Comparing Students' Evaluation of Online, Hybrid, and Face-to-Face Classes

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ABSTRACT

This study compares students' evaluation of the effectiveness of four different class settings: face-to-face, synchronous online, asynchronous online, and hybrid. The results directly show us how students compare the four types of teaching and learning formats. Overall, students like the traditional face-to-face class the most and the asynchronous online class the least. Furthermore, students feel the hybrid class is most flexible while the face-to-face class has the least flexibility.

Keywords: Face-to-Face, Synchronous Online, Asynchronous Online, Hybrid Class, Students' Evaluation.

1. INTRODUCTION

As technology advances, online education has provided institutions with an accessible and flexible alternative to traditional instructional methods [8, 10]. Students switched from traditional face-to-face classes to remote online learning, including synchronous online classes, asynchronous online classes, and hybrid classes. Online classes are delivered solely via a computer program or an internet site, without a physical in-person meeting between instructors and students [3, 6]. We define synchronous online class as that instructor and students meet at the same virtual place (e.g., Zoom) at the same time. An asynchronous online class means that the instructor and students do not meet at the same time; instead, course materials are posted to the learning management system (LMS, e.g., Canvas) for students to view. Finally, a hybrid class represents a combination of traditional and online learning formats, delivering content both face-to-face and online [2, 14, 15].

Online education has increasingly been viewed as an efficient alternative to traditional instructional methods [8]. Prior research has suggested that online format is at least as effective as traditional methods [12, 16]. For some courses, online classes are more cost-effective than the traditional way. For example, in the synchronous online course, more students can use the material simultaneously with no need to stretch classroom capacity. Students can fit their learning time into their schedule more easily in asynchronous courses [3]. The hybrid course provides students with some flexibility in terms of time and location [10]. However, there are some concerns about online courses' effectiveness and quality compared to traditional, face-to-face courses [3].

COVID-19 pandemic has brought big challenges to this world. With the changes in the pandemic situation, colleges and universities have increasingly adopted online and/or hybrid teaching methods to ensure the health of the students, professors, and staff. Therefore, it is important to evaluate the integrity and effectiveness of online or hybrid courses relative to face-to-face courses, though it is difficult to conduct such assessments [5]. The objective of this study is to compare the effects of different teaching methods on students' learning performance. A survey study is conducted on students who have experience in mixed course delivery format. We get feedback from those students about their perceived effectiveness of different teaching and learning formats.

The rest of the paper is organized as follows. In the next section, a survey study is presented. Then, the results are discussed. Finally, the conclusion section is provided.

2. SURVEY STUDY

This study utilizes a survey to compare the effectiveness of four different teaching and learning formats: face-to-face class, synchronous online class, asynchronous online class, and hybrid class. We developed the questionnaire with 20 pairs of multiple-choice questions and 4 open-ended questions after giving definitions of the different online classes. Participants were asked to compare their perceptions on the four different class formats: synchronous online, asynchronous online, face-to-face, and hybrid. For each question, they could choose

one or more answers. And, there is one "No Difference" option.

Survey is anonymous. Data was collected from a class at a regional public state university in the Midwest at the end of spring 2021. This class includes graduate and senior undergraduate students who have completed more than one year of study in this university. This sample of students had all traditional face-to-face courses before COVID-19. From March 2020 (rest of spring 2020) to July 2020 (summer 2020), the university turned all courses online, synchronously or asynchronously. From fall 2020 to spring 2021, the university applied a flexible policy to provide face-to-face, online and hybrid courses. The students in this sample experienced all the class formats.

Thirty-six responses were collected in April 2021. Among the 36 participants, 83.33% took synchronous online classes, 25% took asynchronous classes, 91.67% took hybrid classes, and 100% of them took face-to-face classes. The sample results are presented in Table 1.

Table 1: How students participated classes

Response	Yes	No
Synchronous online class	83.33%	16.67%
Asynchronous online class	25%	75%
Hybrid online class	91.67%	8.33%
Face to face class	100%	0%

The first part is to assess students' class engagement and class connection in the different class settings. One pair of questions were about how much the students engaged in class. The other two pairs of questions were about how well they connected to classmates and instructors. Responses are summarized in Table 2.

Table 2: Students' perception of class engagement and connection

	A*	B*	C*	D*	E*
1. Engage with class					
Most	33.33%	0%	16.67%	61.11%	5.56%
Least	22.22%	44.44%	13.89%	5.56%	13.89%
2. Be connected to classmates					
Most	16.67%	0%	19.44%	75%	0%
Least	38.89%	44.44%	8.33%	11.11%	11.11%
3. Be connected to instructor					
Most	22.22%	0%	13.89%	83.33%	2.78%
Least	37.14%	40%	5.71%	14.29%	8.57%

*A: Synchronous online; B: Asynchronous online
C: Hybrid; D: Face-to- face; E: No difference

The second part is to assess students' perception of class effort in the different class settings. One pair of questions were about in which class setting the students used the most or least effort. Another pair of questions asked how much they were motivated in different class settings. The other two pairs of questions were about the level they

attended the class or participated in the class. Responses are summarized in Table 3.

Table 3: Students' perception of class effort

	A*	B*	C*	D*	E*
4. Use effort					
Most	19.44%	8.33%	5.56%	63.89%	11.11%
Least	27.78%	36.11%	16.67%	2.78%	19.44%
5. Feel motivated					
Most	16.67%	5.56%	22.22%	66.67%	8.33%
Least	25%	41.67%	2.78%	13.89%	19.44%
6. Attend the class					
Most	38.89%	2.78%	11.11%	58.33%	8.33%
Least	8.57%	42.86%	5.71%	14.29%	28.57%
7. Participate in the class					
Most	33.33%	0%	16.67%	66.67%	5.56%
Least	22.86%	40%	8.57%	8.57%	22.86%

*A: Synchronous online; B: Asynchronous online
C: Hybrid; D: Face-to- face; E: No difference

The third part is to assess students' perception of course assignment activities in the different class settings. One pair of questions were about in which class setting the students devoted their most or least time to assignments. Another pair of questions asked about the students' procrastination in different class settings. The third pair of questions were about which class setting was effective for them to do group work. Responses are summarized in Table 4.

Table 4: Students' perception of assignment activities

	A*	B*	C*	D*	E*
8. Devote time to assignments					
Most	25%	11.11%	22.22%	44.44%	16.67%
Least	19.44%	33.33%	11.11%	5.56%	33.33%
9. Procrastination					
Most	22.22%	22.22%	16.67%	22.22%	22.22%
Least	22.22%	16.67%	8.33%	38.89%	22.22%
10. Group work effectiveness					
Most	19.44%	2.78%	19.44%	66.67%	2.78%
Least	37.14%	42.86%	14.29%	2.86%	17.14%

*A: Synchronous online; B: Asynchronous online
C: Hybrid; D: Face-to- face; E: No difference

The fourth part is to assess students' perception of the need for help in the different class settings. One pair of questions asked about how much they needed help with coursework. Another pair of questions were about which class setting was easiest or hardest for them to get help on course work. Responses are summarized in Table 5.

Table 5: Students' perception of need for class help

	A*	B*	C*	D*	E*
11. Need help with course work					
Most	37.14%	22.86%	17.14%	22.86%	14.29%
Least	11.11%	11.11%	25%	38.89%	22.22%
12. To get help on course work					
Easiest	19.44%	0%	25%	58.33%	8.33%
Hardest	19.44%	38.89%	13.89%	11.11%	27.78%

*A: Synchronous online; B: Asynchronous online
  C: Hybrid; D: Face-to- face; E: No difference

The fifth part is to assess students' perception of class resource accessibility in the different class settings. The two pairs of questions asked students how easily they could reach out to the instructor or TA/GA in different class settings. Responses are summarized in Table 6.

Table 6: Students' perception of class resources

	A*	B*	C*	D*	E*
13. To reach out to instructor					
Easiest	25%	5.56%	16.67%	61.11%	8.33%
Hardest	19.44%	44.44%	8.33%	8.33%	25%
14. To reach out to teaching assistant (TA)					
Easiest	27.78%	0%	25%	63.89%	8.33%
Hardest	30.56%	36.11%	8.33%	5.56%	27.78%

*A: Synchronous online; B: Asynchronous online
  C: Hybrid; D: Face-to- face; E: No difference

The sixth part is to assess students' perception of coursework performance in the different class settings. One pair of questions were about in which class setting the students got the best or worst performance for their course work. Another pair of questions asked about which class setting was the most or least difficult for them to finish course work. The third pair of questions were about whether it was easy to cheat on coursework in different class settings. Responses are summarized in Table 7.

Table 7: Students' perception of course work performance

	A*	B*	C*	D*	E*
15. Performance for your course work					
Best	22.22%	5.56%	22.22%	69.44%	2.78%
Worst	22.22%	38.89%	11.11%	2.78%	30.56%
16. How difficult to finish course work					
Most	19.44%	33.33%	5.56%	16.67%	27.78%
Least	22.22%	11.11%	19.44%	41.67%	19.44%
17. To cheat on course work					
Easiest	22.86%	28.57%	14.29%	17.14%	31.43%
Hardest	11.43%	2.86%	8.57%	51.43%	34.29%

*A: Synchronous online; B: Asynchronous online
  C: Hybrid; D: Face-to- face; E: No difference

The seventh part is to assess students' overall perception of the different class settings. One pair of questions asked about students' overall likelihood of the class settings. Another pair of questions asked which class setting they liked for courses. The last pair of questions asked about students' overall perceptions of the flexibility of different class settings. Responses are summarized in Table 8.

Table 8: Students' overall perception

	A*	B*	C*	D*	E*
18. Overall, like the class setting					
Most	27.78%	0%	41.67%	55.56%	0%
Least	13.89%	47.22%	13.89%	19.44%	27.78%
19. Overall, like the class setting for courses					
Most	27.78%	5.56%	30.56%	61.11%	0%
Least	11.43%	45.71%	25.71%	5.71%	14.29%
20. Overall flexibility					
Most	33.33%	11.11%	38.89%	27.78%	0%
Least	8.33%	30.56%	11.11%	36.11%	13.89%

*A: Synchronous online; B: Asynchronous online
  C: Hybrid; D: Face-to- face; E: No difference

3. RESULTS AND DISCUSSION

After studying the above case, we can see how students evaluate the different class settings. The main results are briefed in Table 9.

According to students' responses, students had the most class engagement in a face-to-face class, while the least in the asynchronous online class. The same results came out in the following perceptions: connection to classmates, connection to instructor, class efforts, being motivated in class, class attendance, class participation, devoting time to assignments, group work effectiveness, group work effectiveness, easy to get help on course work, easy to reach out to the instructor and TA/GA, and course work performance. Overall, students like the face-to-face class the most and the asynchronous online class the least. These results are in line with prior research. Compared to online courses, face-to-face courses offer unique benefits related to communication, interaction, and engagement. Students complete complex tasks that require in-depth communication and subsequent processing better in face-to-face rather than online classes [4]. More extensive interaction between peers and more dynamic information processing in face-to-face class encourages students to learn course-related content more actively than in an online format [1]. It has been suggested that face-to-face class may be the most effective teaching and learning format with social, interactive case-based activities [15].

Table 9: Students' perception on different class settings

Students' Perception	Most	Least
1. Class engagement	face to face (61.11%)	asynchronous (44.44%)
2. Connect to classmates	face to face (75%)	asynchronous (44.44%)
3. Connect to instructor	face to face (83.33%)	asynchronous (40%)
4. Use effort in class	face to face (63.89%)	asynchronous (36.11%)
5. Feel motivated in class	face to face (66.67%)	asynchronous (41.67%)
6. Attend class	face to face (58.33%)	asynchronous (42.86%)
7. Participate in class	face to face (66.67%)	asynchronous (40%)
8. Group work effectiveness	face to face (66.67%)	asynchronous (42.86%)
9. Easy to get help on course work	face to face (58.33%)	asynchronous (38.89%)
10. Easy to reach out to instructor	face to face (61.11%)	asynchronous (44.44%)
11. Easy to reach out to the TA	face to face (63.89%)	asynchronous (36.11%)
12. Course work performance	face to face (69.44%)	asynchronous (38.89%)
13. Devote time to assignments	face to face (44.44%)	asynchronous (33.33%) no difference (33.33%)
14. Procrastinate	synchronous (22.22%) asynchronous (22.22%) face to face (22.22%) no difference (22.22%)	face to face (38.89%)
15. Need help with course work	synchronous (37.14%)	face to face (38.89%)
16. Difficult to finish course work	asynchronous (33.33%)	face to face (41.67%)
17. Easy to cheat on course work	no difference (31.43%)	face to face (51.43%)
18. Overall, like the class setting	face to face (55.56%)	asynchronous (47.22%)
19. Overall, like the class setting for courses	face to face (61.11%)	asynchronous (45.71%)
20. Overall, the flexibility	hybrid (38.89%)	face to face (36.11%)

Students need online tools the most in the asynchronous online class. They also need the most help with coursework in the asynchronous online class, while the least help is needed in a face-to-face class. It is the most difficult for students to finish coursework in the asynchronous online class, while the least difficult in a face-to-face class. Students feel no difference in how easy to cheat on coursework in the different class formats but think it is hardest to cheat in a face-to-face class. It is interesting to see students' opinions on procrastination. Students' responses are evenly spread to synchronous online, asynchronous online, face-to-face,

and no difference in the class format they procrastinate the most. However, students feel they procrastinate the least in a face-to-face class. The online class provides flexibility and versatility for teaching and learning. Prior research suggests that online courses are not as effective as face-to-face courses at facilitating and teaching complex problem-solving content [11]. Getting feedback from students about the online classes and adequately conveying intellective tasks should enhance the capacity of online classes [9]. We may increase greater interactivity in the online course to improve the overall online class success rate.

Overall, students feel hybrid class is the most flexible format, while face-to-face is the least flexible class. Lack of flexibility has been considered one disadvantage of face-to-face courses in general because face-to-face classes usually require students to meet in the classroom at a specific time [15]. On the other hand, hybrid courses allow time flexibility, providing increased learner control of course experience and increased confidence in working with online teams [13]. However, the time flexibility allotted in hybrid courses may negatively affect novice learners and are time-intensive to develop [7]. Therefore, we may need more resources to develop a hybrid course.
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4. CONCLUSION

A survey study was conducted to compare students' perceptions of the effectiveness of four different class settings: face-to-face, synchronous online, asynchronous online, and hybrid. Data was collected from students who had recent, salient experiences with the mixed course delivery formats. The results directly show us how students compare the four types of teaching and learning formats. To conclude, students like the traditional face-to-face class the most and the asynchronous online class the least. Furthermore, students feel the hybrid class is most flexible while the face-to-face class has the least flexibility. This study could strengthen the prior research on the effectiveness of online education, providing meaningful feedback from students. However, this study may have a limit of the student sample, as all students are full-time students in a university. Perceptions may be different for novice learners or part-time students. Therefore, further research may address the different types of students in a different context.

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