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A Multivariate Approach to Investigating Student Satisfaction With Zoom Second Language Oral Communication Classes

Paul Joyce
Kindai University
paulj@jus.kindai.ac.jp

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Abstract

During the COVID-19 pandemic, the need for social distancing led to an abrupt shift from face-to-face (F2F) teaching to video-mediated classes. To facilitate this change, Zoom became a widely used digital communication platform. This study took a multivariate approach to investigating student satisfaction with Zoom-mediated second language (L2) listening and speaking classes. For the purposes of this study, 825 Japanese university students completed a series of questionnaires and an L2 proficiency test. The participants reported a high level of satisfaction with L2 classes taught through Zoom. The convenience afforded by Zoom classes was shown to be the strongest predictor of satisfaction, followed by fear of COVID-19, L2 learning motivation, and L2 proficiency. Computer anxiety and introversion-extroversion were not found to predict satisfaction. Due to the educational and commercial opportunities afforded by hybrid courses comprising both F2F and online classes, it was concluded that they are worthy of further investigation.

Introduction

The COVID-19 pandemic has had a tremendous impact on the global education system (United Nations, 2020). To prevent the spread of the virus, social distancing prompted schools to forsake traditional face-to-face (F2F) teaching and shift to video-mediated sessions. This had the advantage of allowing instructors and students to continue to interact in real time, albeit in an online setting. This was obviously of great importance for second language (L2) classes, in which live interaction, classroom participation, and student participation are of particular importance. To facilitate synchronous online classes, Zoom emerged as an widely used platform (Wiederhold, 2020). However, while there are similarities between Zoom classes and traditional classroom lessons, differences in their delivery methods impact their user-friendliness, accessibility, and style. As such, there can be a marked difference in learning outcomes and student satisfaction (Furlonger & Gencic, 2014; Kauffman, 2015). Naturally, owing to individual differences, online learning is favored by some students more than others. The purpose of this study is to investigate the importance of factors which may have influenced student satisfaction with Zoom classes in Japan during the COVID-19 pandemic.

Satisfaction with Zoom Classes

Zoom is cloud-based video-conferencing software that enables teachers to host synchronous online classes. During the COVID-19 pandemic when F2F classes were no longer viable, Zoom proved to be an extremely popular educational tool both in Japan (Rushton, 2021) and across the world (Barquero, Arce & León, 2022; Lederman, 2020). Zoom contains a wide range of features that are useful for L2 teaching. These include screen sharing, a whiteboard, a chat function, and annotation tools. Vitaly, it also enables instructors to instantly split learners into smaller groups that are separate from the main session. These breakout rooms allow greater interaction between students and have been associated with improvement in students' communicative competence (Martin, 2020; Vurdien, 2019).

Student satisfaction is important as it is related to academic performance (Dhaqane & Afrah, 2016), effort (Edwards & Waters, 1982), and enrollment (Cole, Shelley & Swartz, 2014). Satisfaction with online classes has typically been explored by comparing satisfaction levels between asynchronous courses and F2F ones. While the focus of this study is on synchronous classes, there are similarities between synchronous and asynchronous class types in that neither require students to be in a particular location and both are computer mediated. Studies that have compared F2F and asynchronous online classes have suggested that F2F classes have higher overall course satisfaction. For example, Furlonger and Gencic (2014) canvassed the views of 295 students who were studying for a master's degree in counseling at a university in Australia. It was discovered that while there was no significant difference between their academic performance, the on-campus students were more satisfied than those who studied through online materials. Unsurprisingly, given that the online students studied asynchronously, it was suggested that greater interaction with lecturers and peers explained this difference. However, since the study was conducted with postgraduates students, it is possible that the maturity of the students may have played a role in this finding.

In a study that directly compared a traditional classroom environment with synchronous Zoom lessons, Serhan (2020) elicited the views of 31 university students. Once more, there was a preference for F2F education. It was posited that the reasons for this related to motivation, interaction, and technical issues. On the other hand, students appreciated the flexibility that was afforded by video-mediated classes. Nevertheless, given the small sample size, it is difficult to draw firm conclusions.

In contrast, in an exploratory study that involved undergraduate L2 learners taking Zoom classes, Lee (2021) found that most of her Korean participants favored

synchronous online classes over F2F sessions. Judging by the students' comments, the prevailing reason seems to have been that the students appreciated the opportunity to interact during a time of social distancing. However, as the study only included 25 students, the conclusions should be considered tentative.

Collectively, the studies suggest that satisfaction with Zoom classes is influenced by a wide range of underlying factors. After reviewing the literature, a number of factors have been identified as being relevant to this issue. These factors include class convenience, fear of COVID-19, L2 learning motivation, L2 proficiency, computer anxiety, and introversion/extroversion.

Class Convenience

An obvious difference between a classroom-based and an online course is flexibility. While F2F classes require students to be on-campus, online classes allow students to select the location from which they attend class. This difference has been found to matter to students. In a study involving 487 MBA students in the United States, Lee, Stringer, and Du (2017) researched students' preferences for class delivery mode. The convenience of enrollment was found to be a significant predictor in the selection of asynchronous online classes. Furthermore, in a study that canvassed the view of 387 preservice teachers who were taking asynchronous eLearning classes through a university in Singapore, course delivery was also found to be a key determinant of course satisfaction (Teo et al., 2014).

Students appreciate the convenience of online classes for numerous reasons. In a small-scale qualitative study in Saudi Arabia, students reported valuing the financial and time savings afforded by on-demand classes (Albogami, 2022). In the United States, 270 college students considered there to be a wider range of benefits from such classes, including more time for family, practicing hobbies, and sleeping (Aguilera-Hermida, 2020). There is less known about learners' views on synchronous online classes. However, in a study conducted in Australia, Wang, Huang and Quek (2018) allowed some master's students to attend a F2F class via webcam. The results indicated that the learners valued the flexibility and convenience provided by Zoom. However, the online students were observed to interact less than those in the classroom.

Fear of COVID-19

As of March 2023, there had been around 767 million confirmed cases of COVID-19, including almost seven million deaths (World Health Organization, 2023). Owing to the threat posed to human health, the pandemic induced fear worldwide. To control COVID-19, social distancing and self-isolation measures were implemented. Due to such public health interventions, there were dramatic changes in all sectors of education, with up to 90% of the world's students affected (UNESCO, 2020a; 2020b). This had a discernible impact upon university students' mental health (Aguilera-Hermida, 2020). For example, in China, almost a quarter of students experienced anxiety because of the outbreak (Cao et al., 2020).

In Japan, fear of COVID-19 was found to be relatively high (Wakashima, et al., 2020). To investigate this issue amongst Japan's university students, Takagi et al. (2021) surveyed the opinions of 300 learners. The results indicated that while fear amongst Japanese students was lower than within the population as a whole, it was higher than amongst students in other countries. However, there were of course differences in anxiety levels amongst Japanese students. Such differences have been found to be related to variables including intolerance of uncertainty, perceived vulnerability to disease, and specific personality traits (Asmundson & Taylor, 2020). There is anecdotal evidence that students who were more anxious about COVID-19 preferred Zoom-mediated rather than F2F classes (Sari & Iswahyuni, 2021).

L2 Learning Motivation

L2 learning motivation has been shown to play a role in students' engagement in online courses, continued participation, and achievement (Schunk & Usher, 2012). Also, since L2 learning motivation is associated with attitude orientation, which includes satisfaction (Aimah et al., 2016), it is a factor of interest for this study.

Kirmizi (2015) investigated the predictors of satisfaction and success in online L2 learning. To address this issue, 84 English majors at a university in Turkey completed a series of questionnaires. The students reported that they were highly satisfied with their asynchronous courses. L2 learning motivation was found to have the highest correlation with online course satisfaction ($r = .47, p < .01$) and to be the strongest predictor ($\beta = .33, p < .05$). As a result, it was concluded that motivation was a highly influential factor in student satisfaction.

In a similar study, Erdel (2022) explored the attitudes of 137 English majors at a university in Turkey towards their asynchronous L2 course. The students were found to be moderately satisfied. Also, while the relationship between L2 learning motivation and online course satisfaction was positive ($r = .21, p < .05$), it was far more modest than found by Kirmizi (2015). The difference in the results of the two studies can partly be explained by their timing. While one (Kirmizi, 2015) took place before the pandemic and likely involved students who opted to study asynchronously online, the other (Erdel, 2022) happened during the pandemic with students who likely did not have any choice. This highlights the complex, situation dependent nature of motivation in online learning (Hartnett et al., 2011).

L2 Proficiency

L2 proficiency has been shown to be an important factor in digital learning. Preliminary results suggest that higher achievers perceive online resources to be more useful than lower achievers do (e.g., Shen, Luo & SunHsieh, Huang & Wu, 2015). However, research on the relationship between L2 proficiency and satisfaction with online learning has been limited and inconsistent. In a study conducted with 207 non-English majors at a university in Romania, Maican and Cocorada (2021) explored the interaction between proficiency and enjoyment derived from a range of synchronous and asynchronous online L2 classroom activities and resources. Unexpectedly, the lower-achieving students were found to enjoy the online classwork significantly more than the higher ability learners. To explain the finding, it was speculated that the higher-proficiency students found the materials insufficiently challenging.

In a wide-ranging study, Kim and Kim (2021) investigated the learning of L2 writing through synchronous and asynchronous online classes. The 154 Korean students were divided into low and high proficiency groups based on their scores on a TOEFL-style placement test and completed a questionnaire about their learning preferences. It was discovered that the higher-ability students considered learning writing through Zoom to be significantly more effective than the lower-proficiency group. However, when it came to asynchronous materials, no significant difference between the groups was found.

Lastly, Cha, Kim, and Kim (2022) conducted a study that included the relationship between L2 proficiency and satisfaction with online foreign language classes. The research involved 366 university freshmen in Korea who were divided into three proficiency groups based upon their performance on a college entrance exam. For the first six weeks of the semester, the students took asynchronous L2 classes focused on videos that the instructor uploaded. This was followed by six weeks of Zoom classes. The beginner and intermediate proficiency group were more satisfied with the online learning program than the advanced group. However, the only statistical difference discovered was between the intermediate and advanced level learners. The researchers

concluded that the advanced learners preferred F2F classes as they were more confident than the other groups.

Computer Anxiety

To participate in a synchronous video-mediated L2 course, students need to use a range of computer-related technology. Of course, this can lead to technical issues that can be an impediment to L2 learning. For instance, Albogami (2022) noted that the L2 learners in his study faced a host of computer-related issues in the use of their Learning Management System (LMS). Similarly, Maqableh and Alia (2021) reported that most of the learners in their study in Jordan had technological or internet connectivity issues. For students who are “uneasy, apprehensive or fearful” (Igbaria & Parasuraman, 1989, p. 375) about using computers, technological difficulties have been found to negatively impact course satisfaction (e.g., Sari & Iswahyuni, 2021). In a study involving 84 students who were enrolled in an asynchronous online health education doctoral program in the United States, Bolliger and Halupa (2012) found a significant negative correlation between computer anxiety and satisfaction ($r = -.50, p < .001$). Likewise, after surveying the views of 295 university students who were taking a range of different asynchronous online courses, Sun et al. (2008) derived a similar result ($r = -.22, p < .001$).

On the other hand, in contrast with LMS systems that are used for asynchronous online learning, Zoom has been noted for its ease of use (Nuryanto, 2021; Serhan, 2020). For example, as part of a study on L2 learning in Indonesia, Nuryanto (2021) investigated the user-friendliness of Zoom. On a Likert scale of one to five, the 60 high school participants were found to strongly agree that Zoom was easy to use ($M = 4.67$). However, it remains to be seen whether the user-friendliness of Zoom is sufficient to alleviate computer-related anxiety.

Introversion-Extroversion

Personality is a factor that could impact students' preference for F2F versus Zoom classes as it is connected to learning style (Terrell, 2005). There are numerous types of personalities (Myers, 1987). However, the dimension that has been found to be related to student experience of traditional and online learning is introversion-extroversion (Macgregor, 2000). Introverts orient towards their own thoughts and feelings rather than to people and things. As a result, they tend to be relatively reserved and prefer working independently (APA Dictionary of Psychology, n.d.). In contrast, extroverts are more interested in the world outside themselves and are characterized as comparatively sociable (APA Dictionary of Psychology, n.d.). After reviewing the literature on the interaction between personality type and education, DiTiberio (1996) concluded that extroverts are suited to collaborative learning, while introverts may find computer-based learning preferable.

To further address this issue, Harrington and Loffredo (2010) recruited 166 college students who completed personality type and preferred teaching modality questionnaires. Most of the introverts were revealed to prefer asynchronous online learning, while most of the extroverts favored F2F classes. A statistically significant difference between the two groups was found, albeit with a small effect size. This result suggests that the peer and teacher support that is readily available in the traditional classroom setting is a predictor of student satisfaction for asynchronous classes.

The relationship between personality type and satisfaction with synchronous video-mediated classes is less understood. For introverts, relative to F2F interaction, online speaking practice has been shown to allow more preparation time, be less stressful (Sari & Iswahyuni, 2021), and offer shy students greater opportunity to express themselves (Rodrigues & Vethamani, 2015). In contrast, Zoom classes may satisfy

extroverts as such lessons facilitate real-time interaction and enable the formation of meaningful online learning communities (Lowenthal et al., 2020). However, this is not always the case. There have been reports of students turning off their cameras (Wang, Huang & Quek, 2018) and of disappointing levels of student interaction in Zoom breakout rooms (Lee, 2021). Thus, while the relationship between personality and class delivery method is of interest, there is a lack of clarity over the capacity for Zoom classes to satisfy introverts and extroverts.

As should be clear from the discussion above, the previous studies shed some light on the relationship between L2 proficiency and the delivery method of the class. However, due to the limited studies and contradictory findings, further research is needed. Building on previous findings, this study investigates L2 students' satisfaction with Zoom-mediated classes through the following research questions:

Research question one: In Japan, how satisfied are L2 students with taking speaking and listening classes through Zoom?

Research question two: In Japan, to what extent can L2 students' satisfaction with Zoom-mediated speaking and listening classes be explained by class convenience, fear of COVID-19, L2 learning motivation, L2 proficiency, computer anxiety, and introversion-extroversion?

Method

Participants

The participants in this study were enrolled as non-English majors at a university in Osaka, Japan. The learners were all first and second years who were taking required EFL listening and speaking courses as full-time students. There were 825 participants in the study, 579 male and 246 female. As the participants were recruited through the cooperation of their EFL teachers, a convenience sample was used. All of the learners who were asked to participate consented to do so.

Context

The data was collected in December of 2021 through an online survey. To avoid contracting COVID-19, the students had been taught through Zoom for much of the fall semester and all of the previous semester. However, for the month preceding data collection, the course was delivered face to face (F2F). The classes met once a week for 90 minutes over a 15-week semester. There were 44 different class groups invited to participate in the study. The students were taught by 10 different native English-speaking instructors, including the author.

Materials

After reading about the purpose of the study and accepting a statement of informed consent, the participants completed seven research instruments.

1) The Zoom Satisfaction Survey focused on how contented the participants were with the delivery method of the class. The questionnaire consisted of five statements that explore different aspects of the target construct (see Table 1). The students responded to the items on a five-point Likert scale that ranged from strongly agree to strongly disagree. As with all of the questionnaires used, the survey was translated into Japanese so that it could be easily understood by the participants.

2) The Class Convenience Survey consisted of four statements focused on the flexibility afforded by online study relative to F2F classroom delivery. The research instrument focused on the influence of online delivery on the ability of the participants to meet their personal commitments and manage life outside school (see Appendix A). The items were based on previous literature (e.g., Aguilera-Hermida, 2020; Albogami, 2022). The participants responded through a five-point Likert scale that ranged from strongly agree to strongly disagree.

3) The Fear of COVID-19 Scale (FCV-19S) (Ahorsu et al., 2020) gauged the participants' COVID-19 anxiety levels. It is composed of seven statements that were responded to on a four-point scale from strongly agree to strongly disagree. The questionnaire has been successfully used in a wide range of studies (e.g., Alyami et al., 2021; Perz et al., 2022).

4) An L2 Learning Motivation Questionnaire (Sick, 2004) based on the Gardner and Lambert (1959) socio-educational model was used. The five items on the survey correspond to the five elements of the model: 1) Attitude toward the learning situation, 2) Instrumental orientation, 3) Integrative orientation, 4) Lack of anxiety when communicating in English, 5) Anticipated effort.

5) The L2 proficiency of the learners was measured through the TOEIC IBT test. The test was administered as part of the students' institutional requirements.

6) The Computer Anxiety Scale (Lester et al., 2005) consisted of six statements. Two of these related to comfort with using computers and four with inadequacy. The participants used a six-point Likert scale to express the extent to which they agreed or disagreed with the statements. The data from the four items that related to inadequacy were reversed prior to data analysis. The scale has been shown to be a reliable and valid means of measuring computer-related anxiety in a number of previous studies (e.g., Lester et al., 2005; Lloyds & Robertson, 2005; Rose & Devine, 2014).

7) The Introversion-Extroversion Scale was drawn from the Eysenck Personality Questionnaire-Revised (Eysenck & Eysenck, 1993). The 12-item survey consists of a series of yes/no items and encompasses sociability and liveliness. The questionnaire has a long record of use and has been found to be psychometrically robust (Heffernan & Ling, 2001; Village & Francis, 2022).

Procedure

The research instruments were completed in two sessions. In the first, the students answered the questionnaires through an online form. This typically took around fifteen minutes. In the second, which occurred within a month of the first, the students took the TOEIC test.

Data Analysis

The data from the six questionnaires were screened for multivariate and univariate outliers, as well as multicollinearity and homoscedasticity. Furthermore, to determine whether the questionnaires measured a common underlying dimension, the data derived from each one was subjected to principal component analysis (PCA) with oblique rotation. This reduces the number of correlated variables that are underlying the data into a fewer number of uncorrelated factors. These uncorrelated factors reflect the latent processes underpinning the data and are suitable for questionnaire data analysis (Tabachnick & Fidell, 2007). For each participant, their factor score coefficients (regression method) for each survey were extracted and used in the subsequent analyses. However, factor scores are frequently negative, and as such they are ill suited to some statistical techniques. To overcome this issue, the data was transformed into positive scores with a mean of 50 and a standard deviation (SD) of 10. To address research question two, the direction and strength of the relationship between the variables was explored using Pearson's product-moment correlation coefficient

analysis. This was followed by multiple regression analysis to explain the independent contribution of each variable. The Zoom Satisfaction scores were used as the dependent variable (DV) and the remaining sets of scores as the independent variables (IVs).

Results

Research question one: In Japan, how satisfied are L2 students with taking speaking and listening classes through Zoom?

This study is related to satisfaction with the video-mediated delivery of L2 English classes. To address this research question, the students' responses to the items on the Zoom Satisfaction Survey have been presented in Table 1 and 2 below. As previously mentioned, a five-point scale (1. Strongly disagree, 2. Disagree, 3. Neither agree nor disagree, 4. Agree, and 5. Strongly agree) was used.

Table 1
Descriptive Results – Zoom Satisfaction Survey

Questionnaire items	<i>M</i>	<i>SD</i>
Q1. I prefer taking this class on Zoom rather than F2F	3.74	1.20
Q2. Zoom should continue to be an option for this class in future years	4.14	.98
Q3. I would recommend that my friends take this class through Zoom	3.69	1.11
Q4. There are clear advantages to this class being taught through Zoom	4.07	1.00
Q5. I am very satisfied with taking this class through Zoom	3.93	1.03

Table 2
Summary of Responses (Percentages)

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q1.	5.09	11.27	24.00	24.24	35.39
Q2.	2.42	3.64	16.61	31.64	45.70
Q3.	4.12	8.73	31.15	26.30	29.70
Q4.	2.55	5.33	15.64	35.76	40.73
Q5.	2.30	6.67	23.03	31.76	36.24

Overall, the students reported a high level of satisfaction (Q5: $M = 3.93$, $SD = 1.03$) with the Zoom-mediated delivery of the class. Most students (68%) were found to either agree or strongly agree that they were satisfied with this class format. When asked to

compare class delivery style, the participants collectively agreed that they preferred an online delivery format to a F2F approach (Q1: $M = 3.74$, $SD = 1.20$). Only a small minority either disagreed or strongly disagreed (16%). In support for this preference, the students were in agreement (76%) that there were clear advantages to the class being taught over Zoom (Q4: $M = 4.07$, $SD = 1.00$). Nevertheless, at this stage, it is unclear why the students felt this way.

Looking to the future, the students clearly hoped that it would be possible to continue taking the class over Zoom in future years (Q2: $M = 4.14$, $SD = .98$). Furthermore, if taking the class through Zoom remained a possibility, the participants affirmed that they would recommend that their friends take the class in this manner (Q1: $M = 3.74$, $SD = 1.20$). In terms of reliability, a Cronbach alpha value greater than .60 is commonly considered to be acceptable (Konting, et al., 2009). Since the coefficient for the questionnaire was found to be .92., the internal consistency of the items was considered satisfactory.

Research question two: In Japan, to what extent can L2 students' satisfaction with Zoom-mediated speaking and listening classes be explained by class convenience, fear of COVID-19, L2 learning motivation, L2 proficiency, computer anxiety, and introversion/extroversion?

The descriptive results for the seven research instruments are in Table 3. The Cronbach's alpha internal consistency for the students' responses to the Computer Anxiety ($\alpha = .77$), Fear of COVID-19 ($\alpha = .90$), Class Convenience ($\alpha = .89$), L2 Learning Motivation ($\alpha = .67$), and Introversion-Extroversion ($\alpha = .85$) questionnaires were also found to be satisfactory.

Table 3

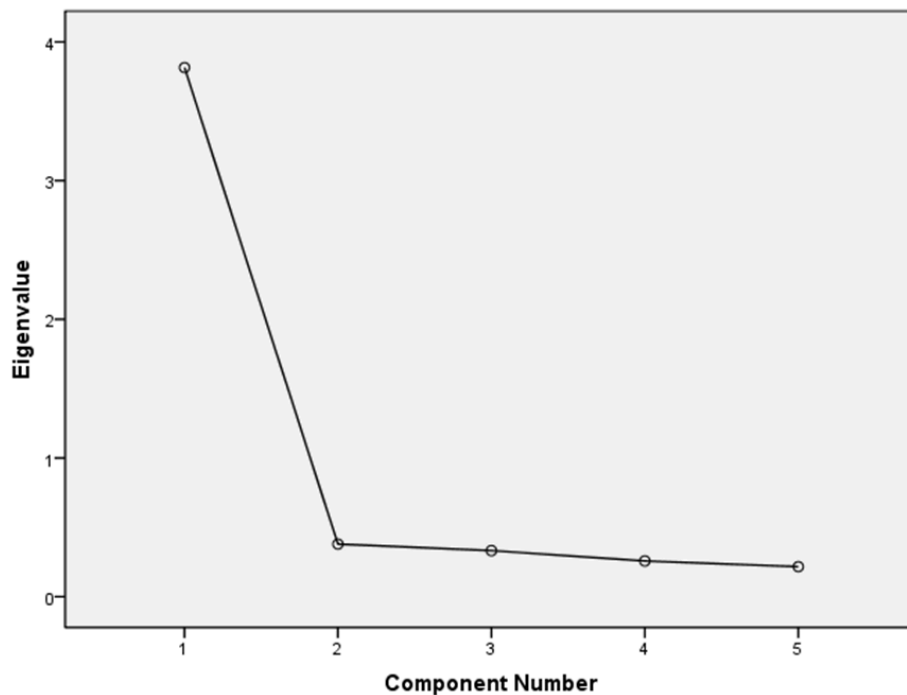
Overall Descriptive Results: Zoom Satisfaction, Class Convenience, Fear of COVID-19, L2 Learning Motivation, L2 Proficiency, Computer Anxiety, and Introversion-Extroversion

Variable	<i>M</i>	<i>SD</i>	min.	max.
Zoom Satisfaction	19.57	4.66	5	25
Class Convenience	17.00	3.19	4	20
Fear of COVID-19	16.89	4.80	7	28
L2 Learning Motivation	13.02	2.66	5	20
L2 Proficiency	464.28	138.56	80	895
Computer Anxiety	22.92	5.29	6	36
Introversion-Extroversion	18.57	3.49	12	24

To verify the suitability of the data for PCA, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were used. As with the other datasets, the responses to the Zoom satisfaction survey ($KMO = .89$; $\chi^2(10) = 2975.701$, $p < .001$) indicated that the analysis could proceed. Regarding the extraction of components, given the large sample size ($n = 825$), it was determined that a scree plot provided a sufficiently reliable criterion for factor selection (Stevens, 2002). As can be seen in the Figure 1 below, and as was the case with the data from the other research instruments used, the results pointed to a one-factor solution, which accounted for 76.31% of the variance.

Figure 1

Scree Plot of Eigenvalues After Principal Component Analysis of Responses to Zoom Satisfaction Survey



The component matrix showed that the correlations between the variable and the components averaged .87 and varied between .85 (item 4) and .89 (item 1). Since the sample size was greater than 600 and these values exceeded .21, the components were deemed worthy of inclusion (Stevens, 2002).

The Class Convenience Scale (KMO = .84; $\chi^2(6) = 1873.304$, $p < .001$) contained a single factor that contained 75.43% of the variance in the data. The correlations between the variable and components ranged between .85 (item 2) and .88 (item 3) and averaged .87. The factor underlying the Fear of COVID-19 data (KMO = .86; $\chi^2(21) = 4296.253$, $p < .001$) data accounted for 64.06% of the variance and correlations between the variable and components ranged between .60 (item 4) and .90 (item 2) and averaged .80. Likewise, the data from the L2 Learning Motivation Questionnaire was shown to be useful for PCA (KMO = .74; $\chi^2(10) = 737.568$, $p < .001$) and contained a single factor that included 46.12% of the variance. The correlations between the variable and the component averaged .66 and were between .34 (item 5) and .77 (item 1). For the Computer Anxiety Scale (KMO = .77; $\chi^2(15) = 1354.434$, $p < .001$), the extracted factor comprised 47.34% of the variance. The component matrix showed that the correlations between the variable and the components lay between .56 (item 3) and .79 (item 4) and averaged .68. Lastly, the single factor underlying the Introversion-Extroversion Scale (KMO = .89; $\chi^2(66) = 2975.725$, $p < .001$) accounted for 38.82% of the variance. The correlations with the extracted variable ranged from .44 (item 7) to .75 (item 4) and averaged .62.

As shown in Table 4, statistically significant correlations between the variables were discovered. Zoom Satisfaction correlated most strongly with Class Convenience ($r = .56$, $p < .01$) and Fear of COVID-19 ($r = .31$, $p < .01$). The results also showed negative correlations between Zoom Satisfaction and L2 Proficiency ($r = -.15$, $p < .01$), L2 Learning Motivation ($r = -.14$, $p < .01$), and Introversion-Extroversion ($r = -.09$, $p < .05$).

Table 4
Correlations Between the Variables

	1.	2.	3.	4.	5.	6.	7.
1. Zoom Satisfaction	-	.56**	.31**	-.14**	-.15**	.01	-.09*
2. Class Convenience		-	.20**	-.13**	-.10	-.02	-.07*
3. Fear of COVID-19			-	.11**	.07	-.18**	.03
4. L2 Learning Motivation				-	.31**	.06	.31**
5. L2 Proficiency					-	.15**	-.06
6. Computer Anxiety						-	.01
7. Introversion-Extroversion							-

* $p < .05$ (two-tailed)

** $p < .01$ (two-tailed)

To further investigate research question two, the data was subjected to linear multiple regression analysis. The independent variables that correlated significantly with Zoom Satisfaction were entered. A statistically significant model was found ($F(5, 819) = 94.17$, $p < .001$, Adjusted $R^2 = .36$). However, Introversion-Extroversion was removed as it was a non-significant predictor ($p = .14$). When the analysis was repeated, a statistically significant model that comprised the remaining four variables was generated ($F(4, 820) = 117.02$, $p < .001$, adjusted $R^2 = .36$). The results for the individual variables are provided in Table 5.

Table 5
Summary of Multiple Regression for Variables Predicting Zoom Satisfaction

Variable	<i>B</i>	<i>SE (B)</i>	β	<i>T</i>	<i>p</i>
Class Convenience	.500	.029	.500	17.409	.000
Fear of COVID-19	.213	.029	.213	7.372	.000
L2 Learning Motivation	-.080	.029	-.080	-2.705	.007
L2 Proficiency	-.005	.002	-.063	-2.154	.032

The standardized partial regression coefficients showed that Class Convenience ($\beta = .50$, $p < .001$) made the greatest independent contribution to the prediction of Zoom Satisfaction. This was followed by Fear of COVID-19 ($\beta = -.21$, $p < .001$), L2 Learning Motivation ($\beta = -.08$, $p < .01$), and L2 Proficiency ($\beta = -.01$, $p < .05$). Collectively, the four variables accounted for 36 percent of the variance (adjusted $R^2 = .36$). Of this explained variance, the first 31 percent was contributed by Class Convenience, followed by Fear of COVID-19 (4%), L2 Learning Motivation (1%), and L2 Proficiency (.3%).

Conclusion and Discussion

This study investigated L2 students' satisfaction with oral communication classes taken through Zoom. As has been discussed, class satisfaction was found to be high. This result contrasts with previous studies that have found a preference for F2F education over asynchronous (e.g., Furlonger & Gencic, 2014) and synchronous (e.g., Serhan, 2020) online classes. However, the finding accords with that of Lee (2021), who also found students to be satisfied with online Zoom classes during the COVID-19 pandemic. Satisfaction levels are important as they are associated with greater persistence in learning and higher levels of retention (Keller, 1983; Koseke & Koseke, 1991).

To understand the underlying reasons for individual differences in Zoom class satisfaction, the relationship between this variable and a number of others was explored. Both the correlation and regression results showed that the strongest relation was with class convenience. This finding fits with previous studies that have also shown the importance to students of being able to balance educational requirements with the demands of family, friends, and jobs (Aguilera-Hermida, 2020; Albogami, 2022). As will be discussed, there is the opportunity for institutions to design courses with increased flexibility to accommodate student needs.

The second greatest predictor of satisfaction with Zoom L2 oral communication classes was fear of COVID-19. As the course switched to an online format to avoid the spread of the deadly virus, it was expected that this variable would help explain interest in Zoom classes. It is also worth noting that the timing of the administration of the questionnaire may have had an impact on the results. In late 2021, while fear of COVID-19 clearly remained, it is conceivable that anxiety was waning due to the availability of vaccines and the gradual removal of barriers to social contact. Nevertheless, while this was the second strongest predictor of satisfaction with Zoom classes, it is notable that it explained far less of the dependent variable than class convenience.

The two remaining predictors were L2 learning motivation and L2 proficiency. As previously reported, both variables were found to be negatively associated with Zoom satisfaction for L2 speaking and listening classes. In seeking to explain this result, it is worth recalling that the level of student interaction within Zoom breakout rooms can be limited (Wang, Huang & Quek, 2018) and that there have been reports of students turning off their cameras (Lee, 2021). Having taught the course, I do not believe such issues were widespread among the students in this study. However, it was a required class, and the participants in this study were non-English majors who were not studying online through choice. As such, a decline in the intensity of interaction relative to F2F classes was likely. In this context, it is plausible that the more proficient and motivated students were relatively less satisfied with Zoom oral communication classes. However, given the minimal contributions that these variables had in predicting Zoom satisfaction, the effect size of these interactions was small.

A suspected predictor of satisfaction with Zoom L2 speaking and listening classes was computer anxiety. Clearly, if students lack confidence in the technology that they are using, there are negative repercussions for learning outcomes and satisfaction (Bower, 2019). However, unlike in Bolliger and Halupa (2012), computer anxiety was not found to be associated with class satisfaction. This difference is likely due to the user-friendliness of Zoom. The software can be installed on a range of different devices, requires minimal computer skills, and students only need a link to join a class. Also, since the internet is relatively stable in Japan, this may also have contributed to an amelioration in computer anxiety (Piccoli et al., 2011).

The final expected predictor of satisfaction was the personality trait of introversion-extroversion. As previously discussed, due to their capacity for collaborative learning, F2F classes have been found to be preferred by extroverts. In contrast, asynchronous online learning was favored by introverts as there are greater opportunities to work alone (Harrington & Loffredo, 2010). Zoom classes were found to

be neither favored by introverts nor extroverts. It is likely that the reason for this pertains to the level of interaction in such lessons, which is probably neither as high as in F2F classes nor as low as in an asynchronous online course.

The satisfaction of many students with online learning has significant implications. Since online classes are not limited by space, or location, they provide tremendous convenience and flexibility to learners, which this study has shown to be important to them. The growth in online learning can lead to new educational and commercial opportunities. For instance, at a time when there is increasing diversity in the student body, such as an increase in the number of older, non-traditional students, many of them parents, universities are now able to supply attractive online options that meet the needs of those learners who cannot or do not wish to study full-time on campus. With the ever-increasing number of digital natives, this trend is only likely to accelerate. Nevertheless, there is still value in the rich interaction available in the traditional classroom. A means to integrate online classes with F2F lessons is through hybrid courses. These offer a combination of different delivery methods. As such, they have the potential to combine the convenience of online classes with the social connections and engagement of F2F lessons and thereby enhance both student learning and satisfaction. Thus, while this type of course remains uncommon, it is worthy of further attention and investigation.

There are a number of limitations to this research. Firstly, there are undoubtedly important predictors that were not included. These include the attitude and skill of the instructor in conducting online instruction (Sun et al., 2008). Secondly, the importance of the fear of COVID-19 variable was heavily dependent on the timing of the data collection. If the study had been conducted earlier or later, it is expected that the influence of this factor would have been different. Lastly, the study was conducted within one department at a single university in Japan. For future studies, a population sample that is drawn from a wider range of departments and institutions would ensure that the results are more generalizable. On the subject of future research, an investigation into the efficacy of hybrid courses would be of interest. Likewise, it would be worth exploring the perception of teachers and administrators on the role and value of online EFL education.

In summary, this study has taken a multivariate approach to investigating satisfaction with Zoom L2 speaking and listening classes amongst university students in Japan. This method allowed the consideration of a broad range of social and contextual influences. The results suggest that class satisfaction was high and predictor variables included class convenience, fear of COVID-19, L2 learning motivation, and L2 proficiency. In this case, it was the spread of the COVID-19 virus that sparked the move to synchronous online learning. However, the shift towards digital delivery is a process that was already underway. This trend has been driven by the opportunity for educational institutions to expand their offerings beyond the physical limits of the traditional classroom (Allen & Seaman, 2017) and thereby provide access to a wider range of students (Guest, 2017). In the future, with continuing advances in technology and the rise in the number of digital natives, Zoom or hybrid delivery may increasingly be used as a way to maximize the advantages and minimize the disadvantages of the various delivery methods (Alexander et al., 2014).

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Appendix A: Class Convenience Survey

For each question, please choose the answer that is most appropriate for you.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

Q1. When taking classes online rather than through f2f classes, it is much easier for me to meet my personal commitments (e.g., to work, meet friends & family, do hobbies, sleep, etc.).

Q2. When taking classes online rather than through f2f classes, I am much better able to manage my life outside of school (e.g., working, meeting friends & family, doing hobbies, sleeping, etc.).

Q3. When taking classes online rather than through f2f classes, I have a much better balance between school and personal commitments (e.g., working, meeting friends & family, doing hobbies, sleeping, etc.).

Q4. Taking classes online rather than through f2f classes is far more convenient for my personal life (e.g., working, meeting friends & family, doing hobbies, sleeping, etc.).