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The Efficacy of Zoom Technology as an Educational Tool for English Reading Comprehension Achievement in EFL Classroom

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Abstract

The purpose of this study is to investigate the effect of real-time remote video instruction using zoom on learners' English reading achievement. The study also sought to identify the efficiency of zoom video lectures and consider supplementing them by surveying learners' opinions and satisfaction regarding zoom video lectures. To this end, control and experimental groups were set up, and two achievement tests and a questionnaire were conducted. The study's results demonstrated that zoom video lectures have a positive effect on learners' English reading achievement. The questionnaire found that learners are satisfied with zoom video lectures for the following reasons: 'increased interest in and motivation towards learning', 'self-directed learning', 'active interaction', 'ease of access', 'ease of information retrieval'. At the same time, the questionnaire also found that some learners are dissatisfied with zoom video lectures due to 'mechanical errors or defects', 'poor audio quality', and 'the need to add customized functions for efficient classes'. In practice, zoom video lectures must be supplemented with automatic attendance processing, convenient data upload and download, and more efficient video screen management. Given the recent increase in online classes, we, as instructors, must develop teaching activities and/or strategies for video lectures that can encourage active participation by learners.

Keywords: Zoom Video Lecture, English Reading Achievement, Real-time Remote Video Lesson, Educational Tools

1. Introduction

It is common knowledge that the COVID-19 crisis has caused social and economic transformation, which the world is still experiencing. This has also triggered major changes in the educational field, in which transformation tends to be relatively slow. It is no exaggeration to suggest that the educational paradigm has radically shifted from face-to-face classes to remote instruction. Thus, many instructors and learners have had to abruptly adapt to online distance lectures. The second semester of 2020 is not likely to change as much as the first semester of the same year. The COVID-19 outbreak has been prolonged and the online class format, which was implemented in the first semester, is expected to be used again in the second semester. Therefore, it is necessary to reflect on the efficiency of the online classes that were suddenly designed and taught at universities during the first semester of 2020. Instructors will be able to create improved plans for online classes for the second semester of 2020 by understanding the efficiency, strengths, and weaknesses of real-time remote video classes as well as considering their complementary aspects.

Therefore, this study aims to examine the efficiency of real-time remote video lessons using Zoom, a technology that enables representative real-time remote learning. Zoom is an interactive audio and video program based on Cloud technology. Programs that were once used primarily for inter-company video

conferences and other types of meetings suddenly started being used in educational settings. The era of learners gathering physically in classrooms has largely passed due to the development of Zoom technology. Modern learners who are also digital natives are often familiar with Zoom technology and how to use it. At this point in time, it is necessary to consider the efficiency of remote video classes using Zoom. Specifically, this study will examine how freshman courses' use of Zoom affects learners' English reading comprehension achievement. The study also aims to identify the strengths and weaknesses of using Zoom through a survey of learners' opinions and satisfaction. Ultimately, the present study will investigate the efficiency of Zoom technology as an educational tool in the EFL classroom.

2. Theoretical Background

Some scholar defined the strengths of an online distance learning course as follows: "1) It can provide easier access to course resources, 2) It offers greater convenience for the English teacher and learners, and offers flexibility in scheduling, 3) It can be personalized, that is, English teachers can cater to each student's proficiency level and learning goals by delivering different online resources to individual students so they can work on them in their own time" [1].

Several prior studies have explored the implementation of videoconferencing and its pedagogical implications in language learning. For instance, some scholar conducted a study featuring task-based activities on an online platform via Zoom to explore how videoconferencing can help learners to develop their communicative competence. The study's findings revealed that the group that interacted virtually using Zoom outperformed the group with face-to-face interaction. Thus, this study concluded that Zoom-based videoconferencing is a convenient tool for helping students negotiate meaning and enhance their communicative competence [2].

Using video learning in the classroom can also be helpful in developing and enhancing intercultural competence [3, 4]. Prior research conducted on videoconferencing reported that video lectures can contribute to the development of students' listening and speaking skills [5]. For instance, a study on the advantages of implementing videoconferencing highlighted that students' oral proficiency and pronunciation can be remarkably improved through the use of video lectures [6].

Some researchers surveyed the learning satisfaction level associated with remote video lectures, focusing on the correlation between overall lectures, teaching method factors, and learning satisfaction level. The researchers then explored the factors that greatly influenced lower levels of satisfaction associated with remote video lectures. Their study found that there was a high correlation between overall lectures, teaching methods, and learning satisfaction, highlighting the factor of overall lectures as having the greatest impact on learning satisfaction [7]. One study has suggested an innovative model for distance learning in the EFL context. This study proposed a new class model for cross-cultural distance learning with instructions on how to implement it. Ultimately, the study shows that its cross-cultural distance learning model helps students improve their general English abilities and can enhance their confidence in using English [8]. As mentioned earlier, online learning platforms and digital learning management systems are playing a crucial role in education during the COVID-19 pandemic. Communication tools such as Zoom can help educational providers to manage, plan, deliver, and track students' learning processes [9].

3. Methodology

3.1. Participants

The present study focused on a liberal arts English reading class for freshmen at a Seoul-based university. The duration of the study was 15 weeks, from mid-March to mid-June of 2020. Class meetings lasted 75 minutes and were held twice a week. Since the study's purpose was to identify the efficiency of real-time video

classes using Zoom, two liberal English reading classes were randomly set up as a control (class A) and experimental group (class B). The class schedule, content, and procedure were the same for both groups; the only difference was whether Zoom technology was used.

The control group consisted of 50 students majoring in the Faculty of Law and Department of International Trade. The experimental group consisted of 50 students majoring in law and economics. In order to evaluate both groups' English reading competence ahead of time, 33 of the TOEIC's reading questions were extracted and used as a pre-test on the first day of class. Then, an SPSS independent sample *t*-test was conducted to compare the results. The control group scored 21.5 points while the experimental group scored 20.7 points based on the pre-test. The average difference between the two groups was 0.8 points, but this difference was not significant (p = .257). In other words, both groups' English reading comprehension level was similar.

3.2. Procedure

This study used the textbook which consists of 12 chapters on various themes related to American culture—such as Marvel Comics, Disney, and baseball. Thus, these themes are interesting and accessible to most learners [10]. The class was held twice a week, with each topic addressed for a period of 1-2 weeks.

English reading classes were structured in three stages: pre-reading activities, reading activities, and post-reading activities. The pre-reading activity stage consisted of warm-up activities on a specific subject, cultural vocabulary learning activities. The reading activity stage consisted of textual interpretation and activities to understand the content of topics. The post-reading activity stage consisted of watching videos related to the topics and enabling learners to express their own opinions, engage in creative activities related to the topics, and review vocabulary.

In the control group, video lectures were uploaded to e-Campus every week while quizzes and assignments were given. The video lectures provided information on pre-reading and reading activities during the three stages of the class. Post-reading activities were assigned as a separate assignment. Using the K** app operated by the university, the professor set up a forum where students could ask questions or add discussion topics. All class procedures for the experimental class were the same as those for the control group. However, in the experimental class, a video lecture was uploaded and a real-time video lecture using Zoom was implemented once every two weeks. The real-time Zoom lectures were used to interpret the assigned text and to understand the content of each topic. Students asked questions and engaged in discussions in real time through the Zoom video lectures.

3.3. Data Collection

The study's purpose is to evaluate the efficiency of Zoom technology in the educational field. Thus, two achievement tests were conducted. The same tests were given at the same time for both the control and experimental groups. The first test was conducted during the 8th week of class and the second test was conducted during the 14th week of class.

The format and number of questions for both tests were the same. There were 33 total questions with the following formats: reading comprehension questions, writing an appropriate answer in a blank space, finding a missing sentence, matching the correct vocabulary, writing cultural words, true or false questions, explaining and interpreting specific sentences, etc. The results of the first and second tests for both groups were compared using the SPSS program. A questionnaire was conducted during the 15th week of class to collect learners' opinions on real-time video lectures using Zoom and to assess their satisfaction. The results of the experimental group were analyzed since the study focused on assessing learners' opinions regarding Zoom video lectures.

4. Results and Discussion

4.1. The Result of First and Second Test

Two tests were conducted to examine the effect of remote video lecture classes using Zoom on the improvement of learners' English reading comprehension achievement. The number of items and question types in the first and second tests conducted with the control and experimental groups were the same. To compare the results of the first and second tests for each class, an SPSS paired-sample *t*-test was conducted. The results are as follows. First, examining the control group's first and second test results, the result of the second test (M=22.03) was 1.16 points higher than the result of the first test (M=20.87). Thus, a significant difference (p=.00) was found between these two tests. Classes using video lectures uploaded to e-Campus every week and the K** mobile app are believed to have a positive effect on learners' reading achievement. Next, looking at the test results for the experimental group, the result of the second test (M=24.18) was 2.83 points higher than the result of the first test (M=21.35), demonstrating a significant difference (p=.00). Therefore, the results suggest that video lectures using Zoom technology had a positive effect on improving learners' reading achievement in English.

Table 1. Results of paired-sample *t*-test: Control and experimental groups

Group	N	Test	M	SD	*t*	p
Control	50	1st	20.87	2.57	-3.23	.00**
		2nd	22.03	1.62		
Experimental	50	1st	21.35	3.12	-8.59	.00**
		2nd	24.18	1.91		

p<.01**

The reading comprehension instructional methods used in both the control and experimental groups are interpreted to have good effects on improving learners' reading comprehension. Both groups' second test results were compared to further understand the effectiveness of the Zoom video lectures. To this end, an SPSS independent sample *t*-test was conducted. As the table below presents, the experimental group's test result (M=24.18) was 2.15 points higher than the control group's test result (M=22.03). Thus, a significant difference was found (p=.01). The results suggest that the real-time Zoom video lectures implemented in the experimental group more effectively improved learners' reading comprehension than the video lectures implemented in the control group. Even if the same content is delivered, the Zoom video lecture method—which allows students to interact and receive information in real time—was more effective for learners than video lectures accessed unilaterally.

Table 2. 2ⁿᵈ test：Results of independent-sample *t*-test

Group	N	M	SD	*t*	p
Control	50	22.03	1.57	-2.92	.01*
Experimental	50	24.18	1.89		

p < .05*

4.2. The Results of Questionnaire

A survey-based questionnaire was conducted with the experimental group to investigate learners' satisfaction with and opinions regarding Zoom video lectures. Question 1 of the survey asked: "How satisfied are you with the Zoom video lectures?" Participants had to answer based on a five-point Likert scale ("Very Satisfied, Satisfied, Normal, Dissatisfied, Very Dissatisfied"). Question 2 was open-ended, asking: "What is the reason for your answer to question 1 above?" The professor explained that this was a question to improve

the quality of video lectures in the second semester, asking learners to write their honest opinions and comments. First, the results of Question 1 are as follows. Learners responded positively to the use of Zoom-based video lectures. For Question 1, 70% of participants answered that they were "Very Satisfied" (12 students, 24%) or "Satisfied" (23 students, 46%) with Zoom video lectures.
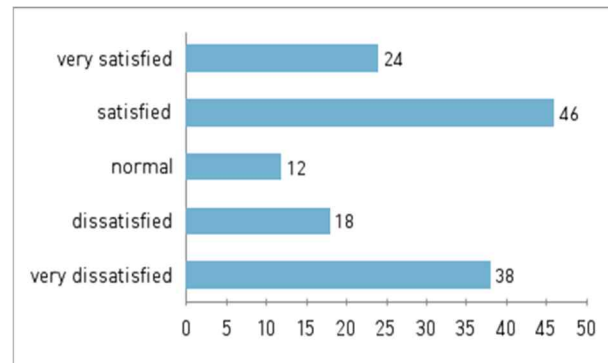

Figure 1. Satisfaction levels with Zoom videoconferencing

The reasons for these responses offered in Question 2 were very diverse, including: "interest and learning motivation" (20%), "self-directed learning" (11.4%), "comfortable interaction" (14.3. %), "ease of access" (17.1%), "ease of searching for information" (22.9%), and others (14.3%). Since learners had such varied reasons for their satisfaction with Zoom video lectures, opinions were categorized based on whether they appeared at least four (or more) times. Learners' specific opinions behind their satisfaction with Zoom video lectures are presented in Table 3.

Zoom video lectures had the positive effect of increasing learners' learning interest and motivation and helping them develop self-directed learning. These opinions directly indicate the efficiency of Zoom video lectures. Among the opinions, ease of access and ease of searching for information are unique characteristics of Zoom video lectures; thus, professors must maximize these aspects when implementing Zoom video lectures.

Table 3. Reasons for satisfaction with Zoom video lectures

Reasons	Opinions
Interest & learning motivation	-It was interesting because it was a fresh way of learning. -It was nice and fun to be able to take lectures more comfortably than in face-to-face classes. -It was nice to be able to concentrate well and to be more comfortable than when taking classes in the classroom. -It was easy to understand the contents of the class by studying in advance with video lectures. -It was so much fun to look for related videos recommended by the professor among the lessons I learned.
Self-directed learning	-I understood it well if I watched an uploaded video lecture before I took the Zoom video lecture. -I had to take Zoom video lectures every week and do assignments and quizzes, so I thought I was able to study hard without realizing it because I was very careful about designing classes for each week. -When it was a face-to-face class, I didn't know what the class was about until I entered the classroom, but I could concentrate on the class much easier because I watched the uploaded video lecture before the Zoom video lecture. -It seemed that I was more proactive in learning because it was easy to solve quizzes by taking the Zoom video lessons every week.

Comfortable interaction	-In face-to-face classes, I was a little embarrassed to ask questions, but it was great to be able to ask questions and listen to answers any time through the Zoom chat window. -Even though it was the Zoom video lecture, it was nice to be able to do team activities. -It was nice to have a separate group room on the Zoom screen so that our teams could exchange opinions easily.
Ease of access	-I came down to my hometown because of COVID-19, and it was so comfortable to take lectures here at any time. -It was so comfortable to be able to access the Internet and take lectures wherever I was.
Ease of searching for information	-It was good to be able to immediately search for information that I do not know or want to know while taking the Zoom video lecture. -In face-to-face classes, it seemed a little noticeable to search for information on a mobile phone, so it was helpful to understand the content as I could immediately find the information I wanted to know while taking Zoom lectures.
Others	-It was nice to take the Zoom lectures while looking at the professor's face; they felt like face-to-face lectures. -It was good to communicate with the professor, and it was also good that the professor listened to my opinion. -With the screen sharing function, it was easy to understand the subject by taking classes while watching PPT and class materials together. -It was good because it seemed like a customized class for me.

Next, learners' reasons for being neutral or dissatisfied with Zoom video lectures (according to Question 1 results) were analyzed. The reasons for dissatisfaction with Zoom video lectures were collected through Question 2 and categorized as "mechanical errors" (33.3%), "degraded audio quality" (13.3%), "needs to be equipped with efficient instructional functions" (26.7%), and others (26.7%). Learners' specific opinions behind their dissatisfaction are presented in Table 4 below. Learners felt uncomfortable with mechanical errors and defects associated with online-based learning such as poor image quality, loading delays, and screen freezing. In addition, learners felt that the Zoom technology needed to be equipped with more efficient functions tailored to each class; i.e., instant downloading of class materials, automatic enlargement of presenter screens, and automatic attendance processing. If remote classes using Zoom continue to be implemented due to the prolonged COVID-19 pandemic, these mechanical defects must be fixed and upgraded. Moreover, instructors must share this feedback with Zoom technology developers so that Zoom video lectures can be equipped with helpful functions required by learners.

Table 4. Reasons for dissatisfaction with Zoom video lectures

Reasons	Opinions
Mechanical errors	-The quality of the screen was not good, so I felt uncomfortable during every lecture. -I logged in on time for the class, but the loading was delayed, so I didn't like it. -It was uncomfortable because the screen often froze. It was annoying because the screen would freeze suddenly when the professor delivered important information.
Degraded audio quality	-It was uncomfortable because sometimes the professor's voice was not clearly communicated. -I was annoyed if students made noise and didn't mute themselves. -Small and nerve-racking sounds were constantly heard, so it was so disruptive when I was taking classes.
Needs to be equipped with efficient instructional functions	-Separate from the Zoom video class, it was cumbersome to download materials for class via e-Campus. -I wish I could download class materials right away from the Zoom video lecture. -If students have to make a presentation or comment, it would be nice if the presenter's screen could be automatically enlarged and shown. -Attendance confirmation was a bit cumbersome as I had to access e-Campus and check

	it separately. I wish there was a function that enabled attendance to be processed right away in Zoom video lectures.
Others	-I was sorry for not being able to take a face-to-face class. -I liked the Zoom video lectures, but it's still better to meet the professor and talk with friends while taking classes in the classroom.

5. Conclusion

According to the policy of the Ministry of Education, most universities converted their classes from face-to-face to online lectures in the first semester of 2020 due to the COVID-19 pandemic. Within this context, the present study attempted to examine the effect of real-time remote video lessons using Zoom on learners' English reading comprehension achievement. The study also investigated learners' opinions on and satisfaction with real-time zoom video lectures. The study's purpose is to provide a better direction for instructors who wish to use zoom video lectures for real-time lessons in the future by more clearly understanding the efficiency of zoom video lectures and considering important points that must be supplemented. The results of this study showed that real-time zoom video lectures have a positive effect on learners' English reading achievement. From the perspective of both learners and instructors, zoom must be supplemented with automatic attendance processing, convenient data uploading and downloading, and more efficient video screen management functions. We, as instructors, must become further aware of the efficiency of Zoom technology in the EFL classroom. If remote classes must be prolonged due to the spread of COVID-19, instructors must learn how to implement technological tools including Zoom and develop class activities and teaching strategies suitable for video lectures that can encourage learners' active participation.

REFERENCE

[1] N. Guzacheva, "Zoom Technology as an Effective Tool for Distance Learning in Teaching English to Medical Studetns," *Bulletin of Science and Practice*, Vol. 6, No. 5, pp. 457-460, May 2020. DOI: 10.33619/2414-2948/54/61

[2] R. Vurdien, "Videoconferencing: Developing Students' Communicative Competence," *Journal of Foreign Language Education and Technology*, Vol. 4, No. 2, pp. 269-298, August 2019.

[3] M. Giralt and C. Jeanneau, "Preparing Higher Education Language Students for Their Period Abroad Through Telecollaboration: The I-TELL Project," AISHE-J, Vol. 8, No. 2, Summer 2016.

[4] R. Vurdien and P. Puranen, Intercultural Learning via Videoconferencing: Students' Attitudes and Experiences. In D. Tafazoli, M. E. Gomez Parra and C. A. Huertas-Abril (Eds.), *Cross-Cultural Perspectives on Technology-Enhanced Language Learning*, pp. 264-282, IGI Global, June 2018. DOI: 10.4018/978-1-5225-5463-9.ch015

[5] B. Lim and D. Pyun, Korean Foreign Language Learning: Videoconferencing with Native Speakers. In C. Wang and L. Winstead (Eds.), *Handbook of Research on Foreign Language Education in the Digital Age*, pp. 253-276, Hershey, PA: Information Science Reference, July 2016. DOI: 10.4018/978-1-5225-0177-0.ch012

[6] R. L. Lu, T. A. Goodale, and Y. B. "Impact of Videoconferences with Native English Speakers on Chinese EFL Learners' Oral Competence and Self-Confidence," *Open Journal of Social Sciences*, Vol. 2, pp. 54-60, February 2014. DOI: 10.4236/jss.2014.22008

[7] Y. E. Song and Y. A. Gwon, "A Study on the Improvement of Real-Time Remote Video Education Focused on the Learning Satisfaction: Focus on the Case of Lecture 'History of Korean Design' and 'Korean Language'," *Brand Design Study*, Vol. 15, No. 1, pp. 93-108, March 2017.

[8] B. M. Chang, "Creating an Innovative Model for Distance Learning in EFL Context," *Modern English Education*, Vol. 8, No. 1, pp. 3-23, April 2007.

[9] Electronic Platform for Adult Learning in Europe, COVID-19 is reviving the need to explore online

teaching and learning opportunities. *https://epale.ec.europa.eu/en/blog/covid-19-reviving-need-explore-online-teaching-and-learning-opportunities*

[10] D. Y. Ryu, H. J. Kim, Y. A. Rho, M. J. Im, J. H. Lee, J. Y. Seo and Y. J. J. Lee, Media Matters, Seed Learning, pp. 9-151, 2020.