Student Ratings of Instruction in Online versus Face-to-Face Courses

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Purposes of the Study

Our purpose was to compare college student ratings of instruction in traditional (i.e., face-to-face) and online courses to determine if an instrument traditionally used with traditional face-to-face courses is appropriate to use in online learning environments. Previous research has suffered from a number of methodological limitations, including questionable reliability and validity of the instruments used to measure student outcomes, and data from single courses and/or single institutions involving relatively small samples. The present study utilized data collected at nearly 300 institutions from 2002 to 2008 using the IDEA Student Ratings System (IDEA; www.ideacenter.org).

Perspective(s) or Theoretical Framework

Numerous investigations of college course assessments have come to the same conclusion: there is no significant difference in student outcomes between online and face-to-face formats (Carey, 2008; Russell 1999; Barry and Bunyan, 1995; Cheng, Lehman, & Armstrong 1991; Martin and Rainey 1993; Moore et al. 1990). Nonetheless, some have argued that instructors should not attempt to apply face-to-face teaching methods in online formats (Knapczyk & Hew, 2007). If that is the case, then one might expect certain teaching methods to be more prominent in traditional than online courses. This study expanded on these questions by also investigating the role of teaching methods, student characteristics, course characteristics and global perceptions of the course and teacher in traditional versus online course modalities.

Methods

Instrumentation

The IDEA Student Ratings of Instruction System (IDEA). Data were accessed from archived files at The IDEA Center. The IDEA Center's Student Ratings of Instruction, initiated in 1975 with the help of a grant from the W.K. Kellogg Foundation, have been in use for 35 years. Over 300 institutions currently use the system.

The IDEA system is based on a student learning model that states:

Specific teaching behaviors influence student progress (learning) under certain circumstances.

Analyses were performed on two forms that comprise the IDEA system: the *Faculty Information Form* (FIF), completed by the instructor, and the *Diagnostic Form* completed by students (see Appendix for item content). On the FIF, instructors rate the importance ("Essential," "Important," and "Minor or of No Importance") of 12 learning objectives (see Obj 1 to Obj 12 in the Appendix). They also report the enrollment, which is used in computing response rate.

The *Diagnostic Form* addresses the student learning model. Students rate their progress on those same learning objectives included in the FIF using a scale ranging from 1 = "No apparent progress" to 5 = "Exceptional progress" (items 21-32). They also indicate how frequently (1 = Hardly Ever to 5 = Almost Always) each of 20 teaching methods is employed. The 20 teaching methods, which correlate highly with students' progress on instructor-identified important or essential learning objectives, are organized into five subscales (see Table 1) with high Cronbach alpha coefficients for each of the five scales, ranging from .85 (structuring classroom experiences) to .94 (stimulating student interest) (Hoyt and Lee, 2002).

The course characteristics include student ratings of the relative amount of reading required in the course, amount of work in (non-reading) assignments, and the difficulty of the subject matter (using a scale from 1 = "Much Less than Most Courses" to 5 = "Much More than Most Courses"; items 33-35). Students provide self-ratings related to their motivation to take the course, their effort in the course, and their general work habits (items 36-39 and 43). Students also provide a global rating on whether the course improved their attitude toward the field, as well as global ratings of instructor and course excellence (using a scale ranging from 1 = "Definitely False" to 5 = "Definitely True"; items 40-42). In addition, they report the extent to which the instructor used educational technology and a variety of evaluation methods, expected students to take responsibility for their own learning, and had high achievement standards (items 44-47). For these items, students responded from 1 = "Definitely False" to 5 = "Definitely True."

Data Sources

The sample of classes was taken from 2002 to 2008 users of IDEA. To keep the methodology consistent, only surveys delivered online were included. All paper survey forms were omitted. The IDEA Center contacted

campuses using online survey delivery to ascertain whether their courses were taught on campus (traditional),

via the Internet (online), or in some combination. Only classes identified exclusively as traditional or online

from 105 institutions were included in the sample. A total of 5,272 classes were identified as traditional (the

course was conducted on campus), and 13,416 were determined to be online courses. Table 2 presents the

frequency and percentage of classes coded as either traditional or online across the seven-year period. The

percentage of traditional courses using IDEA Online increased across the years.

Before making comparisons, we examined whether similar types of students were enrolled in traditional

and online courses. Slight differences were found in lower division, specialized; upper division, specialized; and

graduate/professional classes (see Table 3). The largest difference was observed in the percentage of students

enrolled in graduate/professional classes, which was somewhat greater for online (26.1%) than traditional

(15.3%) courses. Although none of these differences is large, they should be kept in mind when interpreting the

results.

<div align="center">Results</div>

Student Response Rates to IDEA

Student response rates were somewhat higher in traditional (M = .58, SD = .26) than online courses (M

= .50, SD = .23). The magnitude of this difference was about one-third standard deviation. Numerous

explanations could be given for differences in response rates. Perhaps because of face-to-face contact with

students, an instructor in a traditional course has more influence on student compliance. The on-campus

instructor might take a personal interest in students or remind them to complete the ratings. Some traditional

instructors may have access to computer labs where students can complete the ratings in-class. Others may

work in institutions where students are encouraged to bring laptops to class. In contrast, most online instructors

never meet students in person. The lack of face-to-face contact may diminish instructor influence.

Correlations between response rate and student ratings. Because student response rates differed by

course delivery type, we computed correlations between response rates and student ratings (Diagnostic Form)

separately for both types of courses. The correlations were quite low: traditional mean r = .03; online mean r =

.11. Thus response rate was not highly correlated with student ratings in either type of course.

Instructor Ratings of the Importance of the 12 IDEA Learning Objectives

Descriptive statistics for instructor ratings of the importance of the 12 IDEA learning objectives by type of course delivery are presented in Table 4. Given that the average *SD* for the objectives was quite large (.74), mean ratings of importance did not differ meaningfully between online and traditional courses. However, the percent of classes where the objective was either important or essential (%Total) varied somewhat in two instances: Online instructors less frequently emphasized team skills (Obj. 5) and creative capacities (Obj. 6).

Faculty Ratings of the 12 Learning Objectives

Inter-correlations among instructor ratings of the importance of 12 learning objectives were computed separately for traditional and online courses. The only conspicuous difference (see Table 5) was that the correlation between Objective 6 (Developing creative capacities) and Objective 8 (Developing skill in expressing oneself orally or in writing) was somewhat higher in online ($r = .47$) than traditional ($r = .29$) courses. Given the high number of correlations computed, this single difference was not considered meaningful. In general, then, there were no meaningful differences between traditional and online courses in the correlations among instructor ratings of objectives.

Student Ratings of Teaching Methods, Instructor Characteristics, Course Characteristics, Self-Ratings of Motivation/Work Habits/Effort, and Global Ratings of the Course/Instructor

Student ratings of the frequency of 20 teaching methods (TM 1 to TM 20) were highly similar across type of course (see Table 6). This implies that instructors are perceived to employ the teaching methods with the same frequency across course modalities, which supports the generalizability of the methods. However, one teaching method did differ: "The instructor used educational technology (e.g., Internet, e-mail, computer exercises, multi-media presentations, etc.) to promote learning" (TM 47). As indicated in Table 6, online students ($M = 4.44$) rated their instructors higher on this method than did traditional students ($M = 4.16$). The *d* of -.33 indicates a small-to-medium effect size due to course modality. This difference makes sense when one considers that by their very nature, online courses rely heavily upon technology.

As also shown in Table 6, no meaningful differences were found in teaching methods, learning objectives; course characteristics; student characteristics; and global ratings of the instructor and course.

Correlations Between Instructor Ratings of Importance and Students Ratings of Progress on the 12 Learning Objectives?

The highest correlations between instructor ratings of importance and student ratings of progress should be found in ratings of the same objectives (see Hoyt, 1973). As indicated in Table 7, the correlations among ratings of the same objectives (indicated in bold along the diagonal) were, on average, higher than the average off-diagonal correlations in both traditional ($r = .18$ vs. $r = .03$) and online ($r = .12$ vs. $r = .01$) courses. This provides indirect evidence of the validity of student ratings in both course modalities.

Correlations between Students' Ratings of the Instructor's Teaching Methods and Progress on Learning Objectives

Table 8 presents correlations between students' ratings of progress on the 12 learning objectives ("Obj 1" to "Obj 12"), the 20 teaching methods ("TM 1" to "TM 20"), and TM 47 (instructor's use of educational technology). The pattern of correlations was very consistent across type of course. One notable exception was found in the correlation between TM 47 (use of educational technology to promote learning) and Objective 7 (broad liberal education), which was slightly higher in online ($r = .43$) than traditional ($r = .26$) courses. Because of the high number of comparisons made among correlation coefficients, this difference was not considered meaningful.

Scientific or Scholarly Significance of the Study

We investigated the relevance of a student ratings instrument--historically used in traditional classroom learning environments--in online learning environments. We specifically examined differences in student response rates; faculty ratings of the importance of 12 learning objectives; correlations among learning objectives; correlations between faculty and student ratings of learning objectives; and student ratings of teaching methods, progress on learning objectives, course characteristics, student characteristics, and global student ratings of the instructor and course.

The most meaningful differences were found in somewhat higher student response rates in traditional courses and greater instructor use of educational technology in online courses. In addition, online instructors less frequently rated team skills and creative capacities as relevant objectives in their courses. No other

meaningful differences were observed with respect to student progress on relevant learning objectives,

frequency of specific teaching methods, and global ratings of the instructor and course.

This supports the work of Knapczyk and Hew (2007) who contended that regardless of course format

instructors should employ teaching methods that best help students to achieve relevant course objectives. In this

study, the amount of student progress on learning objectives (when emphasized by the instructor), the frequency

of teaching methods used, and the correlations between those methods and student achievement of relevant

objectives did not differ between course modalities. Although the technologies or specific strategies likely

differ, instructors need to stimulate interest, foster collaboration, establish rapport, encourage involvement, and

provide structure to support student learning regardless of the type of course. These results demonstrate support

for using the same student learning focused instrument to collect student input to guide faculty reflection on

teaching and learning in either a traditional or online learning environment.

WORD COUNT: 1,926

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Appendix

Items on the IDEA Diagnostic Form

Diagnostic Item Abbreviation	Diagnostic Item Content
TM 1	1. Displayed a personal interest in students and their learning
TM 2	2. Found ways to help students answer their own questions
TM 3	3. Scheduled course work (class activities, tests, projects)
TM 4	4. Demonstrated the importance and significance of the subject matter
TM 5	5. Formed "teams" or "discussion groups" to facilitate learning
TM 6	6. Made it clear how each topic fit into the course
TM 7	7. Explained the reasons for criticisms of students' academic performance
TM 8	8. Stimulated students to intellectual effort beyond that required by most courses
TM 9	9. Encouraged students to use multiple resources to improve understanding
TM 10	10. Explained course material clearly and concisely
TM 11	11. Related course material to real life situations
TM 12	12. Gave tests, projects, etc. that covered the most important points of the course
TM 13	13. Introduced stimulating ideas about the subject
TM 14	14. Involved students in "hands on" projects such as research, case studies, or "real life" activities
TM 15	15. My background prepared me well for this course's requirements.
TM 16	16. Inspired students to set and achieve goals which really challenged them
TM 17	17. Asked students to share ideas and experiences with others
TM 18	18. Provided timely and frequent feedback on tests, reports, projects, etc. to help students improve
TM 19	19. Asked students to help each other understand ideas or concepts
TM 20	20. Gave projects, tests, or assignments that required original or creative thinking
TM 44	44. The instructor used a variety of methods to evaluate student progress on course objectives.
TM 45	45. The instructor expected students to take their share of responsibility for learning.
TM 46	46. The instructor had high achievement standards in this class.
TM 47	47. The instructor used educational technology to promote learning.
Obj 1	21. Gaining factual knowledge (terminology, classifications, methods, trends)
Obj 2	22. Learning fundamental principles, generalizations, or theories
Obj 3	23. Learning to apply course material (to improve thinking, problem solving, and decisions)
Obj 4	24. Developing specific skills, competencies, and points of view needed by professionals
Obj 5	25. Acquiring skills in working with others as a member of a team
Obj 6	26. Developing creative capacities
Obj 7	27. Gaining a broader understanding and appreciation of intellectual/cultural activity
Obj 8	28. Developing skill in expressing oneself orally or in writing
Obj 9	29. Learning how to find and use resources for answering questions or solving problems
Obj 10	30. Developing a clearer understanding of, and commitment to, personal values
Obj 11	31. Learning to analyze and critically evaluate ideas, arguments, and points of view
Obj 12	32. Acquiring an interest in learning more by asking questions and seeking answers
CR 33	33. Amount of Reading
CR 34	34. Amount of work in other (non-reading) assignments
CR 35	35. Difficulty in subject matter
Self 36	36. I had a strong desire to take this course.
Self 37	37. I worked harder on this course than on most courses I have taken.
Self 38	38. I really wanted to take a course from this instructor.
Self 39	39. I really wanted to take this course regardless of who taught it.
Self 43	43. As a rule, I put forth more effort than other students on academic work.
GL 40	40. As a result of taking this course, I have more positive feelings toward this field of study.
GL 41	41. Overall, I rate this instructor as an excellent teacher.
GL 42	42. Overall, I rate this course as excellent.

Note: TM = Teaching Method; Obj = Learning Objective; CR = Course Rating; Self = Self-Rating; GL = Global Rating

Table 1
Teaching Method Subscales on the IDEA Student Ratings Diagnostic Form

I. Stimulating Student Interest

    4.Demonstrated the importance and significance of the subject matter
    8. Stimulated students to intellectual effort beyond that required by most courses
    13. Introduced stimulating ideas about the subject
    15. Inspired students to set and achieve goals which really challenged them

II. Fostering Student Collaboration

    5. Formed "teams" or "discussion groups" to facilitate learning
    16. Asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own
    18. Asked students to help each other understand ideas or concepts

III. Establishing Rapport

    1.Displayed a personal interest in students and their learning
    2. Found ways to help students answer their own questions
    7. Explained the reasons for criticisms of students' academic performance
    20. Encourage student-faculty interactions outside of class (office visits, phone calls, e-mail, etc.)

IV. Encouraging Student Involvement

    9. Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding
    11. Related course material to real life situations
    14. Involved students' in "hands-on" projects such as research, case studies, or "real-life" activities
    19. Gave projects, tests, or assignments that required original or creative thinking

V. Structuring Classroom Experience

    3. Scheduled course work (class activities, test, and projects) in ways which encouraged students' to stay up-to-date in their work
    6. Made it clear how each topic fit into the course
    10. Explained course material clearly and concisely
    12. Gave tests, projects, etc. that covered the most important points of the course
    17. Provided timely and frequent feedback on tests, reports, projects, etc. to help students improve

Table 2
Frequency and Percentage of Classes Using IDEA Online
Disaggregated by Year and Type of Course Instruction (Traditional vs. Online)

Type of Course Instruction					
Traditional			**Online**		
Year	**N**	**%**	**N**	**%**	**Total**
2002	15	6.5%	216	93.5%	231
2003	30	9.2%	296	90.8%	326
2004	109	23.4%	357	76.6%	466
2005	355	32.1%	750	67.9%	1,105
2006	754	28.1%	1,932	71.9%	2,686
2007	1,032	22.8%	3,504	77.2%	4,536
2008	2,977	31.9%	6,361	68.1%	9,338
Total	5,272	28.2%	13,416	71.8%	18,688

Table 3

Frequency and Percentage of Principal Type of Student Enrolled by Type of Course Instruction

Traditional Courses				
			Response Rate	
Student Type	**Frequency**	**Percent**	***M***	***SD***
Lower Division, General Education	1,228	25.5%	0.54	0.25
Lower Division, Specialized	1,073	22.3%	0.56	0.25
Upper Division, General Education	244	5.1%	0.60	0.23
Upper Division, Specialized	1,076	22.4%	0.62	0.24
Graduate/Professional	734	15.3%	0.74	0.26
Combination	453	9.4%	0.55	0.24
Total	4,808	100.0%	0.60	0.26
Missing	464	8.8%	-	-

Online Courses				
			Response Rate	
Student Type	**Frequency**	**Percent**	***M***	***SD***
Lower Division, General Education	2,983	24.4%	0.40	0.20
Lower Division, Specialized	1,924	15.7%	0.43	0.21
Upper Division, General Education	752	6.1%	0.49	0.20
Upper Division, Specialized	1,684	13.8%	0.54	0.22
Graduate/Professional	3,199	26.1%	0.61	0.22
Combination	1,698	13.9%	0.47	0.22
Total	12,240	100.0%	0.50	0.23
Missing	1,176	8.8%	-	-

Note. M = mean; *SD* = standard deviation.

Table 4
Frequencies and Descriptive Statistics for Instructor (FIF) Ratings of Learning Objectives in Traditional and Online Courses

Learning Outcome	Traditional Courses						Online Courses					
	% I	% E	% Total	M	SD	Valid N	% I	%E	% Total	M	SD	Valid N
1. Factual knowledge	33.6	44.1	77.7	2.22	0.79	4,753	33.0	48.5	81.5	2.31	0.76	12,553
2. Principles and theories	33.5	41.7	75.2	2.17	0.80	4,725	33.8	43.1	76.9	2.22	0.79	12,501
3. Applications	36.8	45.4	82.2	2.28	0.74	4,743	35.9	48.0	83.9	2.34	0.73	12,554
4. Professional skills, viewpoints	32.0	33.2	65.2	1.99	0.82	4,698	31.2	30.5	61.7	1.94	0.83	12,409
5. Team skills	26.0	11.1	37.1	1.48	0.69	4,628	19.3	6.5	25.8	1.33	0.60	12,211
6. Creative capacities	20.1	13.2	33.3	1.46	0.72	4,589	15.7	7.1	22.8	1.31	0.60	12,168
7. Broad liberal education	18.4	13.1	31.5	1.44	0.71	4,600	13.3	10.9	24.2	1.36	0.68	12,199
8. Communication skills	29.8	20.0	49.8	1.69	0.78	4,671	31.8	18.9	50.7	1.71	0.77	12,262
9. Find, use resources	35.6	18.6	54.2	1.72	0.75	4,663	37.7	22.0	59.7	1.83	0.77	12,326
10. Values development	21.8	9.1	30.9	1.40	0.65	4,589	20.1	8.1	28.2	1.37	0.63	12,160
11. Critical analysis	29.3	25.1	54.4	1.79	0.81	4,653	32.0	27.0	59.0	1.88	0.81	12,346
12. Interest in learning	36.2	17.5	53.7	1.71	0.75	4,608	33.5	13.9	47.4	1.63	0.72	12,205

Notes:

M = mean; *SD* = standard deviation. % I = % Important; % E = % Essential.

M number of objectives selected as important or essential for traditional and online courses was 5.73 (*SD* = 3.20) and 5.74 (*SD* = 3.07), respectively.

Instructors rated importance of learning objectives on a 1 = *Minor or No Importance* to 2 = *Important* to 3 = *Essential* scale.

Valid *N* = Number of responses from all classes excluding missing responses.

Table 5

Inter-Correlations of IDEA Faculty Information Form Faculty Ratings (FR) by Type of Course Instruction

Item	FR1	FR2	FR3	FR4	FR5	FR6	FR7	FR8	FR9	FR10	FR11
Traditional											
FR1	1										
FR2	0.42	1									
FR3	0.08	0.22	1								
FR4	0.09	0.08	0.29	1							
FR5	-0.07	0.02	0.20	0.21	1						
FR6	-0.11	-0.04	0.13	0.21	0.29	1					
FR7	0.01	0.04	-0.01	-0.02	0.14	0.37	1				
FR8	-0.12	-0.03	0.11	0.05	0.35	0.29	0.26	1			
FR9	0.07	0.14	0.31	0.24	0.32	0.20	0.14	0.38	1		
FR10	-0.03	0.06	0.16	0.08	0.35	0.24	0.28	0.33	0.31	1	
FR11	-0.04	0.15	0.23	0.03	0.25	0.19	0.28	0.42	0.38	0.40	1
FR12	0.08	0.17	0.28	0.19	0.34	0.29	0.32	0.37	0.52	0.44	0.50

Item	FR1	FR2	FR3	FR4	FR5	FR6	FR7	FR8	FR9	FR10	FR11
Online											
FR1	1										
FR2	0.45	1									
FR3	0.03	0.22	1								
FR4	0.00	0.06	0.32	1							
FR5	-0.05	0.06	0.22	0.26	1						
FR6	-0.01	0.06	0.14	0.15	0.31	1					
FR7	0.08	0.09	0.00	-0.01	0.16	0.41	1				
FR8	-0.06	0.02	0.12	0.08	0.31	0.47	0.33	1			
FR9	0.08	0.10	0.27	0.27	0.29	0.29	0.18	0.37	1		
FR10	0.05	0.15	0.19	0.17	0.34	0.34	0.30	0.35	0.32	1	
FR11	0.00	0.15	0.26	0.07	0.27	0.33	0.28	0.47	0.37	0.39	1
FR12	0.16	0.23	0.26	0.21	0.35	0.37	0.34	0.42	0.50	0.47	0.51

Note: *N*s for Traditional and Online Courses = 4,556 to 4,753 and = 12,074 to 12,553, respectively.

See Appendix for item content. Items correspond to Obj 1- Obj 12.

Table 6

Student Ratings of Individual Items on the IDEA Diagnostic Form by Type of Course Instruction

Item	2002-2008 (IDEA Database)		2002-2008 (Traditional)			2002-2008 (Online)			Traditional - Online	Approx *d*
	M	**SD**	**M**	**SD**	**ABS Δ**	**M**	**SD**	**ABS Δ**		
TM 1	4.43	0.49	4.33	0.59	0.10	4.19	0.68	0.24	0.14	0.16
TM 2	4.23	0.53	4.17	0.63	0.06	4.07	0.68	0.16	0.10	0.11
TM 3	4.30	0.50	4.24	0.61	0.06	4.32	0.60	-0.02	-0.08	-0.09
TM 4	4.41	0.47	4.32	0.58	0.09	4.23	0.63	0.18	0.09	0.11
TM 5	3.68	0.96	3.74	0.94	-0.06	3.66	1.02	0.02	0.08	0.06
TM 6	4.30	0.52	4.22	0.62	0.08	4.12	0.68	0.18	0.10	0.11
TM 7	3.99	0.60	3.98	0.71	0.01	3.87	0.79	0.12	0.11	0.10
TM 8	4.05	0.58	4.03	0.68	0.02	4.00	0.69	0.05	0.03	0.03
TM 9	3.98	0.67	4.02	0.69	-0.04	4.11	0.71	-0.13	-0.09	-0.09
TM 10	4.24	0.61	4.15	0.71	0.09	4.09	0.73	0.15	0.06	0.06
TM 11	4.31	0.58	4.27	0.63	0.04	4.15	0.71	0.16	0.12	0.13
TM 12	4.35	0.51	4.26	0.61	0.09	4.35	0.56	0.00	-0.09	-0.11
TM 13	4.17	0.58	4.15	0.66	0.02	4.06	0.71	0.11	0.09	0.09
TM 14	3.93	0.80	4.02	0.76	-0.09	3.97	0.83	-0.04	0.05	0.04
TM 15	3.97	0.63	3.99	0.69	-0.02	3.95	0.72	0.02	0.04	0.04
TM 16	3.87	0.78	3.89	0.81	-0.02	3.93	0.88	-0.06	-0.04	-0.03
TM 17	4.23	0.60	4.12	0.73	0.11	4.07	0.80	0.16	0.05	0.05
TM 18	3.96	0.65	3.97	0.71	-0.01	3.86	0.85	0.10	0.11	0.10
TM 19	4.07	0.64	4.10	0.67	-0.03	4.16	0.68	-0.09	-0.06	-0.06
TM 20	4.07	0.62	4.08	0.69	-0.01	3.98	0.77	0.09	0.10	0.10
TM 44	3.94	0.60	3.97	0.64	-0.03	4.07	0.68	-0.13	-0.10	-0.11
TM 45	4.35	0.36	4.41	0.43	-0.06	4.52	0.41	-0.17	-0.11	-0.19
TM 46	4.19	0.44	4.22	0.52	-0.03	4.27	0.51	-0.08	-0.05	-0.07
TM 47	3.95	0.72	4.16	0.65	-0.21	4.44	0.54	-0.49	-0.28	-0.33
Obj 1	4.14	0.50	4.09	0.58	0.05	4.09	0.54	0.05	0.00	0.00
Obj 2	4.09	0.51	4.06	0.58	0.03	4.05	0.55	0.04	0.01	0.01
Obj 3	4.12	0.52	4.08	0.60	0.04	4.08	0.58	0.04	0.00	0.00
Obj 4	4.07	0.54	4.04	0.61	0.03	4.02	0.60	0.05	0.02	0.02
Obj 5	3.59	0.79	3.60	0.80	-0.01	3.44	0.82	0.15	0.16	0.14
Obj 6	3.59	0.77	3.66	0.76	-0.07	3.64	0.75	-0.05	0.02	0.02
Obj 7	3.58	0.74	3.62	0.77	-0.04	3.54	0.77	0.04	0.08	0.07
Obj 8	3.60	0.77	3.56	0.78	0.04	3.68	0.76	-0.08	-0.12	-0.11
Obj 9	3.80	0.61	3.80	0.66	0.00	3.93	0.63	-0.13	-0.13	-0.14
Obj 10	3.66	0.70	3.65	0.75	0.01	3.71	0.72	-0.05	-0.06	-0.06
Obj 11	3.82	0.64	3.79	0.70	0.03	3.88	0.67	-0.06	-0.09	-0.09
Obj 12	3.91	0.58	3.86	0.67	0.05	3.89	0.65	0.02	-0.03	-0.03
CR 33	3.22	0.74	3.23	0.79	-0.01	3.48	0.59	-0.26	-0.25	-0.25
CR 34	3.49	0.58	3.53	0.62	-0.04	3.53	0.54	-0.04	0.00	0.00
CR 35	3.46	0.58	3.49	0.63	-0.03	3.42	0.55	0.04	0.07	0.08
Self 36	3.77	0.70	3.89	0.71	-0.12	3.81	0.71	-0.04	0.08	0.08
Self 37	3.67	0.57	3.72	0.62	-0.05	3.72	0.57	-0.05	0.00	0.00
Self 38	3.56	0.71	3.59	0.77	-0.03	3.37	0.73	0.19	0.22	0.21
Self 39	3.53	0.61	3.61	0.68	-0.08	3.63	0.66	-0.10	-0.02	-0.02
Self 43	3.80	0.39	3.85	0.42	-0.05	3.86	0.44	-0.06	-0.01	-0.02
GL 40	4.01	0.60	3.99	0.68	0.02	3.97	0.67	0.04	0.02	0.02
GL 41	4.29	0.61	4.20	0.72	0.09	4.18	0.71	0.11	0.02	0.02
GL 42	4.07	0.61	4.05	0.69	0.02	4.06	0.68	0.01	-0.01	-0.01

Note: TM = Teaching Method; Obj = Teaching Objective; CR = Course Rating; Self = Self-Rating; GL = Global; ABS Δ = Absolute value of 2002-2008 IDEA Database mean minus 2002-2008 Traditional or Online mean. Approx *d* (measure of effect size) = (Traditional *Mean* – Online *Mean*) / $\sqrt{(\text{Traditional } SD^2 + \text{Online } SD^2)}$. See Appendix for item content.

Table 7

Correlations between Faculty Ratings(FR) and Student Ratings(SR) of Learning Objectives for Traditional and Online Course Instruction

Traditional												
Item	**FR1**	**FR2**	**FR3**	**FR4**	**FR5**	**FR6**	**FR7**	**FR8**	**FR9**	**FR10**	**FR11**	**FR12**
SR21	**.15**	.09	.04	.00	-.05	-.07	-.01	-.06	-.03	-.04	-.04	-.01
SR22	.12	**.11**	.05	.02	-.05	-.07	-.01	-.05	-.03	-.02	-.02	-.02
SR23	.01	.02	**.09**	.06	.02	.01	-.04	.01	.02	.02	-.01	.01
SR24	.02	.01	.08	**.05**	.02	.02	-.04	.00	.02	-.02	-.05	-.01
SR25	-.07	-.05	.09	.07	**.29**	.05	.00	.12	.07	.10	.03	.07
SR26	-.13	-.11	.02	-.01	.12	**.24**	.14	.20	.07	.08	.07	.09
SR27	-.04	-.06	-.04	-.06	.03	.15	**.25**	.15	.01	.10	.12	.11
SR28	-.13	-.11	.02	-.01	.11	.09	.09	**.33**	.10	.14	.17	.10
SR29	.01	-.01	.09	.01	.05	-.02	-.05	.13	**.15**	.02	.07	.05
SR30	-.06	-.05	.03	.01	.08	.05	.05	.14	.06	**.19**	.13	.10
SR31	-.05	-.01	.06	.02	.04	.00	.04	.16	.07	.11	**.19**	.07
SR32	-.01	-.01	.06	.02	.04	.02	.03	.09	.06	.07	.08	**.07**

Online												
Item	**FR1**	**FR2**	**FR3**	**FR4**	**FR5**	**FR6**	**FR7**	**FR8**	**FR9**	**FR10**	**FR11**	**FR12**
SR21	**.04**	-.01	.00	.05	-.02	-.03	-.04	-.02	.00	-.01	-.04	.00
SR22	.02	**.02**	.02	.05	-.01	-.02	-.05	-.01	-.01	.01	-.02	.01
SR23	-.06	-.05	**.06**	.12	.03	-.01	-.08	.01	.02	.03	-.02	.00
SR24	-.05	-.06	.05	**.14**	.04	-.01	-.08	.00	.02	.01	-.04	-.01
SR25	-.13	-.10	.07	.12	**.22**	.01	-.06	.05	.04	.06	.03	.01
SR26	-.15	-.15	-.01	.07	.07	**.13**	.06	.18	.06	.06	.08	.02
SR27	-.06	-.09	-.06	-.03	.02	.09	**.18**	.13	.03	.07	.08	.05
SR28	-.16	-.13	-.01	.03	.09	.11	.07	**.24**	.06	.11	.14	.05
SR29	-.05	-.08	.01	.07	.03	.01	-.03	.07	**.09**	.01	.02	.01
SR30	-.09	-.08	.01	.05	.07	.03	.00	.09	.03	**.14**	.06	.03
SR31	-.10	-.07	.02	.01	.06	.05	.03	.13	.02	.08	**.13**	.04
SR32	-.08	-.09	.02	.07	.05	.02	-.01	.06	.03	.05	.03	**.03**

Note: Average *r* on-diagonal, Traditional = .18, Online = .12. Average *r* off-diagonal, Traditional = .03, Online = .01. *N*s for Traditional and Online Courses = 4,589 to 4,753 and = 12,160 to 12,554, respectively.

See Appendix for Item content. FR1-FR12 and SR21-SR32 correspond to Obj 1 – Obj 12.

Table 8
Correlations Between Student Ratings of Learning Outcomes and Teaching Methods For Traditional And Online Courses

Traditional												
Item	Obj1	Obj2	Obj3	Obj4	Obj5	Obj6	Obj7	Obj8	Obj9	Obj10	Obj11	Obj12
TM 1	.68	.67	.72	.70	.59	.66	.64	.60	.62	.65	.60	.68
TM 2	.70	.71	.76	.74	.63	.70	.65	.64	.67	.69	.64	.73
TM 3	.66	.65	.69	.68	.56	.65	.54	.55	.63	.62	.59	.62
TM 4	.74	.75	.77	.75	.58	.67	.60	.60	.63	.66	.64	.68
TM 5	.32	.34	.41	.38	.69	.43	.34	.50	.49	.51	.44	.45
TM 6	.75	.75	.77	.75	.62	.67	.63	.62	.65	.66	.64	.68
TM 7	.63	.63	.69	.68	.61	.70	.65	.62	.61	.63	.59	.66
TM 8	.70	.72	.74	.73	.63	.70	.62	.64	.70	.70	.69	.72
TM 9	.55	.55	.61	.60	.55	.55	.40	.61	.74	.63	.63	.64
TM 10	.71	.71	.74	.70	.56	.64	.60	.63	.64	.65	.65	.66
TM 11	.65	.64	.67	.63	.56	.52	.46	.55	.55	.63	.55	.61
TM 12	.70	.68	.69	.65	.49	.50	.39	.52	.59	.55	.56	.57
TM 13	.73	.74	.77	.74	.61	.71	.67	.65	.67	.70	.70	.72
TM 14	.48	.49	.59	.61	.68	.60	.41	.53	.60	.58	.51	.58
TM 15	.67	.69	.76	.75	.70	.76	.64	.67	.74	.72	.68	.74
TM 16	.49	.51	.59	.56	.62	.60	.53	.67	.62	.73	.66	.66
TM 17	.61	.62	.64	.62	.53	.57	.50	.55	.58	.58	.55	.59
TM 18	.55	.57	.63	.60	.65	.58	.54	.59	.63	.67	.61	.66
TM 19	.57	.59	.65	.61	.58	.64	.49	.67	.68	.65	.68	.68
TM 20	.65	.65	.68	.67	.61	.63	.58	.65	.65	.61	.61	.69
TM 47	.46	.45	.50	.47	.38	.36	.26	.39	.54	.44	.43	.48

Online												
Item	Obj1	Obj2	Obj3	Obj4	Obj5	Obj6	Obj7	Obj8	Obj9	Obj10	Obj11	Obj12
TM 1	.63	.64	.68	.67	.59	.63	.54	.61	.62	.64	.65	.67
TM 2	.64	.65	.69	.69	.62	.63	.58	.62	.65	.64	.67	.69
TM 3	.63	.62	.65	.65	.52	.57	.52	.56	.59	.59	.61	.60
TM 4	.68	.68	.72	.72	.60	.60	.58	.62	.64	.65	.67	.66
TM 5	.33	.36	.41	.39	.63	.46	.37	.45	.41	.44	.47	.45
TM 6	.67	.68	.71	.71	.62	.62	.57	.61	.62	.64	.67	.65
TM 7	.57	.58	.63	.62	.60	.60	.56	.63	.59	.61	.62	.62
TM 8	.66	.67	.71	.71	.65	.67	.61	.68	.67	.68	.71	.70
TM 9	.55	.56	.61	.61	.55	.60	.50	.61	.69	.59	.64	.62
TM 10	.68	.68	.71	.71	.57	.61	.59	.62	.63	.63	.67	.64
TM 11	.59	.60	.68	.65	.60	.53	.43	.55	.56	.63	.61	.60
TM 12	.65	.66	.68	.67	.49	.54	.49	.51	.57	.55	.59	.56
TM 13	.67	.69	.72	.71	.62	.65	.62	.65	.64	.68	.71	.67
TM 14	.47	.49	.58	.58	.64	.58	.43	.55	.57	.56	.58	.55
TM 15	.64	.66	.72	.72	.67	.69	.59	.69	.69	.71	.71	.70
TM 16	.46	.49	.56	.55	.62	.57	.52	.59	.55	.61	.62	.60
TM 17	.57	.58	.61	.60	.50	.56	.53	.55	.55	.54	.56	.56
TM 18	.48	.50	.56	.56	.66	.56	.48	.56	.54	.59	.59	.60
TM 19	.58	.60	.68	.66	.61	.67	.59	.67	.65	.65	.71	.64
TM 20	.58	.60	.64	.64	.61	.60	.50	.59	.60	.61	.60	.63
TM47	.57	.56	.58	.57	.47	.48	.43	.49	.56	.52	.53	.53

Note: *N*s for Traditional and Online Courses = 3,706 and = 10,833, respectively.