***Online Classes: Does Increased Familiarity With the Mode of Teaching
Actually Lead to Improved Learner Performance?***

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Abstract

Although the COVID-19 pandemic has led to a tremendous expansion in the provision of online education, especially at the tertiary level, it was a sector that was already growing pre-2019. Research from both before and after the outbreak of the coronavirus has tended to compare student satisfaction levels or results in terms of performance for face-to-face and online modes of teaching/learning. However, the focus of the present study was rather to examine the effect of increasing familiarity with online learning on student performance. It was hypothesized that there was likely to be a negative impact in the early days that would decrease after a year or so of experience with classes and tests in the new mode. This research is a small-scale case study at one university (Musashino University), with two groups of similar ability students including both male and female students and a similar proportion of international and Japanese students in each group. Their English reading comprehension was assessed at the beginning and end of a one-semester EFL Reading class using the online standard Placement Test provided by the Extensive Reading Foundation (originally acknowledged as suitable for such use (Brierley, 2019) to determine improvement over the semester. The data for the two groups (April-July 2020 and September 2021-February 2022) were analyzed using SPSS software. The results showed that there was noticeable improvement in average performance after a longer time online, but the difference was not statistically significant, nor affected by gender or nationality. The contribution of the findings is discussed.

Keywords: Online Teaching/Learning, Exposure, Performance, Improvement

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Introduction

As a result of the global coronavirus pandemic, universities in Japan and elsewhere have now spent more than two years mostly teaching and learning online, and in some cases are still doing so, even if it is no longer the only mode of instruction and learning for most of us. It was a situation that was entirely unfamiliar to the majority of instructors and students in April 2020, when we were suddenly thrown in at the deep end and forced to learn to swim in the new environment as quickly as possible. As Maheswari (2021) points out, "neither the teachers nor the students were trained to teach and study online as everything was sudden due to the pandemic". Yaseen et al. (2021) also mention clearly that "digital competence is a required skill when classes are conducted online". Naturally, there were fears that the sudden switch would have a negative impact on learner outcomes, and universities were keen to survey their students' reactions, and to monitor academic achievement very closely, at least during the first year of the pandemic. Some valuable information was collected and disseminated thanks to this, especially the fairly universal acceptance of the situation by everyone involved, with some understandable reservations or preferences.

Students seem to have generally favored face-to-face classes as their preferred mode of instruction, should it be possible (Paul & Jefferson, 2019; Yaseen et al., 2021; Hiromori et al., 2022, for example). Lack of opportunities for social interaction is one commonly cited reason for this (Almendingen et al., 2021; Obara, 2022). In terms of online learning, data collected by the administration at Musashino University found that there was quite a marked preference for the 'on-demand' format, which allowed students to control their own schedules almost completely, since they could choose when to watch the video lessons posted by their teachers, and only the assignment deadlines really restricted them. Many researchers have found a similar situation (Paul & Jefferson, 2019; Obara, 2022). Unfortunately, this style of teaching imposes a heavier burden than usual on the instructors who have to not only prepare and upload videos of lessons, but also be available to answer questions from students, whenever they are contacted by them about anything that was not easy for them to understand in the video lesson, even if they ostensibly have a set time for this. Consequently, it seems that teachers mostly preferred the real time live-streaming format, using platforms such as Google Meets or Zoom. Microsoft Teams was initially less popular because, as of April 2020, it was extremely poorly adapted to educational needs. In particular, no more than four students could appear on screen together, and only four separate groups could be active in one class (including the main 'room'), and they had to be set up in advance. This contrasted very unfavorably with Zoom, where over 30 students could appear on screen together and an almost unlimited number of groups could be created instantly and opened at the same time, without any prior setting up being required. Teams have now improved by adopting the same functionality as Zoom, it appears.

Studies related to the topic of eLearning and online classes may be variously classified, although two major categories stand out clearly. These are the date of the research in relation to the COVID-19 outbreak and the main focus of each study, which are often related to each other. It seems appropriate to consider some of these studies that have a bearing on the present case before describing our own study and its findings.

Literature Review

1. Pre-pandemic studies

In a report published in March 2017, Dos Santos points out that the major edtech magazines predicted a "future of constant growth for eLearning", with the online course market expected to reach $275-325 billion by 2025 (Dos Santos, 2019). According to an April 2022 report by Global Market Insights, it had already surpassed 315 billion in 2021 and is now forecast to grow to 1 trillion dollars by 2028 (GMI, 2022). This may be an unrealistic figure, only time will tell, but what is certain is that the impact of COVID-19 on the world of learning is evident in financial terms, and these reflect a huge transformation in ideas. People have gone from viewing e-learning as something that basically the richest and fastest developing countries were keen to invest in to realizing that it is something that much of the world is focused on to rescue their imperiled education systems.

Relevant studies pre-pandemic tended to examine online programs in terms of student perceptions of this mode of learning and associated resources (Bringman-Rodenbarger & Hortsch, 2020; Darkwa & Antwi, 2021), or benefits of e-learning and access to the necessary technology (Davies & Graff, 2005; OECD, 2011), particularly focusing on the impact of socioeconomic differences between student home environments. Some gender differences were noted with differing results from one study to another, although this was a factor remarked on in some later studies (see following section).

The paper by Darkwa and Antwi also refers to earlier studies that compared the effects of online learning and classroom learning on student learning and academic performance. The studies published from the late 1990s through the early 2000s generally concluded positive effects for online learning platforms, in terms of encouraging more interaction and participation, with the later work (Davies & Graff, 2005, for example) concluding that this led to better grades overall. The research published a little later (early 2000s through 2015) examined the impact on student performance in greater depth, and also mostly reported beneficial effects for online teaching and learning (Shachar & Neumann, 2010 and Wu, 2015 are useful sources here). Darkwa & Antwi quote several studies which account for this as reflecting the fact that online learning pre-COVID-19 was the result of "a well-planned design of instruction with application of organized model [sic] for designing and developing teaching". In contrast, some of those authors see online instruction in the pandemic period as emergency remote teaching and question its effectiveness.

2. Studies during the pandemic

Unsurprisingly, the sudden expansion of online learning and teaching since the spring of 2020 has stimulated a wealth of research into the various aspects of e-learning. Of most concern have been its ability to deliver results in terms of student motivation and performance, and the majority of studies have focused on comparing traditional face-to-face classes with online classes. Some care is needed when considering the conclusions of some studies, since they do not always make any distinction between real-time and on-demand formats (Yaseen et al., 2021, for example). Inevitably, many studies are not specifically focused on language classes, although we have been fortunate to find several recent works by Japanese researchers that are quite relevant. One article in particular, by Oshima (2021), reporting on real-time online university English lessons is very closely related to the topic of

the present research. Nonetheless, many studies may be generalized as they examine issues that affect teachers and learners across disciplines during this pandemic.

According to her review of several recent papers on the subject of online classes in higher education, Cellini (2021) finds that most recent research indicates that online coursework leads to inferior results in terms of student performance and has also led to lower rates of course completion. She mentions the finding that male students tended to suffer more from the negative effects of taking online courses, together with students who have less academic preparation. This broadly agrees with findings by Wang et al. (2020). Yaseen et al. (2021) also found increased rates of absenteeism and dropping out. Lack of connection with other students and faculty is a theme that is reprised in other papers as a factor depressing performance in online programs versus in-person classes. Darkwa & Atwi (2021) found less interactivity in online lessons, and Otani (2021) reports that students ask less questions. Perceptions of there being less opportunities for communication both with peers and teachers, or having to rely exclusively on electronic forms of communication appeared to contribute to students' negative attitudes, and sometimes led instructors to experience feelings of disconnect from their students (Yaseen et al., 2021). Students also felt there was a barrier to their usual feelings of relatedness (Mitsugi et al., 2021).

As more and more universities were forced to adopt online teaching/learning models, so the problems encountered in delivering or benefitting from instruction seemed to rise and require solutions. Yaseen et al. mention the difficulties experienced in assessing and evaluating students' work and providing feedback. This may be particularly relevant to language classes, especially those which focus on verbal communication skills, where facial expression and body language also play an important part in the total communication. Only recently, one of us heard from a colleague how he coped with this in the final presentations (test) by requiring students to sit back from their cameras while presenting so that they could display appropriate gestures, and other body language (Dornbusch, 2022).

In our own experience, even after more than two years of online teaching and learning, there continue to be complaints of students not really participating appropriately in English communications skills classes because they refuse to use their video cameras. They often claim technical reasons for it, but it is sometimes hard to accept that such problems can affect a whole semester's effort. In other cases, students themselves have been very resourceful in overcoming immediate difficulty, participating in class from various public venues with better Wi-Fi connections than their homes, or sharing a laptop in a classroom when one of them failed to function properly.

There is, in fact, much evidence in the research conducted during the pandemic that students' attitudes and anxieties have been improving over time (Oshima, 2021), with Otani (2021) finding that university students she studied tended to evaluate online lessons higher than face-to-face in terms of visibility and implementation of small tests. The present authors have also noticed that an advantage of real-time online classes for the students is that they can always feel that they are noticed by the teacher, as the teacher is so often on their screen, facing them. However, Otani reports that the students' overall preference was for a hybrid style of teaching and learning, with more online than face-to-face. Hiromori et al. (2022) suggest that personality traits may affect preference for one format over the other, with more nervous students favoring online mode. They felt less anxious and found it more relaxing to give a presentation alone in this way, instead of in the classroom directly facing the audience. Hiromori and his colleagues quote earlier studies which anticipated this result.

Set against these positive developments, Obara (2022) found that, although there was a positive attitude to online classes, students preferred on-demand to real-time lessons, and actually strongly preferred face-to face format because of the improved opportunities for communication (as mentioned above). Mitsugi et al. (2021) also report a generally negative perception of online lessons in connection with decreasing self-confidence and feelings of achievement, increasing anxiety levels, and a weaker sense of relatedness. It is true that this latter study concerned high school students, but they also found some positive aspects: greater awareness of autonomous learning and increased ease of communication with teachers.

What has been lacking so far is more studies that examine how the effects of and attitudes to online learning may change over a period of time. Of particular relevance for our present consideration is that those studies published so far that have evaluated the effects of longer-term exposure to online learning appear to have been heavily biased towards a focus on the changes observed in attitudes and emotional responses to this mode of teaching/learning. (Oshima, 2021) is an unusual case, in that this report examined changes in both perceptions and performance over time, looking at all four skills and including other aspects – attendance, in-class and homework tasks, and general observation. The results indicated that performance improved in all areas in terms of language ability and content. Overall performance was observed to improve and anxieties and negative attitudes decreased as students gained online experience over time. It is to be expected that this type of longitudinal study will be more common in the literature as some countries approach the latter half of their third school year under pandemic conditions.

The Present Study

1. Rationale for the study

As mentioned in the introduction above, there were widespread fears at the beginning of pandemic-driven online classes that students' performance would suffer, especially in terms of achieving academic learning targets. The emotional/psychological aspects were not the immediate focus of attention in tertiary education, although learner behaviors led to a realization that these needed attention. There was, in general, an assumption made by many instructors and institutions that things would improve with experience, possibly influenced at least in part by wishful thinking. Student performance might be negatively affected at first, because everyone was unprepared, but long-term the status quo would be re-established. Our aim was to try to examine the truth of this common assumption by comparing the performance on a standard reading test of two similar groups of 3rd-year students: one in the first quarter of the 2020-2021 academic year, when they still had little online learning experience, and the other in the final quarter of 2021-2022.

2. Method

The subjects selected for the study were essentially convenience samples, being two classes of an elective EFL Reading course taught by the first author, but they contained a fairly similar range of abilities (see Table 1 below) and almost all participants only took the class for half a year. Only two students in Group 2 took all four terms, and one of them had in fact taken the extremely unpopular summer 2-week intensive course rather than the semester-long regular course (both online). The content was essentially the same, but obviously the time for

learning lesson content and absorbing it was much reduced, so that its influence on final learning outcome in Term 4 is debatable.

Groups1 and 2 both studied in class with the same textbook (Oxford University Press's *Inside Reading: Book 2 (Zwier, 2012)*), covering the first half and latter half of the book respectively. They all also had to submit three reports on a piece of reading done outside of class, preferably non-fiction although this was not strictly required. Choosing a variety of reading material was actively encouraged.

Group 1 consisted originally of fourteen juniors, although only eleven sets of results were initially valid for this study as consent forms were not submitted by three of the students. Group 2 was of almost the same size eventually, for similar reasons, with ten students' results being valid for our purpose. These are obviously very small classes, which was perhaps also a reflection of the students' anxiety regarding online classes in general, and their desire to postpone possibly challenging subjects until their senior year when they hoped to be back in the classroom.

Both groups contained a mixture of seniors and juniors, with 5 seniors and 6 juniors in Group 1 and 3 seniors and 7 juniors in Group 2. Given the nature of the current debate regarding gender, it may be difficult to specify exactly, but in binary terms only, Group 1 contained 4 male and 7 female subjects and in Group 2, the genders were evenly distributed. It was decided to examine the effect of gender on final performance results since some other studies have referred to this as a factor apparently affecting attitudes toward online learning and performance as a result of this.

	N	Minimum	Maximum	Mean	Std. Deviation
Group 1 Initial	11	4.2	14.3	10.391	3.4683
Group 2 Initial	10	5.9	14.2	10.450	2.7257

Table 1: Basic Statistics for the Two Groups: Beginning of Course

The instrument used to measure reading comprehension ability at the beginning and end of these courses to determine improvements in performance over a semester was the Extensive Reading Foundation (ERF) online placement test, derived from the Edinburgh Project on Extensive Reading (EPER) Placement Tests, originally created by the Institute for Applied Languages Studies at the University of Edinburgh. This test differs somewhat for each test taker, as reading passages are assigned according to a pre-test reading ability level check. There is a variety of passages available at all levels, and so it is unlikely that anyone would ever take exactly the same test twice. The questions are True/False type, and test takers cannot easily look back to the passage to check for the answers since this will cancel the answers they have already entered for that passage. In a typical test, the reader would be given 3-4 passages to read and respond to comprehension questions on. Time taken for the test is factored into the scores as well as number of correct responses. This test has been widely used and found to be a reliable measure. The first author has employed both the original EPER paper test and the more recent ERF online test and found that either of the two modes may be reliably used to assess ability (Ihata, 2019). In both groups, test format and procedure for taking the test were explained clearly in advance, both orally in class and in a written handout, and subjects were encouraged to familiarize themselves with the test. All tests were administered during a single class period (100 minutes) conducted through Zoom,

with the test available directly from the Extensive Reading Foundation's website. Students were able to leave once the submission of a screenshot of their test result page into the class page on the university learning management system had been confirmed.

3. Findings and Discussion

As mentioned above, it is fairly natural to assume that practice in using unfamiliar equipment or methods of teaching and learning should lead to greater facility with them and, consequently, less stress and improved performance. So we were prepared for the possibility that Group 2 might well outperform the first group because of both longer experience with the mode of learning and slightly more familiarity with the testing procedure (if they had previously taken the first semester's course). However, as mentioned above, only two members of Group 2 had such a possible advantage in terms of previous test taking.

Results were recorded as raw scores from the initial and course-final tests, and the difference in the two scores was also calculated for each subject to measure their individual improvement or otherwise. These results are shown in Table 2 below.

The data were subjected to statistical analysis in the form of a one-way ANOVA, chi-square, and an independent samples t-test. Although a difference between mean values for the two groups is clearly observed, favoring Group 2 with their greater exposure to online learning and testing, it proved to be non-significant on all measures employed.

Final Test Scores & Differences from Initial Scores	N	Minimum	Maximum	Mean	Std. Deviation
Group 1 Final	11	4.0	20.0	11.664	4.6064
Group 1 Difference	11	-.9	5.7	1.273	2.3665
Group 2 Final	10	8.3	15.9	12.420	2.5931
Group 2 Difference	10	-1.7	6.8	1.970	2.3133

Table 2: Comparison of Final Results and Improvement for the Two Groups

This finding is questionable from various aspects. A major issue is, of course, the very small number of subjects involved which would suggest that the somewhat larger variability in initial ability and final achievement for Group 1 (See Tables 1 and 2 above) could have affected the reliability of the comparison. Unfortunately, the very pandemic circumstances that led to expansion in online teaching/learning and inspired this study were also probably a factor in the relatively small class sizes. (In contrast, as we have largely returned to face-to-face teaching the classes currently have 30 or more students, selected from over 40 applicants). Another point that is relevant here is that there would normally have been a fairly large number of students taking both semesters of the course sequentially, enabling direct comparison of the same subjects' performance over time.

Gender proved non-significant as a factor affecting the results in both groups. This might be anticipated as these subjects were in their third year of university, and familiar with Line video calls and Face Time chats with friends even before the pandemic began, so that it was probably not a great stretch for them to adapt to Zoom or Google online classes.

Conclusions

Although the results of the present study did not show a statistically significant effect for longer exposure to online teaching and learning, there was an observed difference, indicating that over time we should probably expect at least moderate improvement in student performance. It might be tempting to consider that the students in question were never particularly disadvantaged by being forced suddenly online for all their classes. However, the small sample size and need to compare two similar groups, imperfectly matched for overall ability level, rather than the same group at different times were weaknesses in the study that should be taken into account.

Both teachers and learners have now acquired the skills necessary to cope with various types of class online and it seems certain that this lesson format will continue to play an important role in many institutions. In relation to this and to the above comments concerning sample size and uniformity, it will be interesting to see the results of studies that will be published from now on which have been conducted with greater numbers of subjects and in institutions which were already implementing online teaching to some extent before the outbreak of COVID-19.

References

Almendingen, K., Morseth, M. S., Gjølstad, E., Brevik, A., and Tørris, C. (2021, August 31). Students' experiences with online teaching following COVID-19 lockdown: A mixed methods explorative study. *PLoS ONE 16*(8), e0250378. https://journal.plos.org/plosone/article?id=10.1371/journal.pone.0250378

Brierley, M. A. (2019, May). Personal communication. JALT PanSIG Conference, Kobe.

Bringman-Rodenbarger, L., and Hortsch, M. (2020, February 19). How students choose E-learning resources: The importance of ease, familiarity, and convenience. *FASEB BioAdvances, 2*(5), 286–295. https://doi.org/10.1096/fba.2019-00094

Cellini, S. R. (2021, August 13). How does virtual learning impact students in higher education? *Brown Center Chalkboard*. Brookings blog. https://www.brookings. edu/blog/brown-center-chalkboard/2021/08/13/how-does-virtual-learning-impact-stud ents-in-higher-education/

Darkwa, B. F. and Antwi, S. (2021). From classroom to online: Comparing the effectiveness and student academic performance of classroom learning and   online learning. *Open Access Library Journal, 8*, e7597. https://doi.org/10. 4236/oalib.1107597

Davies, J., and Graff, M. (2005) Performance in e-learning: Online participation and student grades. *British Journal of Educational Technology, 36*, 657-663. In Darkwa and Antwi (2021).

Dornbusch, B. (2022). Personal communication. Musashino University.

Dos Santos, C. (2019, March 27). What are the leading countries in the elearning industry? e*Learning News, 3*(62). https://www.elearningnews.it/en/studies-C-26/what-are-the-leading-countries-in-the-e learning-industry-AR-510/

Edinburgh Project on Extensive Reading: Placement Tests A & B. (1994). Institute for Applied Languages Studies, University of Edinburgh.

Extensive Reading Foundation Placement Test. (n.d.). Retrieved from https://erfpt. ealps.shinshu-u.ac.jp/

GMI. (2022). E-learning market. Global Market Insights. https://www.gminsights.com/ industry-analysis/elearning-market-size

Hiromori, T., Kaneda, S., Arai, T., Oishi, A. Otani, O., and Shibata, W. (2022). The relationship between learners' evaluation of English speaking class and individual difference factors: A comparison between face-to-face and online classes. *Global Japanese Studies Review, Meiji University, 14*(1), 89-117. http://hdl.handle.net/1029/22369 (Japanese).

Ihata, A. C. (2019). Comparing online and paper-based versions of a test for reading in English as a foreign language. *PEOPLE: International Journal of Social Sciences, 5*(3), 215-223. https://doi.org/10.20319/pijss.2019.53.215223

Maheshwari, G. (2021, March 4). Factors affecting students' intentions to undertake online learning: An empirical study in Vietnam. *Education and Information Technologies*, *26*, 6629-6649. https://doi.org/10.1007/s10639-021-10465-8

Mitsugi, M., Ishizuka, H., Fujii, S., Oda, T., Nakamura, K., Aoki, C., Takeuchi, N., Oguma, A., Kibler, R., Ota, T., Lin, I., Komaki, A., and Yamada, K. (2021).English learners' perceptions on face-to-face and online classes. *HELES Journal, 20*, 19-34. https://doi.org/10.24675/helesje.20.0_19 (Japanese).

Obara, Y. (2022, March). The practice of online class under COVID-19 situation and its awareness survey (through questionnaires in English class). *Bulletin of Policy Management, Shobi University, 38*, 17-41. (Japanese).

OECD. (2011), Students' familiarity with information and communication technologies. In *PISA 2009 Results: Students on line: Digital technologies and performance (Volume VI)*. Paris: OECD Publishing. https://doi.org/10.1787/9789264112995-9-en

Oshima, H. (2021). A practical report on real-time online university English lessons under the COVID-19 outbreak. *Shiga University Journal of Educational Research and Practice*, *3*, 63-70. (Japanese).

Otani, K. (2021). Online English lessons at university affected by COVID-19: Practice, evaluation, and challenges. *Studies in English Language Teaching*, *44*, 21-39. https://doi.org/10.18989/selt.44.0_21 (Japanese).

Paul, J., and Jefferson, F. (2019). Comparative analysis of student performance in an online vs. face-to-face environmental science course from 2006 to 2016. *Frontiers in Computer Science, 1*. https://doi.org/10.3389/fcomp.2019.00007

Shachar, M. and Neumann, Y. (2010) Twenty years of research on the academic performance differences between traditional and distance learning: Summative meta-analysis and trend. *MERLOT Journal of Online Learning and Teaching*, *6*(2), 318-334. In Darkwa and Antwi (2021).

Wang, C., Xie, A., Wang, W., & Wu, H. (2020). Association between medical students' prior experiences and perceptions of formal online education developed in response to COVID-19: a cross-sectional study in China. *BMJ open*, *10*(10), e041886. https://doi.org/ 10.1136/bmjopen-2020-041886

Wu, D. D. (2015, March 11). Online learning in postsecondary education: A review of the empirical literature (2013-2014). In Darkwa and Antwi (2021).

Yaseen, H., Aloud, A., Nofal, M., Abdeljaber, O., & Al-Adwan, A. (2021). The effects of online learning on students' performance: A comparison between UK and Jordanian universities. *International Journal of Emerging Technologies in Learning (iJET), 16*, 4-18. https://doi.org/10.3991/ijet.v16i20.24131.

Zwier, L. J. (2012) *Inside Reading 2*. (2nd ed). Oxford University Press.

(Sources originally consulted in Japanese are indicated, although titles are given in the English form provided by the publication in most cases, or by sites such as ResearchGate)

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