

Student Achievement and Satisfaction in Introductory Psychology:
No Significant Differences Between Face-to-Face and Hybrid Sections

Final L. L. Stewart Faculty Development Fund Report

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Abstract

Few differences in achievement or satisfaction between face-to-face and hybrid classes have been reported in general (e.g. Bowen, Chingos, Lack & Nygren, 2012; Means, Yuki, Murphy, Bakia, & Jones, 2010). However, there is a need for continued, rigorous research in the field. In this study, achievement and student satisfaction were compared between a face-to-face and a hybrid section of an Introductory Psychology course. Instructor, classroom, textbook, time of day, learning objectives, exam questions, and grading scale were held constant. No significant differences were found in quiz, midterm, or final exam scores, final grade distributions, pass rate, or student evaluations of teaching. Faculty who are considering offering, and students who are considering taking, hybrid courses have reason to believe that carefully designed hybrid courses are comparable with traditional, face-to-face courses in terms of student achievement and satisfaction.

Student Achievement and Satisfaction in Introductory Psychology: No Significant Differences Between Face-to-Face and Hybrid Sections

Background

Researchers, overall, who have compared achievement and satisfaction between traditional, face-to-face courses and partially online/partially face-to-face hybrid courses have reported few differences (e.g. Bowen, Chingos, Lack & Nygren, 2012; Means, Yuki, Murphy, Bakia, & Jones, 2010). However, there are significant limitations in many of these studies.

It is difficult to control for the many influences on achievement and satisfaction, such as instructor, time of day, textbook, types of assignments, grading scale, and exam questions. For example, conscientious instructors routinely adjust exam questions, extra credit, and grading scales depending on student progress in a particular section. In these cases, it is difficult to know if final grades can be fairly compared across sections, even those taught by the same instructor. In this study, several important variables were held constant.

Recently, OSU began to support hybrid courses in a new way through the Hybrid Course Initiative. Because there are important differences in institutions, such as student population and class size, it is important to study the effectiveness of hybrid classes on the OSU campus in order to improve educational opportunities for OSU students specifically.

Study Design

During the Spring 2012 quarter, I taught 2 sections of Psychology 202, one half of a two-term sequence in Introductory Psychology at OSU. This course fulfills Baccalaureate Core requirements, as well as degree requirements for numerous degrees and programs.

One section was a traditional, face-to-face class that met 3 days per week. The second session was a hybrid class that met 1 day per week. These sections were offered the first quarter that hybrid courses were available at OSU. For this term only, students were not informed until the first day of class that the hybrid class had reduced classroom time and increased online homework requirements. Registration changes during the first week were negligible. That is, I did not see students dropping either section, or changing sections, at an unusual rate.

Wherever possible, the sections were planned to be identical except for the method of delivering instruction in the hybrid class. For example, if an in-class activity covered a particular topic in the face-to-face section, an online activity covering the same topic was assigned for the hybrid section (see Table 1).

Table 1. Similarities and Differences between the Face-to-Face (F2F) and Hybrid Sections

	Similarities and Differences
Instructor	Identical
Room	Identical lecture hall
Textbook	Identical
Learning Objectives	Identical
Grading Scale	Identical
Exam questions	Identical (order of questions scrambled)
Enrollment	F2F: 155 Hybrid: 147
Time of day	F2F: 1 pm Hybrid: 2 pm
Classroom hours	F2F: 50 min x 3 days/week Hybrid: 80 min x 1 day/week
Assigned Blackboard and PsychPortal* homework	F2F: 20 min./week Hybrid: 90 min./week
Recommended Study Hours per Week	370- 550**
Total classroom, assigned homework, and study minutes per week	Identical: 540 – 720 (9 – 12 hours)

*PsychPortal is a publisher-supplied online homework website. It includes videos, interactive assignments, diagnostic and adaptive quizzing, online flashcards, and other study tools. PsychPortal is available through Worth/Macmillan Publishers.

**Students were told the following: “Study time includes some combination of: reading text, using paper or online study resources, creating and using flashcards, reviewing notes, attending supplemental instruction or academic coaching, etc. These recommendations are the same across most universities: about 2 – 3 hours out of class for every hour in class. For hybrids, “class” means both class time and time replaced with required online activities.”

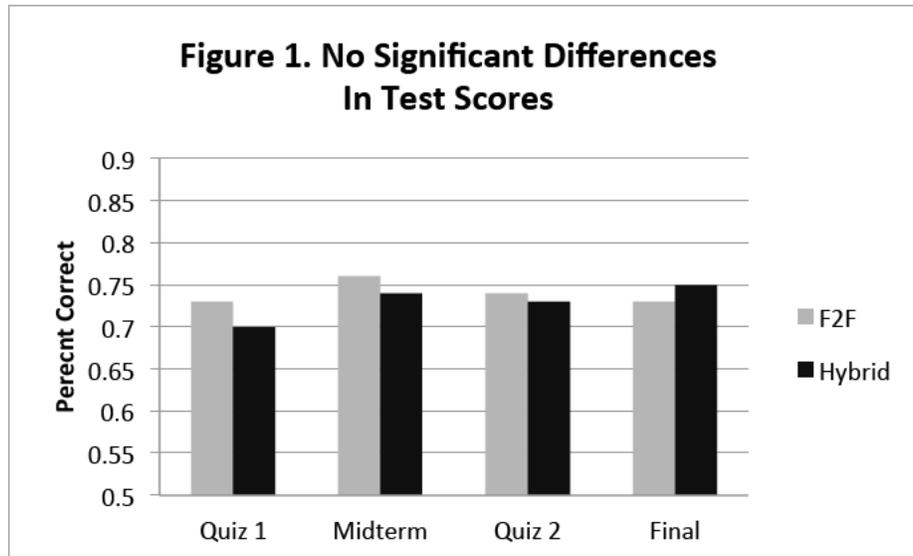
Results

Test Grades

I compared students’ grades on quizzes, the midterm, and the final. All were administered on the same day in the same way. Questions were scrambled both within and between sections. With only 10

minutes passing time between sections, there was minimal opportunity for those in the first section to share questions with the second session. All students took the tests in their assigned section.

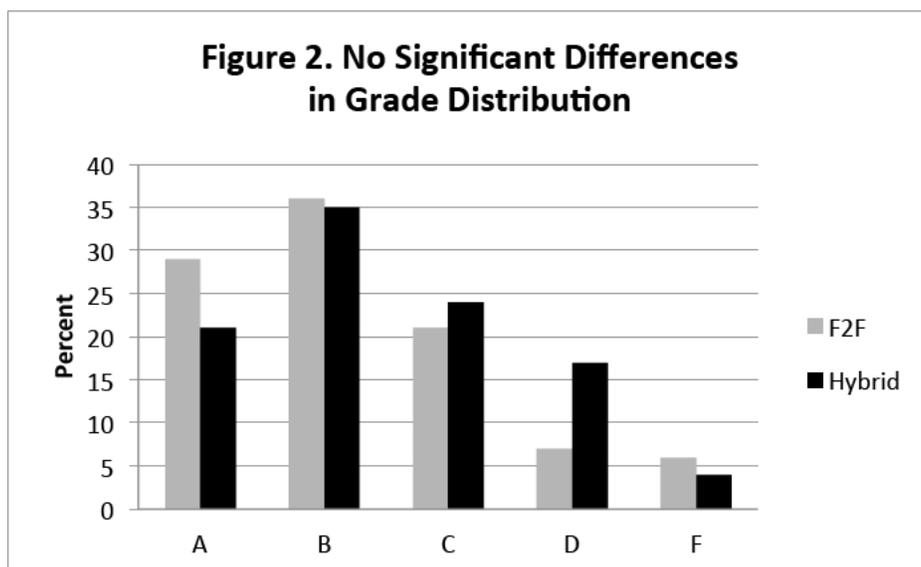
There were no significant differences in quiz, midterm, or final exam scores between the two sections.



Final letter grade

Both the allocation of points and grading scale were identical between sections. I submitted final grades on an A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F scale. For the purposes of the analyses here, I eliminated the plusses and minuses (e.g. a submitted grade of "B-" is reported here as a "B"). In this test, only students who did not withdraw were included.

The distribution of grades suggests a possible trend with slightly more As and fewer Ds in the face-to-face section, but this effect was not statistically significant (Mann-Whitney U, $p = .06$).



Pass rate

I examined the number of students who withdrew, those who earned an A – C grade and those who earned an D or F grade.

There were no significant differences in the percent of the section who received credit for passing the class (Chi-square (1) = 2.16, $p = .14$). There were also no differences when comparing those who earned an A –D versus F grade.

Table 2. Pass Rates

	A – C- grade	D - F grade	Withdrew	D or F grade or Withdrew
Face-to-Face	128 (83%)	20 (13%)	7 (5%)	27 (17%)
Hybrid*	111 (76%)	28 (19%)	8 (5%)	36 (24%)

*Percentages do not total 100% due to rounding.

Student Evaluations of Teaching

Since OSU moved to online student evaluations of teaching, I have taught this course three times, including the face-to-face and hybrid sections discussed in this report. I report here teaching evaluation numbers for all three sections.

Median student evaluation of teaching scores were similar for the face-to-face and hybrid sections, and lower than scores for the previous term section.

Table 3. Student Evaluation of Teaching Scores and Response Rate by Section

	Face-to-face	Hybrid	Previous
Course as a whole	3.7	3.9	4.4
Instructor's Contribution	3.8	4.1	4.5
Response Rate	66%	66%	76%

Based on students' written comments, it is possible that the generally lower scores in both the hybrid and face-to-face sections were due to dissatisfaction with being "guinea pigs" in the course redesign and research. For a variety of reasons, research participation and novel instructional methods were more salient than is typically the case in educational research. For example, the IRB-approved consent page, used in both sections, was 4 pages long, including numerous initials. Many other factors differed and could have played a role as well. In any event, there is no indication that students were less satisfied with the hybrid version compared to the face-to-face version offered the same term.

Discussion

Consistent with previous research, I found no differences in achievement or satisfaction between a face-to-face and hybrid version of the same Introductory Psychology course. Thus, on the basis of typical

indicators of course quality, the results suggest that the face-to-face and hybrid course were comparable.

This analysis does include other important factors, such as cost. There may be differences in student satisfaction that were not included in the student evaluation of teaching, as well as differences in faculty satisfaction that were not assessed.

A limitation of this design is that I served as both the experimenter and instructor. It is desirable to separate these roles to decrease bias in how the classes are taught or assessed based on the instructors' expectations about the outcome of the study. To some extent, this risk was mitigated by using identical exams with questions tied to learning objectives determined prior to the start of the term, and the fact that the existing research did not lead me to believe that one section would be superior to the other. Researchers in future studies may be able to address these limitations.

In sum, faculty who are considering offering, and students who are considering taking, hybrid courses have reason to believe that carefully designed hybrid courses are comparable with traditional, face-to-face courses in terms of student achievement and satisfaction.

References

Bowen, W. G., Chingos, M. M., Lack, K. A., & Nygren, T. I. (2012). *Interactive Learning Online at Public Universities: Evidence from Randomized Trials*. Ithaca S+R. Available: <http://www.sr.ithaka.org/research-publications/interactive-learning-online-public-universities-evidence-randomized-trials> .

Means, B., Yuki, T., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*. US Department of Education. Available: <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf> .