	0.8114	6.3667**	0.1608	0.9307
<i>FO_OWNPACE</i>	-0.1983	2.3708	-0.3729	1.3113	-0.4186	5.4457**
<i>FO_PRINTED</i>	-0.0945	0.4239	0.1448	0.2661	0.0071	0.0018
<i>FO_WRITTEN</i>	-0.2368	3.0707*	-0.5380	2.8646*	0.0854	0.2061
<i>FO_NEWWAY</i>	0.2942	4.7984**	0.2214	0.4549	0.2502	2.1556
<i>FO_STUDYOWN</i>	-0.3000	7.4506***	-0.1651	0.5243	-0.3116	4.6702**
<i>DSF_S2I</i>	-0.3787	6.4899**	-0.9280	5.4247**	-0.3083	2.7008*
<i>DSF_S2S</i>	-0.2633	3.2491*	0.1451	0.1788	-0.3613	3.6397*
<i>DSF_DISCUSS</i>	0.0520	0.1876	0.1750	0.2630	0.2050	1.8603
<i>SBF_WORK</i>	0.1130	0.3778	-0.4866	1.8789	0.3457	1.7106
<i>SBF_FAMILY</i>	-0.1749	1.0549	-0.0449	0.0158	-0.0625	0.0753
<i>SBF_LOCATION</i>	-0.0635	0.3735	0.0435	0.0245	-0.0369	0.0860
<i>SBF_TRANSPORT</i>	0.0323	0.0964	-0.1898	0.4991	0.0811	0.4400
<i>IBF_CLASSFULL</i>	0.0628	0.2187	-0.0228	0.0094	0.1776	0.8952
<i>IBF_TIME</i>	-0.2439	2.3750	-0.0043	0.0002	-0.5182	4.6473**
<i>IBF_CAMPUS</i>	-0.2269	2.7271*	-0.0638	0.0313	-0.2949	2.7453*
<i>IBF_TERM</i>	-0.0351	0.0601	-0.2496	0.6479	0.1644	0.7159
<i>LS_LEADER</i>	0.1007	0.5157	0.1620	0.3011	0.0816	0.2025
<i>LS_SOCIAL</i>	0.0128	0.0095	0.0691	0.0763	-0.0895	0.2590
<i>LS_ORGANIZER</i>	0.2550	3.0132*	0.2318	0.5082	0.3834	3.4478*
<i>LS_ADAPTIVE</i>	0.1569	1.6730	-0.2354	0.6872	0.2924	3.6511*
<i>UMAJOR</i>	-0.5233	4.9476**	-0.2349	0.2102	-0.6505	4.5431**
<i>GENDER</i>	0.3402	1.9451	0.6016	1.3429	0.3172	1.0059
<i>AGE</i>	-0.3817	2.4884	-0.3352	0.3968	-0.3585	1.3680
<i>WORKFULL</i>	0.2437	0.6316	-0.4395	0.4396	0.6109	2.2560
<i>RESIDENCE</i>	-0.1949	0.4350	-0.1235	0.0348	-0.2683	0.5029

Note) \*\*\* <.01, \*\* <.05, \* <.10

The most important finding is that students prefer online because of the features embedded in online classes. The variables which are significant in predicting students' preference are motivators of online. For instance, students prefer online learning because it represents a new way to learn and because they get more response from the instructor in the online mode. According to the results, students who prefer F2F are likely to be the ones who perceive that they would learn more/less in F2F/online, have less/more freedom in F2F/online, and have less/more written materials in F2F/online class. Such results are somewhat inconsistent with the extant literature.

Another significant finding is that barriers do not predict preference. One institutional barrier, unavailable F2F classes from campus site (*NA\_SITE*), is significant at a .10 level. One viable interpretation of such weak association between the barriers of F2F and students' preference is that such barriers, either situational or institutional, are not important or are easy to overcome.

This study also found that the dis-satisfiers of F2F play a significant role in forming students' preference of class delivery mode. For instance, two out of three dis-satisfiers of F2F show significant but negative association with the students' preference. The negative signs of interactions between students and instructors (*DSF\_S2I*) and peer students (*DSF\_S2S*) indicate that students who are less/more satisfied with the interactions occurring in F2F classes are more/less likely to take online/F2F classes. For instance, students prefer to study in online instead of F2F class because they do not see much utility from interactions with instructor or students. There appears to be some implications to the instructors and designers of online classes. Both instructors and designers of online should find ways to enhance the interactions with students.

### **Cross-Sectional Difference in Preferences: Students Enrolled in Online and F2F**

In order to compare the factors affecting students' preferences by class enrolled, the samples are partitioned by *CTYPE*. As shown in Table 4, only four predictors are significant in the online group. They are: convenience (*SO\_CONVENT*), written work (*FO\_WRITTEN*), new way of learning (*FO\_NEWWAY*), and student-to-instructors interactions (*DSF\_S2I*). One notable observation is that none of barriers are significant to students who enrolled in online class. To the sub group who enrolled in F2F classes, a total of ten variables, compared to four in the online group, are significant. The examples of discriminant variables identified are: three motivators, four barriers of F2F, two learning styles, and undergraduate major.

What is notable from this sub sample is that none of situational barriers of F2F is significant. Out of those ten variables, only variable student-to-instructor interaction (*DSF\_S2I*) is significant in the online group as well, thus confirming that the class in which the students enrolled is significant in differentiating the set of predictor variables important for each group. The percentages of concordance are 83.8% in the online group and 85.3% in the F2F group, thus it confirms a very strong association between the predicted probabilities and the observed responses. The test statistics, likelihood ratio and score, for the global null hypothesis on Beta=0 is also rejected with a level of .05 for online group and .0001 for F2F group. Overall, the results indicate that the factors affecting preference are different.

### **CONCLUSION**

This study addresses the choice of class delivery mode from the sample selected based on preference, while most of the previous studies relied only on enrollment. This study, using a series of logistic regressions, documented the effects of multiple discriminants that help to predict students in either online or F2F classes.

This study confirms that the F2F barriers are still important factors associated with the students' choice of class delivery mode but not as significant as documented in the prior literature and the 'motivators of online' instead have played a more significant role in discriminating online students from F2F students. This study also found that the students' dis-satisfaction of F2F interactions, which are known to be the most significant competitive advantages of F2F over online, served as the facilitators of online. In addition, this study documented a certain learning styles, the organizer or adaptive type, and undergraduate major affect students' preference of class delivery mode.

This study made a unique contribution to the extant literature because of its classification based on students' preferences for the choice of class delivery mode. Another contribution is that this study is based on a much bigger sample surveyed over five academic years from 2011 to 2015. Therefore, we anticipate that the findings of this study are more robust compared to other studies with smaller sample collected in short time periods. The results from this study have implications for those who are making educational policies and decisions for online education. For instance, the finding that a significant number of students are taking courses against their preference has implication to both instructors and administrators in higher education because the choice of class delivery mode is conditional to the classes offered and their features.

This study, however, has a few limitations inherent in studies using survey data, which are largely due to participants and the survey instruments/measurements used in the study. Though the empirical findings from this study are based on data collected over multiple periods with relatively large size sample, the findings from this study are relevant to the five-year period in which the survey was conducted. To that extent, the generalizability of the findings from this study to other contexts is limited.

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