Two Roads that (should) Converge:
Perceived Effectiveness of Synchronous and Asynchronous Learning
by Senior High School Students at José Rizal University

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Abstract: With the outbreak of the COVID-19 pandemic, online learning has become the students' only hope to continue their learning process in a safe and secure manner. This study aimed to examine the perceived effectiveness of synchronous and asynchronous learning and evaluate the factors which may affect students' experience in such a highly emergent learning context. To this end, descriptive quantitative research involving 100 conveniently selected senior high school students enrolled in online classes at a private university was conducted. A researcher-developed, expert-validated four-point rating scale consisting of four parts was administered to the respondents online via SurveyHero. The responses were analyzed using descriptive statistics, mean and standard deviation. The results indicated that, while students perceived synchronous learning as effective and in-par with face-to-face classes, they reported a negative evaluation of the efficacy of asynchronous learning. The study further revealed that factors such as gadgets and a peaceful home environment were essential for successful online learning. It was then concluded that synchronous learning is more effective than asynchronous, and the quality of learning materials provided to the students impact their views on these learning set-ups. The study draws several pedagogical implications useful for both students and teachers in online learning environments. Recommendations for future research are also discussed in this paper.

Key Words: online learning environment, asynchronous learning, synchronous learning

1. INTRODUCTION

Online learning has become a central issue that has arisen in today's educational landscape. With the outbreak of the COVID-19, all aspects of the country suffered heavily, including education which affected nearly 1.6 billion learners globally (United Nations, 2020). Consequently, the adoption of online learning has been spurred to prevent the spread of the virus (Dennon, 2021).

Online learning provides opportunities for students to continue their learning process in a safe and secure manner despite the pandemic (Khalil et al., 2020). Online learning can be synchronous or asynchronous. Synchronous learning refers to the type of class sessions that takes place in real-time, while asynchronous learning is where the students are self-paced and learn without the supervision of their instructors (Scheider, 2021).

Several past works on the effectiveness of synchronous and asynchronous learning have been conducted. Hrastinki's study (2008) found that synchronous learning is deemed more beneficial by students because the learners thought of synchronous communication as "more like talking." Meanwhile,

Kenworthy and McNamara (2012) affirmed that synchronous engagement with the courses or modules caused the students' final examination grades and course grades to rise. On the other hand, asynchronous sessions have been proven effective in promoting creativity in project-based prompts (Beck & Corfman, 2019). Similarly, Hrastinski (2008) proved that, in asynchronous discussions, students can articulate their thoughts better because they can find more facts and read other source materials to grasp the lesson better. Moreover, in asynchronous communication set-ups, the person's capability to understand the information at hand improves (Dennis & Robert, 2005), suggesting that students may be able to process the lessons they have more thoroughly when learning asynchronously.

Despite the prevalence of previous research conducted on online learning, some questions, however, remain unresolved. This is because students now do not get the chance to choose online learning voluntarily since, because of the pandemic, online classes are being imposed upon them. For example, in the Philippines, the Department of Education adopted distance learning methods, which include online learning to facilitate the students' education (Llego,

2020). This then creates a gap if one wants to assess the effectiveness of online learning in such a highly emergent context. In addition, the issue of internet connectivity and digital readiness (Kritz, 2020) is not present in other research, while it may be a big problem in the Philippine setting.

Hence, this study was conducted to determine the perceived effectiveness of online learning. Specifically, this study was designed to answer the following research questions:

1. How effective is synchronous learning as perceived by the students?
2. How effective is asynchronous learning as perceived by the students?
3. What factors in synchronous and asynchronous learning environments do students have to cope with?
4. What strategies do the students utilize to cope with the synchronous and asynchronous learning demands?

2. METHODOLOGY

A quantitative approach, specifically descriptive research design, was applied in this study. The study respondents were 100 Senior High School (SHS) students who were enrolled in online classes at Jose Rizal University (JRU); they were selected through convenience sampling. This sampling technique allowed the researchers to choose those who were more readily accessible given the context of online data collection (Etikan et al., 2016). This means that during the initial data collection, more than 100 students were recruited to participate. However, only 100 students willingly responded to the questionnaire within the timeframe set for the data collection. A four-point Likert scale was developed by the researchers after a careful literature review on online learning—the questionnaire comprised four parts, with each part addressing each research question posed in this study. The original version of the questionnaire only had three parts, totaling 20 items. After an expert validation, an additional part (Part 4) was added to the questionnaire, and an additional statement was added to Part 1 and Part 2, making a total of 26 items. Several statements were also revised to improve their clarity.

Data collection was undertaken through an online survey via SurveyHero. Before the respondents participated, their consent and assent to partake in the research were acquired. The entire data collection lasted for a week due to the number of responses needed.

Descriptive statistics, mean and standard deviation (SD) were used in the data analysis. The responses were first collated in Microsoft Excel. The mean and SD of each item were then calculated. After calculations were done, the data were tabulated, and each item was interpreted using the range of mean scores, whereas 3.26-4.00 equated to strongly agree; 2.51-3.25 to somewhat agree; 1.76-2.50 to somewhat disagree; and 1.00-1.75 to strongly disagree.

3. RESULTS AND DISCUSSION

3.1 How effective is synchronous learning as perceived by the students?

Table 1 shows a grand mean of 2.97, indicating that the students somewhat agree that synchronous class effectively accommodates their academic needs. Moreover, the results indicate that students strongly agree that the instructional materials utilized during synchronous sessions are relevant to their needs. Similar outcomes can be learned from past works. For example, the study of Francescucci and Rohani (2018) reported that synchronous courses have the same level of student performance outcomes as with face-to-face learning because of effective instructional materials. In the current study, teachers may have utilized various teaching materials which get positive engagement from the students, as explained by the highest mean in item 1. Moreover, learners value spontaneous feedback and meaningful interactions, which are present during synchronous sessions (Bonk & Park, 2007), and could be the significant reasons why the students generally show a positive attitude towards the aforementioned learning set-up.

Table 1 *Effectiveness of Synchronous Learning as Perceived by the Students*

Items		Mean	SD	Verbal interpretation
1.	The instructional materials used during synchronous classes are appropriate and suited for my academic needs.	3.36	0.61	Strongly agree
2.	Subject teachers utilize various strategies to encourage active learning among students, which enables me to learn more effectively.	3.21	0.66	Somewhat agree
3.	My internet connectivity is good and conducive for learning, so I am able to keep up with the discussions.	2.65	0.88	Somewhat agree
4.	I can easily interact with my teachers, so the questions I have in mind are clarified immediately and clearly.	2.91	0.88	Somewhat agree
5.	I can easily interact with my classmates, and we are able to discuss the content of a topic, which enables me to take the level of depth into a topic	3.03	0.90	Somewhat agree

Items	Mean	SD	Verbal Interpretation
further than the instructor's presentation alone would.			
6. I get higher grades on my assessments when the topic is taught in synchronous sessions than when I do under the synchronous classes.	3.03	0.81	Somewhat agree
7. I can say that synchronous learning is in-par with face-to-face classes when it comes to the quality of learning that I get from it.	2.62	0.98	Somewhat agree
Grand mean	2.97	0.82	Somewhat agree

3.2 How effective is asynchronous learning as perceived by the students?

In Table 2, it is revealed that students somewhat disagree that asynchronous classes are effective, as indicated by the grand mean of 2.48. The result also shows that the students do not perceive asynchronous learning as on par with traditional classes, as shown by the 2.13 mean for item 7. The students' negative outlook towards asynchronous classes may be caused by their lack of experience with the mentioned learning set-up. Several studies prove that, by practice, asynchronous learning does not work as designed due to students' lack of perceptions of interdependence (Peterson et. al, 2018). Since the students are new to the asynchronous modality, it may be harder to adjust to the schedule flexibility and interdependence given to them. Moreover, students tend to have a greater interest in synchronous activities as those are more interactive and reinforce knowledge retention better than asynchronous tasks (Malik et al., 2017). This finding also offers a probable explanation as to why the students' perception regarding the effectiveness of asynchronous classes is substandard.

Table 2 *Effectiveness of Asynchronous Learning as Perceived by the Students*

Items	Mean	SD	Verbal Interpretation
1. The instructional materials uploaded in Canvas are clear and easy to understand, and the modules are arranged properly; thus, I am able to learn effectively even without the supervision of a teacher.	2.46	0.91	Somewhat disagree
2. There are different types of instructional and supplementary materials provided by the teachers (e.g., video presentations, recording of the discussions, etc.) that help me understand the lessons better.	2.49	0.89	Somewhat disagree
3. The subject teachers use different strategies such as evaluation tests and lesson sharing to assess what I learned about the topic.	2.72	0.93	Somewhat agree
4. I can easily reach my subject teachers through email or using Canvas inbox whenever I have questions regarding the modules or lessons.	2.05	0.93	Somewhat disagree
5. The time I allot for different topics/subjects allows me to focus well, thus helping me learn at my own pace.	2.74	0.92	Somewhat agree
6. I get higher grades on my assessments when I study under an asynchronous set-up than when I do under synchronous classes.	2.77	0.95	Somewhat agree
7. I can say that asynchronous learning is in-par with face-to-face classes when it comes to the quality of learning that I get from it.	2.13	0.97	Somewhat disagree
Grand mean	2.48	0.93	Somewhat disagree

3.3 What factors in synchronous and asynchronous learning environments do students have to cope with?

As shown in Table 3, the grand mean of 2.49 indicates that the students somewhat disagree that their study environment is conducive to learning. The results generally show that the students' home environment is not that beneficial in helping them learn better, implying that students may be having a more challenging time learning at home than in a classroom. Students taking the course in a traditional classroom setting outperformed their peers who study at home because of the presence of various distractions (Brooks, 2011). Also, Perks (2014) stated that, given the profound influence of the physical environment on their learning competency, the slightest distractions around the students' workspace could significantly impact their learning behavior. In the present study, distractions such as household chores and the presence of gadgets and other factors such as a peaceful home environment may have contributed significantly to how students perceive the conduciveness of their home as their learning environment.

Table 3 *Factors in Synchronous and Asynchronous Learning that Students have to Cope with*

Items	Mean	SD	Verbal interpretation
1. The submission deadlines of my assignments give me ample time to focus on and fulfill each task satisfactorily.	2.75	0.86	Somewhat agree
2. The number of tasks assigned to me on different	2.6	0.85	Somewhat agree

subjects is manageable; thus, I am able to finish them on time.			
3. I can open the instructional materials in Canvas across different devices, thus enabling ease of access.	2.88	0.81	Somewhat agree
4. The different features in Canvas, such as Inbox and Chat, allows me to interact with my teachers and classmates whenever needed.	2.86	0.85	Somewhat agree
5. I am able to manage my time well for household chores and academic responsibilities.	2.25	0.85	Somewhat disagree
6. Doing household chores does not distract me or affect my performance towards academic responsibilities.	2.28	0.95	Somewhat disagree
7. My home environment is peaceful and conducive for learning, thus allowing me to study effectively.	2.18	0.82	Somewhat disagree
8. I am not distracted by the gadgets and available at home (such as television, gaming consoles, etc.), and I can focus well on my synchronous and asynchronous classes.	2.13	0.88	Somewhat disagree
Grand mean	2.49	0.86	Somewhat disagree

3.4 What strategies do the students utilize to cope with the synchronous and asynchronous learning demands?

Table 4 reveals that the students generally employ different learning strategies to make their academic lives easier, as shown by the grand mean of 2.85. The results also show that the students list academic tasks but do not join group or class review sessions. Students' preference for tracking their tasks through lists may be explained by the sense of added efficiency it causes. Most learners agree that task tracking dramatically impacts the success of their online learning experience because it helps organize responsibilities (Song et al., 2013). On the other hand, the students' lack of interest in group reviews may be caused by the perceived disadvantages from the aforementioned review style. Since the students are undergoing online classes, they might not be comfortable or feel productive when they review with others. Self-studying is more efficient than group review sessions since it offers fewer distractions and allows for the customization of learning techniques that an individual can use (Weinberger, 2020).

Table 4 *Students' Strategies to Cope with Synchronous and Asynchronous Class Set-ups*

Items	Mean	SD	Verbal interpretation
1. I am able to manage my time by using different techniques (e.g., Pomodoro method, 2-minute approach, etc.) to avoid procrastination.	2.77	0.87	Somewhat agree
2. I list all the tasks that need to be accomplished so that I'll have a smooth workflow.	3.34	0.84	Strongly agree
3. I participate in group review sessions with my classmates to reinforce my understanding of the lessons.	2.44	0.97	Somewhat disagree
4. I set aside a particular time or day dedicated to reviewing the modules and lessons for the week.	2.83	0.92	Somewhat agree
Grand mean	2.85	0.90	Somewhat agree

4. CONCLUSION

This study has attempted to examine the effectiveness of synchronous and asynchronous learning from the perceptions of students. Based on the findings of the study, it can be concluded that synchronous learning is more effective than asynchronous learning. The main factors that influence students' perceptions are the relevance of the instructional materials used and the variation in the real-time interaction during the mentioned learning set-ups. In addition, several environmental factors, including the lack of a peaceful home environment and the presence of distractions in gadgets, affect the students' online learning experience. Lastly, while the students prefer listing their tasks to have a smooth workflow, they rarely participate in group review sessions to reinforce their understanding of the lessons.

Based on these conclusions, several implications to teaching and learning in online learning environments could be drawn. First, the instructors must provide a variety of supplementary materials for the students to work with, and these materials should be understandable even without teacher supervision for synchronous and asynchronous learning to converge successfully. Second, the instructors and learners should interact more frequently during asynchronous classes to ensure knowledge retention among the latter. Third, the students must learn to adjust to the online learning environments, which they can do by finding a quieter spot in the house to be able to focus well. Fourth, they must take action to prevent gadget addiction from distracting them from studying. Fifth, different study techniques which will help the students manage their time and reinforce their learnings better should be employed.

The present study has its limitations. Future research may explore more factors affecting students' learning experience in online learning environments through a qualitative inquiry. Furthermore, research on synchronous and asynchronous learning involving teachers may provide a more comprehensive result.

5. ACKNOWLEDGMENT

The authors would like to express their sincerest thanks to the José Rizal University Senior High School Principal, Mr. Romel C. Navarro, and the Mathematics, Science, Research and Technology Department Chair, Mr. Edmundo P. Abad Jr., for their support. Special appreciation also goes to the SHS students who participated in the study and the student authors' parents for their unwavering support during the study.

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