Quantifying the personal factor of FTF in an online world

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ABSTRACT

Online Students miss out on experiences that face-to-face classes offer which allows the connection between them with faculty and other students. Regardless, online education appears to be the darling of higher education leadership likely because it represented nearly three quarters of all enrollment increases last year. However, there is a gap in research regarding the human factor probably due to lack of measurability of the subject. The primary objective of this paper is to measure how the separation of teacher and student in online courses influences the student's perception of the quality of instruction. To measure students' perception, a survey based upon six statements was given to both face-to-face (FTF) and online as well as undergraduate and graduate. In every case, there was a significant difference in the means between online students and FTF students (both FTF and online undergraduate students plus FTF and online graduate students). This difference plainly favored FTF instruction for both undergraduate and graduate students. Additionally, of the six statements, the data demonstrated that instructor availability is the primary missing factor in online courses.

Key words – Face-to-face, online, living teacher, personal factor

INTRODUCTION

The era of the giant universities first raised the issue of the separation of teacher and student. Large auditorium classes became acceptable, but few argued they represented the height of excellence in education. Small liberal arts colleges touted low student faculty ratios as an indication of less separation of teacher and student. Online education has taken the separation of teacher and student a step further. Online learning involves more than the physical separation of teacher and student. Online courses do not allow students to have the whole college experience. This physical distance for online students can often affect a students' experiences and thus their success at a university. Interaction between online students due to being physically separated from each other requires more effort and planning to elicit the community experience of college. Social and academic interactions are often reduced for online classes. The integration that face-to-face (FTF) traditionally have are known predictors of success in college. Online students miss out on on-campus experiences which help the FTF student in their college career.

Despite the separation issue, online education seems to have won the confidence of the higher education leadership. Online programs have become a crucial part of higher education. Students in higher education enrolled in some type of distance education course in 2014 was up 3.7 percent from the previous year (source: our 2014 survey of online learning). Online growth in enrollment exceeded the growth for FTF higher education.

Proponents of online educational programs believe that a system of teaching, using carefully designed practices and procedures can replace a living person in the class room. These practices and procedures, whose development is guided by meticulous research in the field of education, proposes to substitute the written word for the living teacher. Class content for online classes are delivered through the Internet. Video and audio interactions are integrated into the classes. The professor-student interaction is primarily a text-based medium used for communication.

This paper takes up the question of the personal factor in teaching as it relates to online courses. The substitution of the written word for the living teacher transmits some measurable quantity of knowledge. In teaching, there is fair amount of mere information to be transmitted. This transmission can be accomplished with mere drill and discipling exercises without creative effort on the part of a teacher. These exercises are the routine and mechanical part of teaching. Living teachers vary in vitality and strength of personality, in the ability to freshen and illuminate the subject matter taught. This study considers the traits that go beyond the bounds of technical expertise. There is no way of measuring the fertilizing force living teacher's exercise on students. They release ideals from the abstract and put them into concrete form. At their best, they can be a mesmerizing moral dynamo, a fountain of moral energy, setting an example that students cannot shake off. The personal factor can be important. The prime objective of this paper is to measure how the separation of teacher and student in online courses influences the student's perception of the quality of instruction.

Literature review

Larson and Sung (2009) conducted surveys of students who completed online classes and FTF classes. Online students as compared to FTF students reported that completion of the course work habits and improved critical thinking skills. The US Department of Education in 2010 published a meta-analysis focusing on the learning outcomes of FTF vs. online education. The meta-analysis found that, on average, students in online classes performed better than those receiving FTF instruction. Ashby et al. (2011) found that demographics was a factor in

preferences for course formats. Online sections were more likely to attract older students and female students while FTF sections were more likely to attract minorities. In addition to minorities, Larson (2009) also found that FTF sections attract more males. Calafiore and Damianov (2011) analyzed data from ten online classes (five economics and five finance). They reported that differences in course participation habits help explain why students taking online courses underperform relative to their FTF peers. They discovered that performance in online formats correlated with the time online students spent doing online course work and the students grade point averages (GPA). Driscoll et al. (2012) found online courses attracted students who are older, have lower GPA's, and work a higher number of hours each week. Atchley, Wingenbach, and Akers (2013) reported minimal grade differences in grades between online and FTF classes. They did report differences in retention rates between disciplines. Accounting and finance experienced the lowest retention rates. Reading and health experienced the highest retention rates. Shea and Bidjerano (2014) discovered that online students taking courses have higher graduation rates.

Later, Cavanaugh and Jacquemin (2015) conducted a study of the difference in learning outcomes between online and FTF courses. They developed a data base that encompassed 5,000 courses, 100 faculty, and 10 academic terms at large public state universities. They reported small differences in grades. More interestingly, they reported that high GPA students performed even better in online classes and low GPA students performed even worse in online classes.

Methodology

To measure how the separation of teacher and student influences the student's perception of the quality of instruction, a survey instrument was designed based upon the following statements:

"The design of the course helped me achieve its learning objectives."
"The course material was delivered clearly."
"The instructor was generally available to students seeking advice."
"The course helped me to understand the subject matter."
"Overall, the instructor is a good teacher."
"Overall, I learned a great deal from the course."

The respondents were also asked:

"What grade do you expect to receive in this class?"

Respondents ranked their agreements with these statements on a scale from 1 to 5. The higher the score the stronger the agreement. The students are divided between graduate and undergraduate students. Graduate students are generally in smaller classes. They are also more likely to be students who like school and who have had good relationships with their teachers. In sum, they are more likely to have benefited from the personal factor in education.

Data was collected from 19 corporate finance classes from the Spring 2013 to Fall 2015. There were 14 undergraduate classes. There were 5 graduate classes. There were 8 online classes and 11 FTF classes. There were 9 Introduction to Finance classes, 5 Intermediate Finance classes, and 5 MBA Financial Management classes. Student evaluations were collected by Smartevals.com. There were 304 out of 359 (84.7%) student responses. The high response rate is due to an incentive given of 5 points on the final if 80% of class completes the evaluation.

Table 1 – Means for the Question "The design of the course helped me achieve its learning objectives."

Online Students	FTF Students	t Stat
2.657	3.963	-8.622***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.644	3.951	-7.616***

Online Graduate Students	FTF Graduate Students	t Stat
2.733	4.000	-4.080***

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The design of the course helped me achieve its learning objectives".
H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The design of the course helped me achieve its learning objectives".
Results support the alternative hypothesis that means are not equal.

In Table 1, online students scored "The design of the course helped me achieve its learning objectives" 1.31 lower than FTF students. The difference is statistically significant at the 1% level. The results show that online students do not seem to like how the courses are set up. With the student centric design, students do not have a good feel for what is needed to master the material. The results are the same for both undergraduate and graduate students.

Table 2 – Means for the Question "The course material was delivered clearly."

Online Students	FTF Students	t Stat
2.670	3.830	-7.826***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.618	3.832	-7.461***

Online Graduate Students	FTF Graduate Students	t Stat
3.000	3.836	-2.430**

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The course material was delivered clearly".
H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The course material was delivered clearly."
Results support the alternative hypothesis that means are not equal.

In Table 2, online students scored "The course material was delivered clearly" 1.16 lower than FTF students. The difference is statistically significant at the 1% level. The results show

that online students do not seem to believe the material is presented clearly. With the student centric design, students do not have a good feel for what is needed to master the material. The results are the same for both undergraduate and graduate students.

Table 3 – Means for the Question "The instructor was generally available to students seeking advice."

Online Students	FTF Students	t Stat
2.712	4.107	-9.671***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.614	3.314	-3.453***

Online Graduate Students	FTF Graduate Students	t Stat
3.250	4.129	-3.365***

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The instructor was generally available to students seeking advice."
H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The instructor was generally available to students seeking advice."
Results support the alternative hypothesis that means are not equal.

In Table 3, online students scored "The instructor was generally available to students seeking advice 1.4 lower than FTF students. The difference is statistically significant at the 1% level. The results show that online students do not seem to believe that the instructor was available for them. The professor was only contacted twice during non-traditional hours (hours at night or weekend) in 8 online classes taught over a 3 year period. Each semester received less than a hand full of calls (skype, phone, chat etc.). Students do not seem to prefer talking but rather e-mail. The results are the same for both undergraduate and graduate students.

Table 4 – Means for the Question "The course helped me to understand the subject matter."

Online Students	FTF Students	t Stat
2.806	3.979	-7.627***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.833	3.941	-6.238***

Online Graduate Students	FTF Graduate Students	t Stat
2.643	4.037	-4.245***

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The course helped me to understand the subject matter."

H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "The course helped me to understand the subject matter."
Results support the alternative hypothesis that means are not equal.

In Table 4, online students scored "The course helped me to understand the subject matter" 1.17 lower than FTF students. The difference is statistically significant at the 1% level. The results show that online students with the student centric design do not seem to believe they understood the material as well as FTF students. The results are the same for both undergraduate and graduate students.

Table 5 – Means for the Question "Overall, the instructor is a good teacher."

Online Students	FTF Students	t Stat
2.982	4.104	-7.495***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.924	4.061	-6.686***

Online Graduate Students	FTF Graduate Students	t Stat
3.278	4.191	-3.108***

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "Overall, the instructor is a good teacher."
H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "Overall, the instructor is a good teacher."
Results support the alternative hypothesis that means are not equal.

In Table 5, online students scored "Overall, the instructor is a good teacher"1.12 lower than FTF students. The difference is statistically significant at the 1% level. The results show that online students do not seem to believe the professor is as good of a teacher as the FTF students do. With the student centric design, students do not have a good feel for what the professor is demonstrating when they can only watch a canned video. Videos do not have the dynamic quality that lecturing FTF does. The results are the same for both undergraduate and graduate students.

Table 6 – Means for the Question "Overall, I learned a great deal from the course."

Online Students	FTF Students	t Stat
2.864	3.993	-7.744***

Online Undergraduate Students	FTF Undergraduate Students	t Stat
2.864	3.945	-6.412***

Online Graduate Students	FTF Graduate Students	t Stat
2.867	4.091	-4.134***

H_0 = There is no difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "Overall, I learned a great deal from the course."
H_A = There is a significant difference in the means between online students and FTF students (both FTF and online undergraduate students & FTF and online graduate students) when asked "Overall, I learned a great deal from the course."
Results support the alternative hypothesis that means are not equal.

In Table 6, online students scored "Overall, I learned a great deal from the course" 1.13 lower than FTF students. The difference is statistically significant at the 1% level. The results show that online students do not seem to believe they learned as much as FTF students. With the student centric design, students do not have a good feel for what is needed to master the material. Thus, online students do not get the appreciation for how all the work applies to real life examples as they see assignments as just a task to be done. The results are the same for both undergraduate and graduate students.

Discussion

For the six basic statements, online students gave lower ratings than the FTF students. The mean response was higher for FTF classes in every case. The greatest difference was for the statement about the availability of the instructor to help students seeking advice. FTF has the greatest edge in this area, exceeding the online mean by 1.395. The statement relating course design to learning objective also gave a larger advantage to FTF classes whose mean exceeded the online mean by 1.306. In every case, the mean for FTF classes exceeds the mean for online classes by more than 1.00. Another large difference favoring fact-to-face courses shows up with the statement about the course helping the student understand the subject matter. Here, the mean for FTF graduate students exceeds the mean for online graduate students by 1.394.
Graduate students rate courses higher than undergraduates. This rating is true for both face-to-fact and online classes. Online graduate students rate courses higher than online undergraduate students. FTF graduate students rate courses higher than FTF undergraduate students.

A revealing exception disturbs this generalization. This exception is regarding the statement about the course helping students understand the subject matter. This statement is the only case where undergraduates rate a course higher than graduate students. Online undergraduate students rated courses higher than online graduate students for this statement. This one exception becomes more interesting when considering the response to this statement for FTF classes only. If confined to FTF classes only and look at the difference in means for the first six statements, the mean is highest for the statement regarding the availability of the instructor, the next highest is the statement about the course helping the student understand the subject matter. In a summarizing nutshell, graduate students significantly favor FTF classes over online classes in the same area where undergraduates rate online courses higher than graduate students. It is also in an area where graduate and undergraduate students rate FTF courses similarly. The difference is in a key area that refers to the ability of the course to help the student understand the subject matter.

Among the factors that cause graduate students to rate FTF above online courses, the strongest is the availability of the instructor to students seeking advice. The factor that online graduate students place more emphasis on than online undergraduate students is again the availability of the instructor.

Conclusion

This paper began with the premise that graduate students are the more experienced students, the most eager to learn and therefore the best able to judge. The difference in ratings between online courses and FTF courses demonstrates the as measure of the importance of the personal factor in education. Put differently, the difference in ratings reflects the effects of the separation of student and teacher. Both undergraduate and graduate students' rate FTF classes above online classes. The data shows that availability of instructor is the top factor giving FTF courses and advantage over online courses. The same factor is the most important for causing online graduate students to rate courses higher than online undergraduate students. These results suggest that the written word cannot be a complete substitute for the living teacher. Students believe something is missing. The data certainly implies that the missing element is the personal factor.

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