

## Online and Face-to-Face Teaching: How Do Student Ratings Differ?

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### Abstract

This paper reports on a study whose purpose was to compare student ratings of instruction in online and face-to-face (F2F) higher education courses in an effort to better understand how faculty can strengthen their teaching in the online environment. Student ratings of instruction in online and on-campus courses were examined in two different ways that yielded similar findings. First, more than 8,000 student ratings of online and on-campus, traditional courses were compared. The ratings were based on 172 online courses and 470 on-campus courses. Results indicated that on-campus courses were rated significantly higher than online courses in Communication, Faculty/Student Interaction, Grading, Instructional Methods, and Course Outcomes; effect sizes were small. Student Effort was rated significantly higher for online courses than for F2F courses, also with a small effect size. A second analysis, using 11 pairs of the same course and same instructor, yielded similar findings. Students rated on-campus courses significantly higher than online courses in Communication, Faculty/Student Interaction, Grading, Course Outcomes, and Overall Evaluation; effect sizes were large. Overall, both analyses indicated that students are more satisfied with traditional, F2F courses compared to online courses. General recommendations include increased support and professional development for online instructors.

**Keywords:** student ratings of instruction, course evaluations, distance courses, face-to-face courses, traditional courses

### Introduction

How can faculty in higher education find ways to enhance their teaching effectiveness in learning environments that are becoming increasingly diverse? In the current environment that includes more and more online courses, many faculty are expected to be master teachers in both face-to-face (F2F) and online environments. The overall goal of this study was to examine differences of student ratings of instruction in online and F2F higher education courses.

The prevalence of online courses is on the rise in our colleges and universities. According to [Allen and Seaman \(2013\)](#), more than 6.7 million students were taking at least one online course in Fall 2011, compared to 1.6 million students in Fall 2002. In addition, 62.4% of higher education institutions are offering online courses and programs compared to only 34.5% in 2002. Instructors are being asked to re-develop traditional courses so they can be taught in ways in which students can enroll without coming to campus. According to [Lindholm, Szelényi, Hurtado, and Korn \(2005\)](#), over the past 20 years the number and variety of instructional approaches and course delivery modes, especially online, available to instructors has increased. Consequently, one of the largest challenges that instructors face is how to teach effectively in this relatively new online environment. According to [Seaman \(2009\)](#), over one third of full-time higher education faculty have taught online courses. Because of a growing demand and the belief of a majority of university administrators that the quality of online education is comparable to that

of the traditional classroom ([Allen & Seaman, 2013](#)), online teaching may become an expectation rather than a choice for university faculty.

In the absence of F2F contact present in traditional courses, embedding the affective components of online education has become recognized as key to its success ([Reilly, Gallagher-Lepak, & Killion, 2012](#)). Instructors have to find new ways to communicate, to establish strong and trusting relationships with students, to develop fair ways to assess tasks in the course, and to find engaging ways to deliver course material.

Although many studies have been conducted to examine effective teaching in higher education during the past half century (Pascarella & Terenzini, 2005), studies taking place in the distance environment are relatively recent. It may be that effective online teaching differs from effective F2F teaching and that traditional approaches to teaching may be less beneficial for online instructors ([González, 2009](#); [Horspool & Lange, 2012](#); [Mayne & Wu, 2011](#)).

## Background

Student ratings of instruction are widely used in universities as a measure of teaching effectiveness ([Dresel & Rindermann, 2011](#)). Although some faculty may question their validity, a great deal of research has supported the use of student ratings to measure teaching quality ([Marsh, 2007](#)). While reinforcing the validity of student ratings, [Galbraith, Merrill, and Kline \(2012\)](#) caution that the relationship between student ratings of their instructors and student learning may not be linear, especially in traditional F2F environments where there is increased opportunity for more "direct student assessment of instructor 'likability' and 'charisma'" (p. 368).

Teaching effectiveness involves a complexity of variables and student evaluation of instructors is a subjective process ([Galbraith et al., 2012](#)). For example, studies have shown that instructors of upper level courses are consistently rated higher than those teaching lower level courses; elective courses receive higher marks than required courses; and instructors in humanities and education are rated as more effective than those in disciplines such as mathematics and engineering ([Young & Bruce, 2011](#)). There are numerous studies examining learning outcomes (Means, Toyama, Murphy, & Baki, 2013), student satisfaction ([González, 2009](#); Karatas & Simsek, 2009; [Mayne & Wu, 2011](#)), and student motivation ([Leen & Lang, 2013](#); [Roseth, Saltarelli, & Glass, 2011](#); [Shroff & Vogel, 2009](#)) of students in online and F2F courses. However, few of these studies control for instructor effects or effects of different outcome measures and many of the studies use small samples.

Research in the area of online teaching has included surveys of online students and instructors and case studies of individual classes and students. According to [Mentzer, Cryan, and Teclehaimanot \(2007\)](#), [Summers, Waigandt, and Whittaker \(2005\)](#), and others, online students and F2F students achieve similar learning outcomes when examination results are used as indicators but differ on affective measures such as satisfaction ([Allen & Seaman, 2011](#); Hauck, 2006; [Horspool & Lange, 2012](#); Karatas & Simsek, 2009; [Mentzer et al., 2007](#); [Summers et al., 2005](#); Zacharis, 2010).

[Mentzer et al. \(2007\)](#) conducted a study comparing online and F2F learning and satisfaction. In their study, 36 undergraduate students were randomly assigned to either an online section or a F2F section of the same course, with the same instructor and with course materials carefully matched. Overall, students' mid-term and final examination scores were similar regardless of the delivery format; however, when course assignment points were included to derive final grades, students in the F2F section had a significantly higher average course grade compared to students in the online section. More detailed examination indicated that online students who submitted course assignments did not earn lower grades on these assignments; however, larger numbers of online students failed to submit some of these assignments, suggesting that personal, F2F contact with the instructor may influence and motivate students to turn in assignments. Finally, the researchers used the end-of-course evaluation to determine student satisfaction. They found that the instructor was rated significantly higher in the F2F course, although student ratings of the instructor were very high for both groups.

[Summers et al. \(2005\)](#) conducted a study similar to that of [Mentzer et al. \(2007\)](#) comparing student achievement and satisfaction in online and F2F sections of the same course. The two sections included a convenience sample of 38 undergraduate students, with students self-selecting their course section. The same instructor taught both sections and used comparable materials. Cumulative examination scores of students in the two groups did not differ. However, student satisfaction, measured by course evaluations, indicated that online students were less satisfied compared to their F2F counterparts.

[Horspool and Lange \(2012\)](#) conducted a study of 152 students and they also controlled for course instructor, teaching methods, and teaching materials. In their study, student grades did not differ across the online and F2F environments. In contrast to [Mentzer et al. \(2007\)](#) and [Summers et al. \(2005\)](#), Horspool and Lange found no significant differences in students' reported satisfaction. Thus, across the three studies, student achievement, measured by examination scores, did not differ when comparing F2F and online delivery. However, student satisfaction was inconsistent, indicating that student satisfaction may be impacted by variables other than course delivery method.

Not all studies indicate that learning is similar in online and F2F environments, however. [Kirtman \(2009\)](#) studied 140 students who self-selected an online or a F2F section of the same course. The three online and three F2F sections had the same instructor and used the same course project and examinations. Only the online students completed a student satisfaction survey. In contrast to [Horspool and Lange \(2012\)](#), [Mentzer et al. \(2007\)](#), and [Summers et al. \(2005\)](#), Kirtman found that student achievement did differ significantly on the mid-term examination, with online students scoring on average two points less than their F2F counterparts. On the final examination, online students' scores were still lower, but the difference was not significant. In further contrast to Mentzer et al., Kirtman found no difference in points assigned to course assessments between online and F2F students. Moreover, student satisfaction in the online courses was noted as overwhelmingly positive, although no statistical comparison of F2F and online students was possible. Kirtman's study took place over a period of two years and used carefully matched instruction and instructional materials. It is very likely though, that some changes were made over time; the analysis combined all F2F and all online and did not account for possible instructional changes.

Although quantitative data provide indicators of instructor effectiveness and student satisfaction, qualitative data such as student comments on course evaluations provide a more detailed picture of the characteristics that constitute effective teaching. [Duncan \(2005\)](#) and [Young \(2006\)](#) studied student comments on online courses and found that effective teachers, according to students, were those who were concerned about their students, established trusting relationships, and provided structure and flexibility. They also communicated well and were active and visible, as they facilitated learning. [Young and Bruce \(2011\)](#) examined student perceptions of online courses and found the following three factors related to their overall evaluations: community building between students and instructors, community building among students, and student engagement with learning. In addition, they compared course ratings across disciplines and found that students in Education and Health Sciences felt more strongly connected to their classmates compared to students in Business and Arts and Sciences courses.

Agosto, Copeland, and Zach (2013) observed it was important for instructors to promote collaboration and conversation in online environments. Increased student interaction leads to greater engagement and deeper and more critical thought ([Zach & Agosto, 2009](#)). Instructors who are not effective at promoting communication and interaction in online courses can cause students to feel isolated, bored, and even over-loaded ([Borup, West, & Graham, 2012](#); [Reilly et al., 2012](#)). Effective teachers, according to [Young \(2006\)](#), adapt to student needs, use meaningful examples, motivate students to do their best, facilitate the course effectively, deliver a valuable course, communicate well, and show concern for student learning.

In summary, when comparing online and F2F courses there are conflicting results regarding student achievement, measured by end of course examinations and course projects. The evidence examining student satisfaction, typically measured by course evaluations, or student ratings of instruction, is inconclusive. Thus the purpose of the present study was to examine student ratings of instruction in F2F and online settings to find out how student ratings differed in several areas.

Two research questions guided the present study:

- 1) In what ways do student ratings of instruction for F2F courses differ from online courses?
- 2) For F2F and online courses that are taught by the same instructors, how do student ratings of instruction differ?

## Method

The present study examined student ratings of instruction for F2F and online courses, using common items from two similar rating instruments. The instruments used for rating were the *Student Instructional Report* (SIR II), for F2F courses, and the *Student Instructional Report of Distance Learning Courses*

(eSIR II), for online courses. Development of the SIR began in 1972 (Centra, 2006); the SIR II is the second generation of the instrument and was published in 1995 by the Educational Testing Service. According to Centra, items on the SIR II are grounded in the vast literature on effective teaching in higher education. The SIR II contains 40 items; these are combined to form nine scales. The eSIR II was developed based on the SIR II, with items slightly revised to be appropriate for the distance classroom. The eSIR II contains 41 items and also has nine scales. Responses for scales one through five and eight ranged from 1 (ineffective) to 5 (very effective); for scales six and seven responses ranged from 1 (much less than most courses) to 5 (much more than most courses). For the present study, only eight scales and 27 items common to the two instruments were analyzed. Table 1 shows the scales and the numbers of items for each one.

Table 1. *Scales and numbers of items*

Scale Name	Number of Items
Organization and Planning	3
Communication	2
Faculty/Student Interaction	4
Grading	4
Instructional Methods	6
Course Outcomes	5
Student Effort	2
Overall Evaluation	1

Ratings were gathered from students in both F2F and online courses across seven semesters from the College of Education at a western university. The dataset included 642 courses, with 8,271 total student ratings. See Table 2 for the number of undergraduate and graduate students in online and F2F courses. Four hundred seventy classes were F2F and 172 courses were online. The majority of the online courses were graduate level ( $n = 129$ ) and the majority of the F2F courses were undergraduate level ( $n = 302$ ). Of the 642 courses, 11 pairs of courses were taught F2F and online by the same instructor. Six of these 11 courses were undergraduate and five were graduate level; the total number of students in online courses was 204 and in F2F courses the total was 99.

Table 2. *Number of undergraduate and graduate students in face-to-face and online courses*

	F2F	Online	Total
Undergraduate	4,664	613	5,277
Graduate	1,369	1,625	2,994
Total	6,033	2,238	8,271

Note. F2F = face-to-face.

Two analyses were conducted to compare student ratings of F2F and online courses. The first analysis compared all F2F ratings to all online ratings without matching courses or instructors. Data for this analysis included all 8,271 ratings with complete responses. Although many instructors taught the same courses from semester-to-semester, most instructors used only one delivery method exclusively for specific courses. Some instructors taught courses using both deliveries but not often the same course. The second analysis examined pairs of the same courses, one F2F and one online, taught by the same instructors, but not necessarily offered in the same semester.

## Results

In what ways do student ratings of instruction for F2F courses differ from online courses? To answer this question, comparisons were made between students in 470 F2F classes and in 172 online classes. No effort was made to match instructors or courses for the two delivery methods.

Eight independent samples *t*-tests were used to compare the F2F and the online ratings in the areas of Organization and Planning, Communication, Faculty/Student Interaction, Grading, Instructional Methods, Course Outcomes, Student Effort, and the Overall Evaluation. A significance level of .05 was adjusted for the eight *t*-tests; thus a significance level of .0063 was used for each individual *t*-test. Table 3 shows the results of the comparisons.

Table 3. *Eight independent samples t-tests comparing face-to-face and online ratings*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
1) <i>Organization and Planning</i>							
F2F	5,993	4.14	0.92	8,216	0.43	.67	0.01
Online	2,225	4.15	0.90				
2) <i>Communication*</i>							
F2F	5,967	4.22	0.92	8,171	6.04	< .001	0.15
Online	2,206	4.08	0.95				
3) <i>Faculty/Student Interaction*</i>							
F2F	5,988	4.38	0.86	8,199	8.47	< .001	0.21
Online	2,213	4.19	0.97				
4) <i>Grading*</i>							
F2F	5,956	4.11	0.92	8,168	5.99	< .001	0.15
Online	2,214	3.97	0.99				
5) <i>Instructional Methods*</i>							
F2F	5,953	4.15	0.85	8,159	4.36	< .001	0.11
Online	2,208	4.06	0.86				
6) <i>Course Outcomes*</i>							
F2F	5,979	3.71	0.93	8,159	4.54	< .001	0.11
Online	2,204	3.61	0.83				
7) <i>Student Effort*</i>							
F2F	5,972	3.44	0.95	8,159	3.87	< .001	0.10
Online	2,201	3.53	0.83				
8) <i>Overall Evaluation</i>							
F2F	5,968	4.04	0.99	8,157	0.47	.64	0.01
Online	2,191	4.03	1.03				

Note. F2F = face-to-face. Responses for scales one through five and eight ranged from 1 (ineffective) to 5 (very effective); for scales six and seven responses were 1 (much less than most courses), 2 (less than most courses), 3 (about the same as other courses), 4 (more than most courses), and 5 (much more than most courses). An asterisk (\*) indicates a significant difference.

Interestingly, mean ratings were very high for both F2F and online courses, with almost all being greater than four. Significant differences in student ratings were found between the two delivery methods in Communication, Faculty/Student Interaction, Grading, Instructional Methods, Course Outcomes, and Student Effort. In all significant comparisons except Student Effort, the F2F ratings were higher than the online ratings. Effect sizes (Cohen's *d*) indicated that differences were trivial to small and should not be considered meaningful (Cohen, 1992; McMillan & Foley, 2011).

For F2F and online courses that are matched by course and instructor, how do student ratings of instruction differ? For this analysis, 11 pairs of courses met the criteria of being the same course taught by the same instructor using both a F2F and an online delivery method. Six of the 11 pairs of courses were undergraduate and five were graduate level.

Eight dependent samples *t*-tests were used to examine the differences between F2F ratings and online ratings. A significance level of .0063 was used for each *t*-test (adjusting .05 for the eight *t*-tests). Class averages were calculated using individual student scores and these class averages were used in the dependent samples *t*-test analysis. Dependent samples *t*-tests require related data to be paired and the only possible pairing was at the course level, using online and F2F courses taught by the same instructor. Results are shown in Table 4.

Ratings were significantly different in Communication, Faculty/Student Interaction, Grading, Course Outcomes, and Overall Evaluation. In every comparison, ratings favored the F2F courses. Also, it is interesting to note that these instructors received high ratings overall, regardless of course delivery approach. Most average ratings were at least a four; only ratings of Course Outcomes and Student Effort were between three and four, indicating that students rated their own learning (Course Outcomes) and their own effort (Student Effort) as at least the same as in other courses. In other words, students see the instructors as effective in both F2F and online classrooms. Effect sizes (Cohen, 1992) illustrated

that mean differences were large and, from a practical perspective, the effect of type of delivery is obvious; students perceive F2F instruction as clearly more effective than online instruction.

Table 4. *Eight dependent samples t-tests comparing face-to-face and online ratings on matched courses*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
1) <i>Organization and Planning</i>							
F2F	204	4.68	0.22	10	2.48	.033	0.83
Online	98	4.28	0.51				
2) <i>Communication*</i>							
F2F	202	4.73	0.18	10	3.71	.004	1.27
Online	97	4.16	0.50				
3) <i>Faculty/Student Interaction*</i>							
F2F	203	4.82	0.16	10	3.45	.006	1.29
Online	98	4.34	0.48				
4) <i>Grading*</i>							
F2F	203	4.71	0.24	10	4.19	.002	1.36
Online	97	4.15	0.45				
5) <i>Instructional Methods</i>							
F2F	202	4.61	0.28	10	3.28	.008	1.00
Online	95	4.19	0.39				
6) <i>Course Outcomes*</i>							
F2F	200	4.41	0.26	10	6.12	< .001	1.89
Online	98	3.64	0.35				
7) <i>Student Effort</i>							
F2F	198	3.95	0.35	10	2.13	.059	0.63
Online	97	3.56	0.44				
8) <i>Overall Evaluation*</i>							
F2F	203	4.59	0.26	10	3.45	.006	1.10
Online	99	4.15	0.41				

Note. F2F = face-to-face. Responses for scales one through five and eight ranged from 1 (ineffective) to 5 (very effective); for scales six and seven responses were 1 (much less than most courses), 2 (less than most courses), 3 (about the same as other courses), 4 (more than most courses), and 5 (much more than most courses). An asterisk (\*) indicates a significant difference.

## Discussion and Conclusion

Similar to the findings of [Mentzer et al. \(2007\)](#) and [Summers et al. \(2005\)](#), in this study, students rated instructors higher in F2F settings on most factors that were included on the rating forms. In the large dataset that included 642 unmatched courses, with more than 8,000 student ratings, students in F2F courses rated their instructors significantly higher than students in online courses in the areas of Communication, Faculty/Student Interaction, Grading, Instructional Methods, and Course Outcomes. Student Effort, however, was rated significantly higher for the online courses compared to the F2F courses, reflecting the typically increased workload and the difficulty of working asynchronously in the online environment (Young, Thompson, Shaw, Bruce, & Mundfrom, 2005). Although these mean differences were significant and all differences but one were in the same direction, the effect sizes were small indicating that the practical significance of these differences may be questionable. Ratings may have been influenced by other factors such as instructor or student characteristics. Instructors may choose to teach in the environment in which they are most comfortable and skilled, just as students may choose the environment that best suits their learning style. It is also worth noting that, because a majority of F2F students were undergraduate students and a majority of online students were graduate students, student level may have impacted the student ratings. In addition, as Mentzer et al. noted, factors such as instructor personality and likeability may have a greater impact on F2F student ratings.

In the second analysis that examined ratings of instructors who taught the same courses in both settings, the pattern was similar. Ratings of the F2F instructors were significantly higher in Communication, Faculty/Student Interaction, Grading, Course Outcomes, and the Overall Evaluation. Here, the effect sizes were large and the differences have more practical value, especially since the data were matched on courses and instructors. Based on the student ratings, these instructors seem to

be equally good teachers in both environments, and they may be the kinds of teachers who strive for excellence. However, there are many characteristics that may influence these ratings, and some of these may not be within the control of the instructors. For example, learning preference of the students may be a factor as well as the many reasons that students may choose an online course rather than a F2F course ([Horspool & Lange, 2012](#)). Interestingly, students rated their effort in this analysis higher in F2F classes than online classes compared to the unmatched analysis. This may be due to the instructors incorporating features from the online environment into the F2F courses, thus increasing the workload for students ([Horspool & Lange, 2012](#)).

The difference between the effect sizes found for the two analyses is an interesting but not surprising finding. Large samples with similar means can easily yield significant differences. The first analysis, with its small effect sizes, may indicate that when considering a broad range of course and instructors, student ratings appear not to be different for F2F and online courses. However, when courses and instructors are controlled, as in the second analysis, F2F courses have a clear advantage over online courses. One limitation that must be considered is that, although instructor and courses are matched, the effect of student characteristics was not controlled; students self-selected online or F2F courses. A second limitation is that this analysis only included 11 pairs of courses; this small number is not sufficient to generalize the findings beyond the present study.

Both analyses supported the earlier research conducted by [Mentzer et al. \(2007\)](#) and [Summers et al. \(2005\)](#), suggesting that students are more satisfied with traditional, F2F courses compared to online courses. However, the findings contradicted those of [Horspool and Lange \(2012\)](#), who found that students were equally satisfied with online and F2F courses. It is difficult to determine if the level of student satisfaction derives from the type of course delivery or from the quality of instruction. Many students may be unable to enroll in traditional, F2F courses for various reasons, including location, job and family responsibilities, and many others that make online learning an attractive option, especially for less traditional, older adults ([Chau, 2010](#)).

How can instructors in both F2F and online courses use what they learn from student ratings to strengthen their teaching? The data from the matched analysis likely provide the more interesting answer to this question. These instructors are already very effective in the traditional, F2F environment and are likely to continually give effort to enhancing their teaching based on feedback from students. Most teachers have had experience, education, and professional development that help them to be effective in the F2F environment. Online teaching is quite different, however, and involves skills that are relatively new in higher education; instructors likely learn to be more effective from their own experiences as well as from other instructors. According to [Allen and Seaman \(2011\)](#), the majority of training for online instruction comes from mentoring or internal training.

The instructors in the matched sample are all seen as highly effective in all eight rating areas, yet they were rated lower in most areas overall by students in their online courses compared to the F2F courses. Instructors can use their evaluations to help identify areas in which they can strengthen their online teaching. Communication is often more challenging in online courses and instructors who wish to increase their effectiveness in this area will have to use different strategies in this environment compared to their F2F courses. They might have to respond to email more often, for example, or set up synchronous online chats or audio/video sessions for their office hours. In the area of faculty/student interaction, instructors may find it difficult to create connections between themselves and their students when they do not see them in person. Indeed, the challenges appear to be even more difficult in an online environment ([Young & Bruce, 2011](#)).

In conclusion, the present study offers two general recommendations in the area of strengthening instruction based on student ratings. One recommendation, related to the differences in the two environments (F2F and online), is that online instructors be given additional consideration in tenure, promotion, and reappointment decisions. Instructors and administrators in higher education should recognize that instructors may receive less positive evaluations for their online courses. This may be explained by difficulties in communicating, creating positive faculty/student interactions, establishing agreeable and fair grading criteria, influencing student beliefs about their own learning, encouraging student effort, and finding effective online teaching strategies. Instructors who agree to teach online are risking lower ratings and taking on a greater workload; according to [Allen and Seaman \(2013\)](#), nearly 50% of academic leaders agree that online courses take more time and effort compared to F2F courses.

Thus faculty who receive additional support from administrators may be more successful in their teaching.

The second recommendation is that instructors who deliver online courses must continuously work to enhance their teaching by participating in professional development. They might benefit from workshops on online teaching (that offer more than techniques and strategies) or collaborating with other colleagues. According to [Horspool and Lange \(2012\)](#) and also Bruce, Young, and Kennedy (2012), student learning and satisfaction in online courses can be enhanced by peer-to-peer interaction. Instructors can benefit by designing activities to increase student engagement with each other and build students' feelings of community.

Suggestions for future studies include that researchers delve more deeply into the instructional methods and course design used by highly successful online instructors. Online students may be more satisfied with their learning experience and may benefit more from instruction that is designed for a distance, asynchronous environment, rather than instruction that is carefully crafted to match the F2F instructional environment. A carefully controlled experimental design comparing the two types of delivery would control for factors such as student preference. Also, researchers could examine the issue of student satisfaction in a large survey study of courses carefully matched by instructors. Online instruction is becoming increasingly popular and pervasive ([Allen & Seaman, 2013](#)) in higher education and faculty must ensure that students continue to learn as much as in F2F courses. Faculty must also develop instructional skills that work best in the online environment so that students are satisfied, engaged, and well connected with instructors and their peers.

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