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A Comparative Study of Learner Satisfaction in Synchronous and Asynchronous Online Courses Among Japanese EFL Learners*

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This article reports on a mixed method study that investigated the differences in Japanese EFL (English as a foreign language) learners' satisfaction toward two different online teaching formats incorporated in universities during the COVID-19 situation: synchronous online courses (n = 324) and asynchronous on-demand courses (n = 323). Applying the items of the previously developed online satisfaction scale in the literature of online learning to EFL learning contexts, this study examined learner satisfaction from three main factors, *engaged learning*, *agency*, and *assessment*, as a quantitative inquiry. According to the Mann-Whitney U test, there were significantly higher results of *engaged learning* and *assessment* in synchronous online courses than in asynchronous on-demand courses, indicating a higher level of learner satisfaction in synchronous online courses. In addition, based on the qualitative text-mining analysis of learner comments on their perceptions of the online courses they had taken, findings suggest that synchronous online courses accounted for higher percentages of positive comments compared to those in the asynchronous on-demand courses. This study shows that synchronous online teaching ensured higher satisfaction among Japanese EFL learners than asynchronous on-demand courses.

Keywords: learner satisfaction, learner perceptions, online EFL courses, COVID-19, Japanese EFL learners

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1 Introduction

The outbreak of the COVID-19 pandemic brought about drastic changes in every field of education on a global scale. Japan was no exception to this trend. In 2020, due to the growing presence of the pandemic, the Japanese government and schools were forced to take measures to combat the situation and to ensure that student learning continued (Iwabuchi et al., 2022). In the case of university education, there was an urgent transition from traditional face-to-face teaching to online teaching. During the state of emergency, while students could not attend university classes and had to engage in online studies, teachers were obliged to change the entire contents of syllabi and teaching materials to facilitate online teaching styles (Hayashi, 2021). Since many university teachers still lacked the technical knowledge and experience needed for teaching online (Bao, 2020; Rapanta et al., 2020), this imperative changeover to online courses was extremely challenging for them.

Fortunately, a certain number of English language teachers had prior knowledge of the use of information and communication technologies (ICT) and e-learning resources. According to a survey released by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) in 2020, 91.7 % of Japanese high schools had already incorporated ICTs to a certain extent in English courses conducted during the academic year of 2019. Such information would suggest that online teaching utilizing ICT and e-learning is compatible with the nature of English as a foreign language (EFL) teaching. On the other hand, as Oshima (2021) points out, such tools were initially assumed to be for supplemental use rather than for remote teaching situations that were carried out completely online. In other words, with the coming of the COVID-19 pandemic, many teachers and learners became the very first generation to experience entire EFL courses being conducted online.

In keeping with this dramatic shift in education, it is essential to examine learner perceptions towards the online EFL courses they have participated in since the beginning of the COVID-19 pandemic and the resulting state of emergency. It is especially important to consider learner satisfaction towards online EFL courses as this could help teachers to upgrade the quality of classroom instructions and teaching methodologies for online courses. With that goal in mind, this study was designed to investigate learner perceptions toward online EFL courses and to compare how learner satisfaction differs in two types of online teaching styles: synchronous online courses and asynchronous on-demand courses.

2 Literature Review

2.1 Studies on learner satisfaction

In general, satisfaction refers to a state of pleasure that people can attain by achieving a desirable goal (Qutob, 2018). In an academic context, satisfaction can be explained as "a feeling of adequacy that the students experience through their interaction with the school environment" (Rashidi & Moghadam, 2014, p.3). Learner satisfaction is a very important factor to consider, because it influences the level of learner motivation and relates to their academic achievement (Baber, 2020; Bolliger & Martindale, 2004; Rashidi & Moghadam, 2014).

In traditional face-to-face classroom settings, Bolliger and Martindale (2004) see elements associated with learner satisfaction as: student characteristics, quality of relationships with faculty, curriculum and instruction, student life, support services, resources, and facilities. However, they noted that online courses present a different set of challenges to instructors and learners. It is quite natural to assume that the above elements related to learner satisfaction differ in online courses, because learners attend these courses from their homes instead of studying on campus. Baber (2020) found the important factors related to learner satisfaction in an online classroom are interaction in the classroom, student motivation, course structure, instructor knowledge, and facilitation. Baber confirmed that these factors positively influenced learner satisfaction in courses conducted during the COVID-19 pandemic. The study also showed that instructor facilitation and knowledge were essential determinants for students' learning outcomes and satisfaction during online learning amid the pandemic. Rajabalee and Santally (2021) is another study that examined student satisfaction and their engagement in an online course during the pandemic, and they stated the importance of instructor support in the online classroom as well. They concluded that lack of support from the instructor and technical difficulties could create a sense of frustration among students. It is essential to capture such emotions in a timely fashion while the course is being offered and then immediately take action to address student concerns. In online courses, it is important to reconsider the instructor's role and classroom management procedures. This is because they are very different from those needed to keep students satisfied with the classes in conventional, face-to-face teaching situations.

2.2 Learner satisfaction in EFL classes

Foreign language classes, including EFL classes, have the feature of using foreign languages as a means of communication inside a classroom. This distinguishes them from other classes and subjects. According to Qutob (2018), EFL learners' satisfaction with learning outcomes and the teaching process is

essential and, it can be highly affected by the learning environment. For example, Qutob noted that an EFL classroom can be a place for students to practice speaking and have conversations with classmates. To better facilitate this process, instructors need to create a motivational environment. This can be done by using effective materials and teaching methods to support such learning activities. Learner satisfaction in the EFL classroom plays a key role in fostering learner motivation which, in turn, can lead to successful language learning (Rashidi & Moghadam, 2014).

Deusen-Scholl (2015) emphasizes the importance of having opportunities for real and meaningful interaction in online EFL courses. He points out that this can facilitate active learning, by allowing learners to collaborate and manage their learning interactively with others. For this reason, online EFL learning should "go beyond simple content delivery, such as presenting basic grammar, reading, or vocabulary activities" (Deusen-Scholl, 2015, p. 400). The study highlights the need for active interactions between teachers and learners as a key measure in online EFL courses. Thus, EFL teachers are not only faced with the challenge of taking into account the fundamental features of foreign language teaching, but also those of online teaching, which is a quite challenging issue.

2.3 Clarifying learner satisfaction

The perceptions and feelings that students have while attending a course are directly related to their satisfaction, thus it is crucial to understand how students think about a course (Rajabalee & Santally, 2021). Dziuban et al. (2015) is one study that assessed learner satisfaction with online learning using an original scale. They took a survey at the University of Central Florida, and attained 1217 responses from students who had taken online courses conducted across various majors. Using factor analysis, they found three underlying components of satisfaction: engaged learning, agency, and assessment.

Engaged learning refers to "students' abilities to engage, reflect, understand material, collaborate, find information, question, understand course requirements, manage their own learning, and increase opportunities for degree completion" (Dziuban et al., 2015, p. 8). According to their study, this factor symbolizes how students evaluate various aspects of online courses simultaneously in order to make decisions about their class experience. Dixson (2015) points out that student engagement is crucial to student success according to previous research findings. Agency is defined as "students' ability to initiate and control their own actions in the learning environment" (Dziuban et al., 2015, p. 8). They state that learners who possess a strong sense of agency tend to have a responsibility for their learning which empowers the classroom environment. Assessment is a manner that evolves in the online environment (Dziuban et al., 2015). This factor shows the efficiency in learners' self-assessment of their academic progress. They maintain that satisfied learners

have the ability to assess and monitor their progress.

The present study will apply Dziuban et al.'s (2015) online satisfaction scale in an online EFL context. This study aims to contribute to this area of research by exploring the further relationship among the three factors of online satisfaction: engaged learning, agency, and assessment. Importantly, there is still room for investigation of learner satisfaction in online EFL courses conducted in the COVID-19 pandemic situation in Japan. It is therefore essential to fill this gap by clarifying to what extent EFL learners are satisfied with online courses in the Japanese context.

In Japan, most of the online courses conducted in universities can be broadly classified into two major types: synchronous online courses and asynchronous on-demand courses (MEXT, 2018). Synchronous online courses refer to courses that are taught interactively using real-time videos and sounds with all participants being online simultaneously. On the other hand, asynchronous on-demand courses basically do not have to be conducted in a two-way format, and include activities such as web assignments, students watching recorded classroom videos, and participating in online forums. According to MEXT (2018), incorporating such online teaching styles, synchronous online and asynchronous on-demand courses, is helpful in meeting the needs of various students with different circumstances.

According to a national survey conducted by MEXT (2021) during the coronavirus pandemic period, the rate of students who were generally satisfied with the online courses they had taken at universities was higher than those who were dissatisfied. From the student responses in the survey, the advantages of online courses mentioned were the conveniences of taking courses at any time and any place. Disadvantages were lack of time spent with classmates, too many homework assignments, insufficient classroom interactions, and unclearness of course contents (MEXT, 2021). On a relevant note, Mitsugi et al. (2021) compared learner perceptions towards online EFL courses and face-to-face EFL courses conducted in a private high school in Japan, before and after the COVID-19 crisis. From their findings, although students' evaluation of online courses was statistically lower than face-to-face courses (i.e., attitudes toward the course, linguistic self-confidence, L2-classroom anxiety, competence needs fulfillment, relatedness needs fulfillment), qualitative data revealed positive dimensions in an online format, such as increased awareness of their autonomous learning and ease of communication using a foreign language. Recognizing such learner perceptions can help teachers improve the structure of a course's format, course instructions, and classroom management.

Although the survey results of MEXT (2021) have provided important insights into the understanding of learner satisfaction in online courses, this survey has not compared the differences in learner satisfaction between the two types of online teaching, synchronous online and asynchronous on-demand courses. Moreover, no empirical studies so far have dealt with EFL learners'

satisfaction in online courses conducted in the Japanese context. This study aims to make a major contribution to research on Japanese EFL online teaching in the COVID-19 pandemic as well as the post-pandemic "new normal" situation, by examining learner satisfaction in detail. The importance and originality of this study are that it compares the cases of synchronous online courses and asynchronous on-demand courses, and makes an inquiry into student perceptions in each of the online teaching styles. Accordingly, this study poses the following research questions:

1. How does learners' satisfaction differ between synchronous online and asynchronous on-demand EFL courses?
2. What are the differences in learner perceptions towards synchronous online and asynchronous on-demand EFL courses?

3 Method

3.1 Participants

The participants in the current study were 647 university students (Synchronous Online Course: 324, and Asynchronous On-demand Course: 323) from six different universities. Participants were native speakers of Japanese, learning English as a foreign language (EFL). Since the participants were from six different universities, there was some variety and difference among the English language classes participants were enrolled in. Students majoring in English took TOEIC preparation classes, while participants not majoring in English (e.g., economics, business administration) took General English classes with a focus on listening and speaking. All participants had English proficiency of around CEFR A2-B1. As the levels and specialties vary in the six universities, there is a certain range of proficiency among participants. However, the teachers responsible for the data taken at each university agree that all participants are within the aforementioned proficiency level.

In addition, the participants' self-perceptions of their English proficiency were measured on a five-point Likert scale. Upon analysis, the responses were modified into a three-point scale (i.e., high, moderate, and low levels of English proficiency). As a result of the Fisher exact test, there was no significant difference between students taking the synchronous online courses and those taking the asynchronous on-demand courses (p = .11, v = .08). Therefore, it was confirmed that there was statistically no significant difference in the self-perceived English proficiency among the two contrast groups of students.

3.2 Instrument

The questionnaire was constructed by adding the word "English courses" to the individual questions used in Dziuban et al. (2015) as displayed below (see Table 1). As mentioned in 2.3 (Literature Review), Dziuban et al. employed three factors (*engaged learning*: e.g., Generally, I am more engaged in my online English courses, *agency*: e.g., I am motivated to succeed, *assessment*: e.g., Assessment of my academic progress is more accurate in online English courses) as components of online class satisfaction. This study utilized the same components. Students evaluated their satisfaction for these items on a five-point Likert scale. All items in the questionnaire were divided into two sections and were uploaded to Google Forms. Section one contained questions about the demographics of the participants (e.g., university name, gender, grade, class name). Section two contained questions about *engaged learning*, *agency*, and *assessment* of the participants. For the statistical analysis, the collected data were analyzed using IBM SPSS Statistics 28.

Table 1. Online Satisfaction Scale for EFL Courses

Scale items
Engaged Learning
Generally, I am more engaged in my online English courses.
I have more opportunities to reflect on what I have learned in online English courses.
Online English learning helps me understand course material.
There are more opportunities to collaborate with other students in an online English course.
My online English learning experience has increased my opportunity to access and use information.
I am more likely to ask questions in an online English course.
Generally, I understand course requirements better in an online English course.
Because of online English courses, I am more likely to get a degree.
I can manage my own learning better in online English courses.
Take more online English courses?
Agency
I am motivated to succeed.
I have strong time management skills.
I am a multitasker.
Assessment
Assessment of my academic progress is more accurate in online English courses.
I can more easily monitor my academic progress in online English courses.
Response time from teachers and assistants is quicker in online English courses.

Note. Scale items were adapted from Dziuban et al. (2015) and rearranged to match the context of online EFL courses. All the items were administered in Japanese.

In this study, an open-ended question asking about the participants' perceptions of their online EFL courses was added. The question was prepared as follows: "How do you feel about the online EFL courses you have taken so far? Please write down your comments freely." Responses were collected from all participants mentioned above.

3.3 Data collection

The questionnaire survey was carried out on an online basis using Google Forms in July 2021 by eight researchers in charge of the participants' English courses. Each researcher explained that participants would not be disadvantaged in any way by deciding not to participate in this study, that names and any information that might lead to the identification of the participants would not appear in any form in the presentation and publication of this study, and that participants' confidentiality was secured. Only students who agreed to answer the questionnaire participated in the study.

3.4 Data analysis

This study was conducted using a mixed-method design. The average scores of the items comprising each of the three factors were calculated, and the Mann-Whitney *U* test, a non-parametric test was applied to these scores to examine whether there were differences in each of the three factors (*engaged learning*, *agency*, and *assessment*) between synchronous online courses and asynchronous on-demand courses.

In addition, answers to the open-ended questionnaire were analyzed by a text mining method using KH Coder 3, a free software tool for text mining developed by Higuchi (2017). The co-occurrence network, one of the analysis methods in KH Coder, displays diagrams showing the relevance of the extracted words, which enable us to visually grasp and interpret the characteristics of the obtained data for learner perceptions of satisfaction. For example, the extracted words' frequency is displayed as the circle's size and the relevance (co-occurrence) as a connection of lines. In contrast, however, words that do not co-occur with other words are not displayed even if they appear frequently.

In the analysis, responses of "nothing in particular" or those which were irrelevant to this study were removed. Typographical errors and variations in Japanese orthographies, such as Chinese characters and hiragana, were adjusted. In addition, vocabulary with almost the same meanings, such as "teacher" and "professor," was unified. After completing this process, the revised data were visually interpreted using the co-occurrence network. In this study, the Jaccard coefficient was used to calculate the strength of association. The minimum number of occurrences of the extracted words was set at 5, and the co-occurrence relationships to be displayed were set at the top 60.

4 Results and Discussion

4.1 Results of quantitative analysis

4.1.1 Comparison of three factors on satisfaction

As shown in Table 2, the result of the Mann-Whitney *U* test on the averaged scores of the three factors showed significant differences in *engaged learning* ($U = 36311.00$, $p = .00$, $r = -.27$) and *assessment* ($U = 30965.500$, $p = .00$, $r = .36$), and a marginally significant difference was found in *agency* ($U = 47963.00$, $p = .06$, $r = -.07$). The mean ranks indicate which type of class has a higher level of satisfaction for the three factors. The results of *engaged learning* and *assessment* showed significantly higher satisfaction with the synchronous online courses than with the asynchronous on-demand courses.

Table 2. Mann-Whitney *U* Test Results for Three Different Factors Defining the Satisfaction

Scale	Course	*N*	Mean Rank	Sum of Ranks	*U*	*p*	*r*
Engaged learning	SO	324	373.43	120991.00	36311.00	.00***	.27
	AO	323	274.42	88637.00			
	Total	647					
Agency	SO	324	337.47	109339.00	47963.00	.06	.07
	AO	323	310.49	100289.00			
	Total	647					
Assessment	SO	324	389.93	126336.50	30965.50	.00***	.36
	AO	323	257.87	83291.50			
	Total	647					

Note. ***$p < .001$, Synchronous Online [SO], Asynchronous On-demand [AO].

4.1.2 Engaged learning

Table 3 shows the results of the Mann-Whitney *U* test for each of the questionnaire items on *engaged learning*. The items with a significant difference in the synchronous online courses and the asynchronous on-demand courses are listed in descending order of the mean rank differences.

The items with the larger value of mean rank differences can be expected to have a stronger impact on the difference in satisfaction between the two different class styles. Looking at the items with the first largest and the third-largest mean rank difference, *"I am more likely to ask questions in an online English course"* ($U = 31584.00$, $p = .00$, $r = .35$) and *"There are more opportunities to collaborate with other students in an online English course"* ($U = 39025.50$, $p = .00$, $r = .23$), they potentially have the common premise of interaction; interaction between teacher and students and also interaction among students. For example, in the synchronous online course, learners can

ask questions in a similar environment as face-to-face, rather than through e-mails, bulletin boards, and other tools, which involve a time lag. Such immediate and smooth interactions and problem-solving processes between students and teachers possibly contributed to higher student satisfaction compared to asynchronous on-demand courses.

Synchronous online classes are more conducive to understanding the course requirements (*"Generally, I understand course requirements better in an online English course*" [U = 37026.00, p = .00, r = .27]). Synchronous online courses allow for real-time explanations in class, whereas some of the explanations given by video streaming or email in asynchronous online classes could, at times, be incomprehensible to learners.

The motivation for taking online English classes also showed a difference in satisfaction between the two class formats (*"Take more online English courses?"* [U = 41092.50, p = .00, r = .20] and *"Generally, I am more engaged in my online English courses"* [U = 45900.00 p = .00, r = .11]). These results indicate that in-class interaction and teacher facilitation positively influence students' satisfaction and motivation in their learning, as pointed out in Baber (2020). Especially in online English classes, whether the learning environment ensures meaningful interaction and better facilitation by the teacher is likely to influence student satisfaction levels.

Table 3. Mann-Whitney U Test Results for Each Questionnaire Items on Engaged Learning

Scale Items	Course	Mean Rank	Sum of Ranks	U	p	r
I am more likely to ask questions in an online English course	SO	388.02	125718.48	31584.00	.00***	.35
	AO	259.78	83908.94			
Generally, I understand course requirements better in an online English course	SO	371.22	120275.28	37026.00	.00***	.27
	AO	276.63	89351.49			
There are more opportunities to collaborate with other students in an online English course	SO	365.05	118276.20	39025.50	.00***	.23
	AO	282.82	91350.86			
Take more online English courses?	SO	358.67	16209.08	41092.50	.00***	.20
	AO	289.22	93418.06			

Because of online English courses, I am more likely to get a degree	SO	353.13	114414.12	42887.00	.00***	.16
	AO	294.78	95213.94			
I have more opportunities to reflect on what I have learned in online English courses	SO	348.85	113027.40	44274.50	.00***	.14
	AO	299.07	96599.61			
I can manage my own learning better in online courses	SO	344.05	111472.20	45830.50	.00***	.12
	AO	303.89	98156.47			
Generally, I am more engaged in my online English courses	SO	343.83	111400.92	45900.00	.00***	.11
	AO	304.11	98227.53			
Online English learning helps me understand course material	SO	338.03	109521.72	54744.00	.04*	.08
	AO	309.93	100107.39			
My online English learning experience has increased my opportunity to access and use information	SO	331.81	107506.44	49795.50	.27	.04
	AO	316.17	102122.91			

Note. *$p < .05$, **$p < .01$, ***$p < .001$ (n = 324 for Synchronous Online [SO] / n = 323 for Asynchronous On-demand [AO])

In synchronous online courses, students seemed to be more confident about taking credits (*"Because of online English courses, I am more likely to get a degree"* [$U = 42887.00$, $p = .00$, $r = .16$]). The more students are engaged in the online course, the more confident and satisfied they may become. In addition, synchronous online courses were also more satisfying than on-demand in terms of the opportunity to reflect on students' own learning (*"I have more opportunities to reflect on what I have learned in online English courses"* [$U = 44274.50$, $p = .00$, $r = .14$]). When meeting and participating in the synchronous online classes, students might have been given directives from the teacher during the whole class which then led to greater reflection on what was learned previously.

In terms of learning management, synchronous online courses also resulted in higher satisfaction ("*I can manage my own learning better in online courses*" [$U = 45830.50$, $p = .00$, $r = .12$]). This result was somewhat surprising, as it can be assumed that on-demand courses require students to be more conscious of learning management. Direct access to instructions from the

teacher and easier exchange of information among students about the content and due dates of assignments in synchronous online courses may have contributed to this result.

4.1.3 Agency

Table 4 shows the results of the Mann-Whitney *U* test for each of the questionnaire items on *agency*. As discussed in 4.1.1 (see Table 2), the overall results for agency between synchronous and asynchronous online courses did not reach the level of significance. Likewise, as for the individual items of agency shown in Table 4, all three items had extremely small effect sizes with no significance or very slight significant difference. Therefore, it can be assumed that learner agency is not affected by differences in the form of online courses. However, regarding the second item ("*I have strong time management skills*" [$U = 47456.00$, $p = .03$, $r = .08$]), dealing with time management skills, learners may have found asynchronous on-demand learning, which requires more self-management of learning, more challenging and more burdensome than synchronous online courses. In other words, asynchronous on-demand courses seem to have required learners to self-manage the time and schedule for their learning. This might be because it is not easy to have immediate interactions with teachers and among classmates in asynchronous on-demand courses.

Table 4. Mann-Whitney *U* Test Results for Each Questionnaire Items on Agency

Scale Items	Course	Mean Rank	Sum of Ranks	*U*	*P*	*r*
I am motivated to succeed	SO	316.54	102558.96	54744.00	.28	.04
	AO	331.49	107071.27			
I have strong time management skills	SO	339.03	109845.72	47456.00	.03*	.08
	AO	308.92	99781.16			
I am a multi-tasker	SO	339.44	109978.56	47322.50	.03*	.09
	AO	308.51	99648.73			

Note. *$p < .05$, **$p < .01$, ***$p < .001$ ($n = 324$ for Synchronous Online [SO] / $n = 323$ for Asynchronous On-demand [AO])

4.1.4 Assessment

Table 5 shows the results of the Mann-Whitney *U* test for each of the questionnaire items on *assessment*. All three items in this factor showed significant differences between the two modes of teaching. The first item is related to the interaction between the teacher and students ("*Response time from teachers is quicker in English online courses*" [$U = 28630.50$, $p = .00$, $r = .41$]). In the synchronous online mode, immediate interaction with the teacher is a prerequisite, a condition which may account for higher satisfaction on the part of learners.

Table 5. Mann-Whitney *U* Test Results for Each Questionnaire Items on Assessment

Scale Items	Course	Mean Rank	Sum of Ranks	*U*	*P*	*r*
Response time from teachers is quicker in English online courses	SO	397.13	128670.12	28630.50	.00***	.41
	AO	250.64	80956.72			
Assessment of my academic progress is more accurate in online English courses	SO	362.54	117462.96	39840.50	.00***	.22
	AO	285.35	92168.05			
I can more easily monitor my academic progress in online English courses	SO	356.03	115353.72	41949.00	.00***	.18
	AO	291.87	94274.01			

Note. $*p < .05$, $**p < .01$, $***p < .001$, ($n = 324$ for Synchronous Online [SO] / $n = 323$ for Asynchronous On-demand [AO])

The second and third items are both related to academic progress ("*Assessment of my academic progress is more accurate in online English courses*" [$U = 39840.50$, $p = .00$, $r = .22$] and "*I can more easily monitor my academic progress in online English courses*" [$U = 41949.00$, $p = .00$, $r = .18$]) and showed higher levels of satisfaction with synchronous online modes in terms of the accuracy and ease with assessing their academic progress. This may be due to the difficulty of conducting tests in on-demand courses. Furthermore, at times, learners cannot get immediate feedback from the teachers on matters such as their English usage or the overall correctness of their assignments.

4.2 Results of qualitative analysis

4.2.1 Overview of the text data

Regarding the second research question, we investigated differences in student perceptions of synchronous online and asynchronous on-demand courses

through a free-writing questionnaire. First of all, the obtained comments were examined closely according to the procedure described in section 3.4 (Data analysis; Method), resulting in qualitative data for 287 students from the synchronous online courses and 294 students from the asynchronous on-demand courses. Each comment was read and categorized as "favorable opinion" or "negative opinion". Table 6 shows the classification of results and the number of lexical type frequencies (with different numbers of words) in the comments. In the synchronous online courses, favorable comments accounted for 80%, consistent with the quantitative survey results showing that the students in the synchronous online courses had high satisfaction with the courses. On the other hand, there were various opinions in the asynchronous on-demand courses, both pros and cons. In addition, the type frequency (different number of words) was 475 and 643, respectively, suggesting that students in the asynchronous on-demand courses had more diversity in their responses.

Table 6. Overview of the Text Data Used for Analysis

Comments	Synchronous Online courses	Asynchronous On-demand courses
Favorable	230 (80%)	161 (55%)
Negative	38 (13%)	89 (30%)
Mixed / Others	19 (7%)	44 (15%)
Total	287	294
Type Frequency	475	643

Table 7 shows the results of words that appeared more than 15 times in each group. Although certain words such as "time" and "video" frequently appeared only in the student comments from asynchronous on-demand courses, almost all words found in the synchronous online courses also appeared in the asynchronous on-demand courses. Thus, there was a similarity in the words that appeared most frequently in both groups.

Table 7. The Number of Extracted Terms for Each Group

Synchronous Online courses		Asynchronous On-demand courses	
Term	Number	Term	Number
course	103	course	126
online	81	I	99
face-to-face	57	online	73
I	49	face-to-face	60
question	38	time	53
English	37	English	45
teacher	24	pace	36

understand	20	study	36
pace	16	understand	29
easy	15	teacher	25
		video	20
		task	18
		like	17
		question	15

Note. The lists of terms which appeared more than 15 times in each group.

4.2.2 Results obtained from the co-occurrence network

A co-occurrence network diagram was created for each course. Figures 1 and 2 show co-occurrence network diagrams created for each course. Here, relatively strongly related words are grouped as "subgraphs". As a result, six subgraphs were obtained for both courses. Five of them (A to E) consisted of many common words and were considered to have a common theme. In addition, two subgraphs (F and G) unique to each course were also detected. Using the KH coder, these data were visually interpreted through a co-occurrence network diagram while confirming the context in which each word was used in the KWIC Concordance. KWIC Concordance (hereinafter referred to as KWIC) is a function that makes it possible to search the context in which each keyword is used.

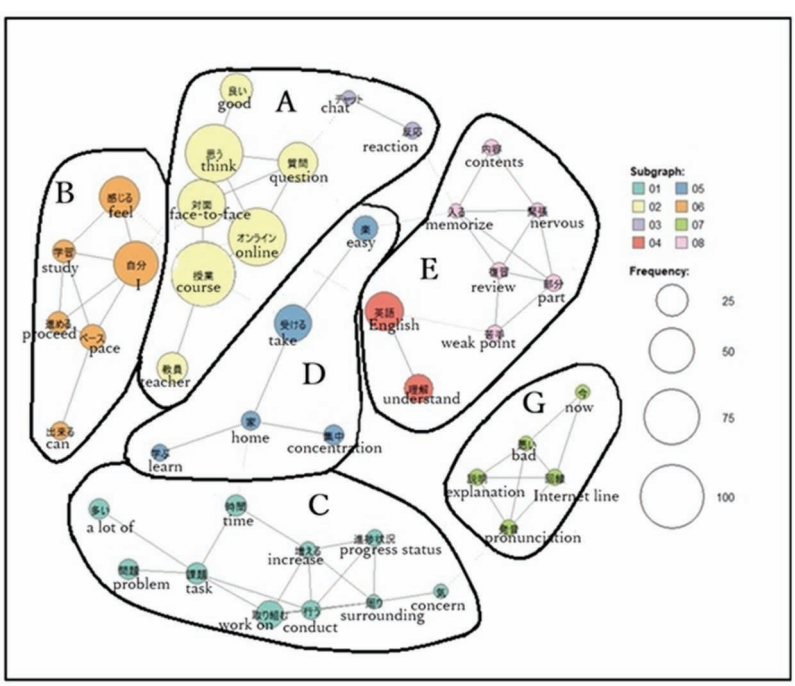

Figure 1. Co-occurrence network of synchronous online courses

In subgraph A, both courses have the word “course” and “online” as the core, and some common words such as “teacher” and “face-to-face” appear. Therefore, it was interpreted as being a subgraph related to the *course format*. The co-occurrence of “teacher” in both courses suggests that there is a strong relationship between course format and teacher-related factors.

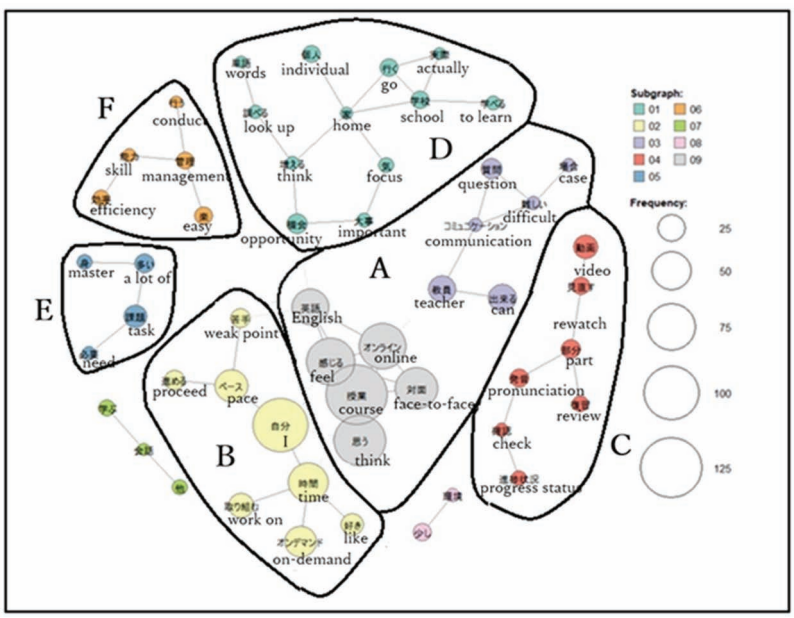

Figure 2. Co-occurrence network of asynchronous on-demand courses

According to KWIC’s confirmation of comments about “teacher”, there were many comments such as “It was easy to interact with teachers” in the synchronous online courses. On the other hand, in the asynchronous on-demand courses, comments on difficulties in communication with or weak relationships with the teacher were characteristically seen.

In addition, in the synchronous online courses, there were comments about the teacher’s personality and teaching method, such as “My teacher is a very nice person and taught kindly,” while in the asynchronous on-demand courses, there were comments that evaluated the teacher’s abilities and efforts more objectively, such as “My teacher was working hard to create the teaching materials.” or “My teacher is not using the tools well.” These different perspectives of seeing the teacher likely reflect the difference between synchronous online courses in which students interact directly with the teacher and asynchronous on-demand courses students connect with the teacher through material content and time-lag feedback.

Subgraph B was interpreted as a subgraph related to *learning management*, with the word “I” being the core of both groups, and “pace”' and

"proceed" co-occurring in common. KWIC indicated that both groups appreciated being able to manage their own learning. In addition, "time" appeared frequently in asynchronous on-demand courses, and many positive opinions were seen about being able to study at one's own pace. Also, in asynchronous on-demand courses, "weak point" and "pace" are connected, and KWIC showed that students who are not good at English tend to prefer this on-demand learning style, which allows them to proceed at their own pace.

In subgraph C, "progress status" is displayed in common for both groups. The synchronous online course consists of 10 words such as "increase" and "task", and the asynchronous on-demand course consists of seven words such as "check" and "review". Therefore, this subgraph was interpreted as related to *learning progress*. Both groups favorably evaluated the fact that it was easy to check the progress of their own learning, such as "It's convenient because what you've learned is stored as data." Furthermore, in the asynchronous on-demand course, some comments, such as "Online learning requires us to manage our learning," indicated heightened awareness of self-responsibility for learning.

Subgraph D was centered on "home" in both groups and was interpreted as the *learning environment*. The synchronous online course consists of five words such as "easy" and "concentration". Most of the comments from this group revealed by KWIC were that studying at home was "easy", but there were also conflicting comments that they could concentrate on learning at home or could not. The asynchronous on-demand course consists of 12 words such as "school", "focus" and "look up", and more than half of the respondents answered that they like "learning without going to school". On the other hand, many students who wanted to study at school said they could not concentrate at home. Overall, this subgraph is a mix of positive and negative comments about "learning at home". This seems to depend on whether they can concentrate on their studies at home.

Previous studies have reported that students want to communicate with other students even in online classes (Bali & Liu, 2018; Fortune et al., 2011; Mitsugi et al., 2021). However, in this research, it became clear that there are many students who feel more comfortable learning without worrying about their surroundings rather than learning collaboratively with other students. It is necessary to investigate the reason for this in the future, however it is assumed that one of the reasons is that it is a special situation related to and influenced by COVID-19 disaster.

In addition, as the asynchronous on-demand courses were characterized by comments such as "I have more opportunities to look up dictionaries on my own and more time to think about my own English use," which is an indicator of *engaged learning*, students in this course may have had more opportunities for more autonomous learning.

Subgraph E for the synchronous online course consists of the words "English", "understand", and "memorize", etc., and the asynchronous on-

demand course consists of four words such as “master”, “task”, and “a lot of”, and was therefore interpreted as *learning content*. In synchronous online courses, almost all opinions were favorable, such as “I was able to deepen my understanding” and “I was able to remember because it was easy to review.” This tendency was mainly seen in students who are not good at English.

In asynchronous on-demand courses, the comments were split between “I was able to master the learning content” and “I was not able to master it.” This is probably one of the reasons why there were so many diverse responses in the asynchronous on-demand course. Negative reasons include the lack of communication activities, such as “It was difficult to learn English because there was no communication activity in English”. These comments reflect the difference between synchronous online courses, whose instructional methods are close to face-to-face classes with real-time interactions, and asynchronous on-demand courses that require autonomous access and work on assignments. Moreover, comments about having too many tasks implied that asynchronous on-demand courses tended to be more challenging.

Subgraph F was displayed only in asynchronous on-demand courses. Since it consists of five words such as “management” and “efficiency,” this subgraph was interpreted as related to *learning efficiency*. KWIC showed that students realized that on-demand learning requires learning efficiency and learning management skills. Learning management ability is one of the indicators of *agency* in this study. There seems to be a growing awareness among students of asynchronous online courses that they need to develop better learning management, time management, and multitask skills.

Subgraph G appeared only in synchronous online courses. It consists of five words including “Internet line” and was determined to be related to *communication situations*. Comments such as “Learning is affected by Internet line conditions” are characteristic, and it is speculated that the Internet connection strongly affects the synchronous online courses, which require more rapid responses.

5 Overall Discussion

This mixed-method study clarified the differences in Japanese EFL learners’ satisfaction and perceptions toward synchronous online and asynchronous on-demand courses. Since very little was found in the literature on the comparison of which online teaching format better ensures learner satisfaction, this study was designed to fill this gap and provide pedagogical insights from both quantitative and qualitative perspectives.

From the quantitative analysis, learner satisfaction in synchronous online courses was found to be significantly higher than in asynchronous on-demand courses in *engaged learning* and *assessment*, two of the factors underlying classroom satisfaction components. Individual items related to

these factors, for example, asking questions, collaborating with other students, and receiving quick teacher responses showed a higher level of significance in synchronous online courses. These results further support the idea of Bolliger and Martindale (2004), who demonstrate the importance of facilitating communication between "learner-instructor" as well as "learner-learner" in online classrooms, and that it contributes to learner satisfaction. The findings in the current study indicate the possible connection between meaningful interactions in online courses and learner satisfaction. Furthermore, the motivation to take online English courses showed a significant difference in satisfaction between the two types of course formats, that is, students in synchronous online courses had higher motivation toward their classes than those in asynchronous on-demand courses. As mentioned in Baber (2020), motivation plays a pivotal role in the online environment, which may influence students' learning outcome and satisfaction. One of the significant findings of the present study is that synchronous online teaching led to higher learner satisfaction when compared to asynchronous on-demand teaching. These findings will add to the growing body of research on optimal online teaching and learning for the "new normal" style of EFL education.

According to the results of qualitative data analysis, 80% of the learner comments in the synchronous online course were found to be positive, whereas learner comments in the asynchronous on-demand course varied to a large extent, with a mixture of positive and negative ones. A possible explanation for this might be that learners who took the synchronous online courses were more satisfied than those who took the asynchronous on-demand courses, which is consistent with the quantitative findings stated above. Based on the results of the co-occurrence network diagram with concordance (KWIC), students were more likely to feel satisfied with their relationships with their teacher in the synchronous online courses. This might be due to the fact that direct interactions are possible in synchronous online courses but are difficult in asynchronous on-demand courses. As Qutob (2018) states, student satisfaction is highly influenced by students' relationship with their EFL teacher, and at times it could be the cause of student demotivation and a decrease in levels of satisfaction. It is therefore imperative to maintain a positive relationship between teacher and students in the online classroom environment to keep students satisfied with the class. Another notable finding is that students from both synchronous online and asynchronous on-demand courses highly valued their learning management and time management when attending online courses. Asynchronous on-demand styles of learning were positively accepted due to the freedom of time and accessibility of learning materials. These results are consistent with those of Rapanta et al. (2020) who found accessibility (having the proper devices and connection) and autonomy (such as setting goals and managing time) as two of the most important elements in making successful online teaching and learning. Moreover, it is interesting to note that students who perceive themselves as low-proficiency

learners preferred to proceed at their own pace. Proficiency levels were found to influence the learning styles of students while attending online EFL courses. As a whole, the co-occurrence network illustrated clear differences in the characteristics of learner responses in the two online course formats.

6 Conclusion

6.1 Summary of the findings

The purpose of the current study was to examine the differences in learner satisfaction between synchronous online courses and asynchronous on-demand courses in the Japanese EFL context. This study has identified some contrastive tendencies of learner satisfaction and perceptions of two types of online courses.

First, from the quantitative analysis as a result of student responses to the questionnaire, *engaged learning* and *assessment* in synchronous online courses were significantly higher than in asynchronous on-demand courses. Significant differences in the scale items support the idea that it is easy and effective for learners to ask questions and receive quick responses from teachers directly, which leads to the interaction between students and teachers in the classes. Moreover, collaboration in the classroom, learning management, and motivation were found to influence student satisfaction. Factors that led to increasing learner satisfaction in this study generally correspond to the findings of previous studies (e.g., Baber, 2020, Bolliger & Martindale, 2004). Above all, the main contribution of this study has been to confirm that synchronous online teaching in EFL classes tends to ensure more satisfaction for learners.

Generally, student collaboration is considered to enhance learner satisfaction, however, findings of this study show some students consider that it would be better and easier to study alone. It is possible that the students did not establish relations in the class due to the "new normal lifestyle" as a countermeasure against COVID-19. On the other hand, in asynchronous on-demand courses, this study suggests that teachers' feedback to learners can be effective in improving learner satisfaction. Furthermore, it is very important for teachers to give instructions precisely in order to achieve the goals of the course. Teachers must also be clear about the ways in which activities in classes are to be carried out, as well as how the students should go about making progress in the course. Clearly defining the contents of online courses may lead to greater learner satisfaction.

We hope that the present study will help advance the methodology used to teach English in synchronous online and asynchronous on-demand courses and will be useful for teachers to who want to improve the instructional designs of their online EFL classes.

6.2 Limitations and future research

One limitation of this research is that consideration was not given to either the way that asynchronous on-demand online classes were taught, nor to the specific content of such courses. Whereas in the synchronous online courses the participants could ask questions and the instructors were able to give feedback promptly, the ways in which this was carried out in asynchronous on-demand courses need to be further investigated.

Another important point to note is that this study did not distinguish the students with or without previous experiences of taking both synchronous and asynchronous online courses elsewhere. Students who had experienced both types of online courses might have responded based on the comparison of their experiences of two types of online courses, whereas those who had no such experiences might have responded only from the particular course they took. These factors might have affected the results of the study to some extent.

This research classified the online courses into two types, but further consideration must be given to other possible factors such as teachers' support, their feedback, and lesson structure. By doing so, we believe that more precise findings can be obtained.

In future research, it would be necessary to use a more elaborate satisfaction index based on the characteristics peculiar to online courses of English. More attention should be paid to the interaction between teachers and students, as well as between students and students.

It is also of interest to find out whether the synchronous online or asynchronous on-demand courses encourages students to study more. In other words, focusing on the learning achievements of students in the two online course formats could be investigated from a different point of view. Taken together with learner satisfaction with online courses, such findings could help teachers of English to update their online teaching methods and implement more effective EFL courses.

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