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# Quarterly Review OF Distance Education

RESEARCH THAT GUIDES PRACTICE

*Editors:*

*Michael Simonson*

*Anymir Orellana*



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# *Quarterly Review of Distance Education*

“Research That Guides Practice”

Volume 23, Number 2, 2022

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# ***STATEMENT OF PURPOSE***

The *Quarterly Review of Distance Education* is a rigorously refereed journal publishing articles, research briefs, reviews, and editorials dealing with the theories, research, and practices of distance education. The *Quarterly Review* publishes articles that utilize various methodologies that permit generalizable results which help guide the practice of the field of distance education in the public and private sectors. The *Quarterly Review* publishes full-length manuscripts as well as research briefs, editorials, reviews of programs and scholarly works, and columns. The *Quarterly Review* defines distance education as institutionally based, formal education, where the learning group is separated and where interactive technologies are used to unite the learning group.

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Submit your manuscript, typed double-spaced. Manuscripts are generally between 30 and 50 pages in length and must conform to the style of the most recent edition of the *Publication Manual of the American Psychological Association*. Longer manuscripts will be considered also. Research briefs may be shorter, normally between 3–10 pages.

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To ensure anonymity in the review process, names of author(s) should not appear elsewhere in the manuscript, except in appropriate citations. An abstract of 100 words should also be submitted on a separate page.

Manuscripts should be submitted using a recent version of Microsoft Word. The file should be clearly labeled with the author(s) name(s). Graphics should be included as part of the Word document.

Manuscripts will be reviewed by at least three consulting editors. This process normally takes from 3–4 months.

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# ***A CASE STUDY IN HOW DIFFERENT TEACHING METHODS AFFECT DIFFERENT STUDENT DEMOGRAPHICS ACROSS A UNIVERSITY***

**Douglas R. Moodie**

*Kennesaw State University*

Little research compares hybrid to online and face-to-face (F2F) teaching. Nearly all this research assumes no difference in the students' demographics entering F2F, hybrid, or online sections of a course. This study used all the data from 5 years of undergraduate courses at Kennesaw State University. The data set, which includes individual student section outcomes, included entire student demographics. Students in hybrid sections earned higher final course grades than those in online or F2F sections for all demographics. Differences in demographics affected how advantageous the hybrid method is over the online and F2F methods.

## ***INTRODUCTION***

Researchers (e.g., Amparo et al., 2018; Stern, 2004) have studied the outcomes of pure online teaching compared to all-in-person (face-to-face, F2F) teaching, often called face to face in research. The literature review for this study yielded few research studies that compared hybrid teaching to online and F2F teaching (e.g., Lovern, 2010; Reasons et al., 2005). The term *hybrid* in this article refers to the traditional hybrid or flipped class where

some of the class is in person and the rest online asynchronously. For example, a three-credit course meets for 1½ hour a week for discussions and covers everything else online, including lectures and assignments. One can view hybrid education as a compromise between F2F and online teaching or alternately as taking the best parts of both. Another problem is that much previous research, such as McFarlin (2008), has considered only a single course or instructor. Some research, such as Blau and Drennan (2017), has considered stu-

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dent satisfaction with different methods and academic outcomes.

A possible gap in the research is that nearly all this research assumes that there is no difference in the characteristics or demographics of the students entering F2F, hybrid, or online sections of a course. The research gap identified is that there may be a difference in demographics between students who opt for one method over the others and that certain student demographic groups may do better proportionally in specific teaching formats. This research uses the entering characteristics of students, a large sample of many instructors, and the final mean course grade achieved to see if the benefits (including negative benefits) of hybrid and online over F2F methods depend on the characteristics of the entering student. Xu and Jagers (2014) and Cavanaugh and Jacuemin (2013) hinted that student demographics could be different for the different methods.

This study used data across a whole university to investigate the demographic effect on student outcomes. No data after 2019 were used to avoid tainting because of COVID. This study is not an analysis of an experiment but an analysis of an existing data set, which existed before the study began. This study builds on a previous study that only used data from business school courses (Moodie, 2021).

### ***Research Questions***

The research questions examined were:

1. Are there any differences (both with demographics and previous academic achievement) in the students using the different teaching methods across a university?
2. Do students from different demographics and in different parts of the university have different student final grade outcomes in different methods?

### ***LITERATURE REVIEW***

Little previous research examined the differences in the type of students taking different methods, and the research assumed that

students taking different were the same on average. We first report the conclusions of the larger research output that does not include hybrid courses. The minor research includes hybrid courses, such as Rivera (2016), who pointed out that the hybrid allows the hands-on lab experience that online cannot give for science courses.

### ***Online to F2F Comparisons***

Many studies, with sample sizes ranging from very small to very large, have compared the outcomes of online versus F2F courses. The following is a selection of some of the latest studies.

### ***No Examination of Student Demographics***

Stern (2004) examined online and F2F instruction for one course and concluded that the online method works as well as F2F if online instructors have enough time to do a thorough job. Sapp and Simon (2005) compared grades for online and F2F writing courses. They showed that more students thrived (A or A-) in F2F courses than in online courses (32% to 52%). Summers et al. (2005) examined grades for online versus F2F for a statistics course. They found no significant difference between methods of teaching. Kelly (2009) reported that she could find no significant difference between student grades for online and F2F methods. She did not control for entering grade point average (GPA). Dell et al. (2010) found no differences between online and F2F sections of a graduate human development and an undergraduate psychology course. Ni (2013) found no significant differences in outcomes between online and F2F classes. Amparo et al. (2018) used a large sample (96,000 students) across two institutions to compare online and F2F results. They found that F2F students outperformed online students in course final GPA. Blau and Drennan (2017) used students' perceptions to compare different teaching formats and suggested that universities find ways to increase the

perceived favorability of online and hybrid courses for those that prefer F2F.

None of these studies examined whether the previously more successful students preferred a particular teaching method. In conclusion, most previous research, which compared online and F2F sections of courses, did not examine differences in precourse GPAs or any demographics of students. They found no significant difference in final course grades between methods or that online courses achieved worse final course grades than F2F ones.

### *Examination Included Student Demographics*

Cavanaugh and Jacuemin (2013) used a large sample size (5,000 courses) in one institution. They found no significant differences overall between online and F2F classes. They did find that students with good precourse GPA did better than those who did not have a good GPA. Online courses increased the effect of a higher precourse GPA. They also found that better students tended to do online courses, as the mean precourse GPA was 3.41 for online students, while only 3.02 for F2F students.

Xu and Jagers (2014) researched an extensive data set of online and F2F courses (500,000 student-course sets). They did allow for differences in precourse GPAs. They found that males, younger students, Black students, and those with lower precourse GPAs did worse in online courses, while females and Asians had no significant differences. Older students did better in online courses. They also looked at the subject matter and reported that computer science, communication, and health had no significant differences. All others had F2F giving better results than online courses. The social sciences, business, law, and nursing showed the most significant differences. The teaching method affected starting students more adversely than continuing students.

Nguyen (2015) summarized research comparing F2F and online teaching methods. He

found that, generally, the research considers online learning as better, but there were problems with much of this research due to selection bias and a lack of rigorous methodology. Amro et al. (2015) showed that F2F students got higher grades than students studying online for their algebra courses. Although they looked at age and gender factors, they did not look at precourse GPAs to see if the students were similar in academic ability.

Biel and Brams (2016) compared student performance in online and F2F courses. They encountered mixed results; some studies showed that the F2F course was better than some online courses. Sun and Chen (2016) reviewed 47 papers comparing online and F2F teaching methods. They concluded that online teaching works as well as or better than F2F if done correctly. An effective course has well-designed content, motivating interaction, and well-prepared and supported instructors.

Most studies did not look at the effect of demographic factors. However, Cavanaugh and Jacuemin (2013) found that students, who had been more successful previously, tended to choose online courses. Xu and Jagers (2014) reported that the outcome differences between online and F2F depend on race, gender, previous GPA, and age. They showed that older students did slightly better in online courses. These two studies hinted that demographics and precourse GPA might affect course outcomes. Blau et al. (2019) used the students' intent to transfer as an output measure.

### *Hybrid Comparisons*

#### *Studies That Did Not Examine Student Demographics*

Several studies compared hybrid to either or both F2F and online methods. Reasons et al. (2005) examined the three teaching formats and concluded that online was better in achieving a higher mean final course grade than hybrid or F2F. McFarlin (2008) examined grade results for hybrid and online sections. He