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Remote Viewing Habits of Japanese University Students During COVID-19

Armando Duarte
Kwansei Gakuin University
mando.duarte@gmail.com

Samar Kassim
Kanda University of International Studies
samark777@gmail.com

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Abstract

The current research examines to what extent English language learners enrolled in compulsory English classes at a Japanese university view pre-recorded videos. Students and teachers were forced into remote teaching situations at the start of 2020 due to COVID-19. Some teachers taught synchronous classes while others took an asynchronous approach. Previous research on asynchronous teaching and student engagement with pre-recorded video content in massive open online course (MOOC) settings has found that student engagement is, on average, about 6 minutes. Research conducted since the onset of the COVID-19 pandemic has found the average percentage viewed (APV) of short educational videos of 5 minutes or less distributed through YouTube to have an APV of 42.8%. Given the unprecedented shift to online teaching, the researchers investigated student engagement in their own teaching contexts. A how-to graphic was made available to university teachers in the researchers' professional networks. Data collected indicate that while AVD (average view duration) increases as video length increases, APV tends to decrease as video length increases. However, the APV value found in the current research is not an outlier when compared with previous research in the field. The implications of this finding are also discussed.

Introduction

The spread of the novel coronavirus at the end of 2019 and the beginning of 2020 has profoundly changed the world. Millions of people around the world have lost their jobs, and international travel has drastically decreased. The risk of infection forced many schools and universities to move their classes online, either completely or under a hybrid model, for the remainder of the 2019–2020 school year and for the entirety of the 2020–2021 school year. With the sudden shift to online classes, whether they be synchronous or asynchronous, the question of how much students are engaging with online materials must be examined. One of the platforms that allows researchers to harvest and examine a rich amount of data is YouTube and given the massive shift to online teaching, the researchers looked into how engaged students were in an online environment.

YouTube's applications in business, education, and social networking, as well as the data that can be collected and studied from its analytics service have been researched since its inception and rise in popularity. Watkins and Wilkins (2011) write about a variety of uses for YouTube for English language learners (ELLs) in an English as a foreign language (EFL) context, including conversation analysis, student-created voiceovers, note-taking, and its ability to function as a tool for teaching different varieties of English. Altam's (2000) research in Yemen indicates that students had an overall positive attitude towards using social media to learn English, with YouTube being especially popular. Almurashi's (2016) research about student perceptions towards YouTube in Saudi Arabia indicated that approximately 90% of survey participants agreed that YouTube could aid their understanding of English lessons while approximately 80% of participants agreed that English lessons delivered via YouTube were helpful and interesting (p.36). Buzzetto-More's (2014) research, conducted in an American context, reached similar conclusions. In a survey given to 221 business students in the United States, more than 70% of study participants agreed or strongly agreed that "YouTube can enhance the learning process," and almost 90% agreed or strongly agreed that "the use of YouTube as a learning tool engages students" (p. 25). These findings are not atypical given the popularity and traffic that YouTube sees on a daily basis and given the multitude of educational channels currently available on the service.

Factors Which Influence Viewing Habits

Although much research in this field focuses on student perceptions of and practical applications of YouTube, some research exists that examines the factors influencing or predicting whether or not and for how long students watch educational YouTube videos. However, not all research about student engagement of YouTube videos clearly states what may lead students to view or abandon a video. Alhamami's (2013) research includes a five-category rubric, which may be useful for content creators in evaluating their own videos, but Alhamami does not specifically tie each category to video viewership. Instead, it is indicated that sound and visual quality should be good and that videos should be relevant for students and enjoyable to watch (p. 7). Park et al. (2016) examined the relationship that positive or negative comments and video view counts can have on video viewing length. The authors state that "The main contribution in this work, then, is showing the robust relationships between view count, the number of likes per view, negative sentiment in comments, and video view duration" (p. 652). Their research indicated that "Videos with [a] higher ratio of likes per view, higher negative sentiment in comments, and higher view count are more likely to be watched longer" (p. 653). However, given the researchers conducted their study on a random set of videos, it is difficult to extend these results to videos created by teachers for their students, as those videos may never receive comments, likes, or dislikes. It is worth noting that while the authors' main conclusions focused on comments and likes, they also concluded that

“video length has a significant impact on the view duration: as expected, shorter videos were watched much longer in terms of proportion of the video viewed” (p. 653).

Other research in this field has sought to examine the factors that may lead to longer view durations. Altman and Jiménez (2019) conducted their research on video length and audience retention and found that shortening videos can lead to increased viewing time. A six-minute video of a musical performance was shortened to just over two and a half minutes, and the researchers found that the average percentage viewed (APV) increased “from 16% to 42%” (p. 81). Research carried out by Slemmons et al. (2018) indicates that shorter video lengths were not correlated with increased student performance in the short term but students themselves responded that they preferred shorter videos. Such a preference, the researchers state, may be related to a “greater retention over long periods and an overall positive outlook regarding the material and course” (p. 476). Walsh et al. (2019) reached a similar conclusion in their flipped-classroom research. The authors cited shorter video lengths as a possible factor in how much a video is viewed. Kim et al. (2014) researched student engagement in massive open online course (MOOC) settings by analyzing data gathered from 862 lecture videos. Their results indicated that shorter videos – on average, six minutes or less – were more engaging to students than longer videos. Similar findings were found by Guo et al.’s (2014) MOOC research. Kim et al.’s work is, to date, the most thorough analysis of student engagement via online teaching given the amount of student viewing sessions incorporated into its dataset. The current research, while seeking to take a similar approach to Kim et al. (2014), differs in that this research and its data focus on remote online teaching in compulsory, as opposed to extracurricular, English classes during a global pandemic.

COVID-19 Discourse

A great deal of research concerning COVID-19’s impact on education was produced from the start of the outbreak in early 2020. Vijayan’s (2021) work, spanning from 2020 until mid-May 2021 in this area, involved reviewing 3,461 articles from the fields of social sciences, medicine, and computer science. Among the major themes discussed in Vijayan’s (2021) research, “[t]he largest proportion of research publications...dealt with the challenges faced by higher education institutions (HEIs)” (p. 7). Other themes include the methods employed by universities to provide online courses for students as well as the effects of online learning on students’ mental health. Kaufman and Diliberti’s (2021) research also examines the effect of online learning from a teacher perspective. Specifically, the researchers’ analysis of data gathered from teachers working in the K-12 context in the United States indicated both an increased workload and declining morale as a result of the abrupt switch to online teaching in early 2020. Vijayan (2021) and Kaufman and Diliberti (2021) conducted research on COVID-19’s overall impact on teaching and learning. Other researchers working in the English educational context have specifically looked at how COVID-19 has affected English language learners in various learning contexts.

The United States Department of Education’s (2021) report on COVID-19’s impact on students in the US showed that English language learners are one of the groups most severely impacted as a result of online teaching. The report lists several services and resources which became unavailable to English language learners due to the pandemic, including “English-language conversation with adults and with peers,” “intensive language instruction at frequent intervals,” and “conversational and formal language in a range of social and academic contexts” (p. 20). The Department of Education (2021) goes on to state that such learning disparities have resulted in an increased number of English language learners who have received poor grades.

Within the university EFL context, Mahyoob’s (2020) research found that over a third of English language learner students at a Saudi Arabian university reported miscommunication with teachers, problems carrying out assignments, and difficulties in carrying out other coursework like tests due to the switch to online teaching. Mardiah

and Anastasia (2020) conducted similar research at a university in Indonesia. Their qualitative analysis of student writing uploaded to an online learning platform resulted in findings in four key thematic areas - time management, personal responsibility, how to learn, and student challenges. Overall, students in the study felt that online courses sometimes demanded more of their time because it was easy to become distracted by social media or otherwise hampered by a general lack of time management skills, while general internet connectivity issues meant that some students became frustrated with online learning in general. Other students, however, reported increased motivation due to the realization that they were now more responsible for their own learning due to the move to online classes. Santosa and Riady's (2021) research of Indonesian EFL undergraduate students produced similar results - namely, that students engaged in online learning felt a high degree of demotivation while taking online classes. Research from Novawan et al. (2021) into student perceptions of YouTube as a medium for learning English found that students were generally enthusiastic towards videos recorded by their instructors. Students in this research were more engaged with videos they reported to be well-designed and entertaining, but YouTube as the only medium of instruction was found to be lacking in the sense that students desired some additional method of receiving content and instruction.

Bendala and Hadji (2021) conducted research on e-learning in an EFL university context in Algeria at both the undergraduate and graduate levels. Their survey focused on both student and teacher perceptions of Moodle implementation, and their findings indicate that students felt isolated both from their peers and their instructors because of online classes. The researchers indicate that "there was no clear interaction between the students, and their teachers and teaching were merely transformed into purely sending and receiving messages" (p. 61). The teachers who participated in Bendala and Hadji's (2021) study also took issue with online classes, either because they felt online classes were not as effective as face-to-face classes or because of the teachers' own frustration with designing and implementing effective teaching materials. Similar results were reported by Tram's (2021) research in the context of Vietnamese EFL courses at the university level.

It is within this context that the current research is framed. While much research has been conducted that examines either student or teacher perceptions of difficulties and successes in online classes, less research has been done which examines student engagement with online materials. Previous literature in this field has indicated that most online classes are delivered through an educational platform like Moodle or Blackboard, which is then supplemented by content delivered through informal means like WhatsApp, a messaging service, and Facebook, a social networking website. However, at least some universities are delivering EFL content to their students through pre-recorded means. The current research seeks to answer the following questions:

1. To what extent does student engagement fluctuate as pre-recorded video length increases?
2. To what extent are video length and view duration correlated?

Method

Participants

Five English language teachers at a private university in western Japan agreed to participate in this research. The teachers were in charge of teaching compulsory English classes for first-year and second-year students across three different levels. The level of the lowest class was an A1 on the Common European Framework of Reference (CEFR) (Council of Europe, 2001). The medium-level class ranged from A1 to B1 on the CEFR, while the highest level taught at this university ranged from A2 to B1. The lower and medium-level compulsory English classes are split up into a speaking & listening class

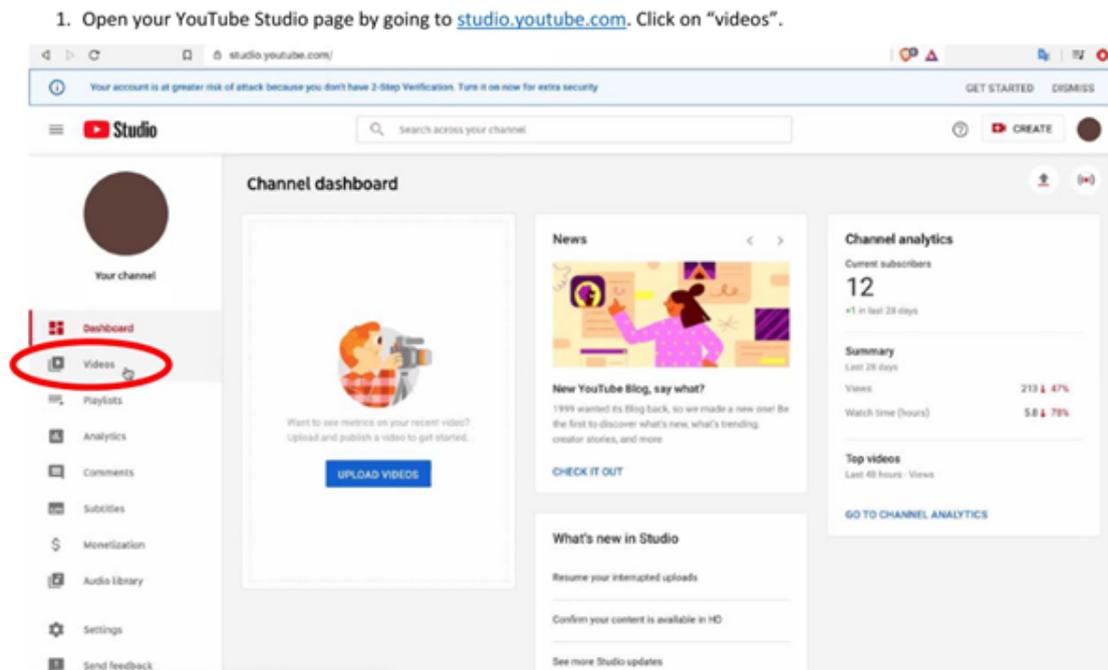
and a reading & writing class that meet once a week. The higher-level class also meets twice a week but focuses on integrating all four skills. At the beginning of the pandemic, an assessment of the students' technological capabilities was conducted and since many students did not possess the tools to attend synchronous classes, such as Wi-Fi and an appropriate device (either a notebook PC or tablet), and they no longer had access to the university computer labs, it was decided that asynchronous classes through YouTube videos were the best option.

Procedure

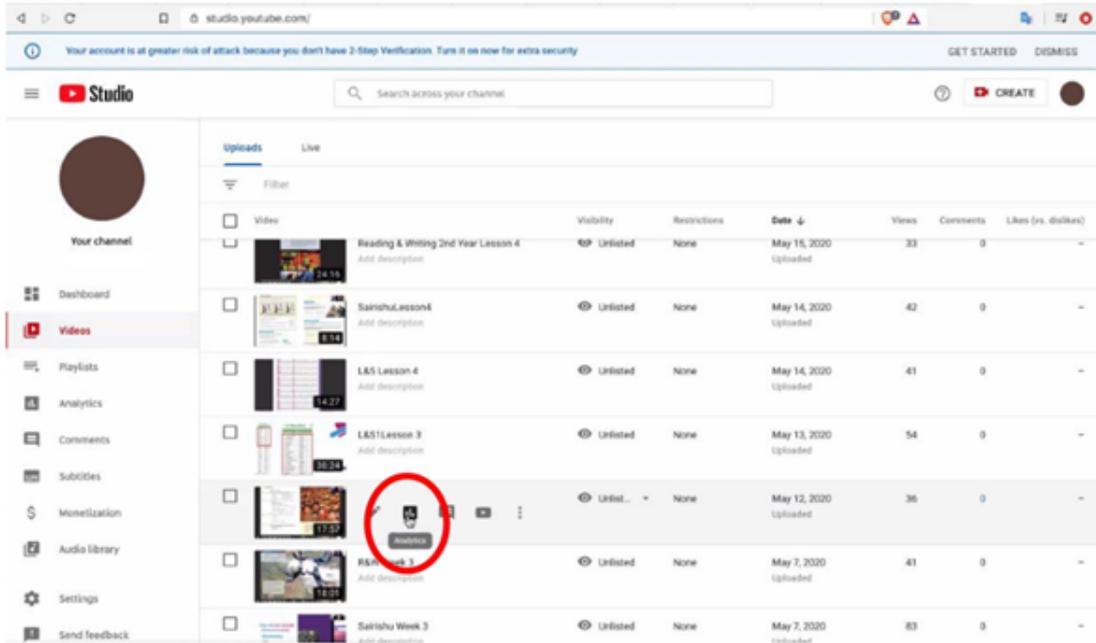
Teachers were asked to log in to their YouTube accounts, navigate to the "Videos" menu, click on "Analytics" for the video which they wished to provide data for, and enter said data into a spreadsheet. Participants were asked to enter the average view duration (AVD) and average percent viewed (APV). AVD is the average length of a viewing session. This information is given as a measurement of time, such as minutes and seconds. APV is a measurement of what percent of a video is viewed before viewers stop watching. This figure is given as a percentage. Figure 1 shows the exact steps participants took to find their viewer data.

Figure 1

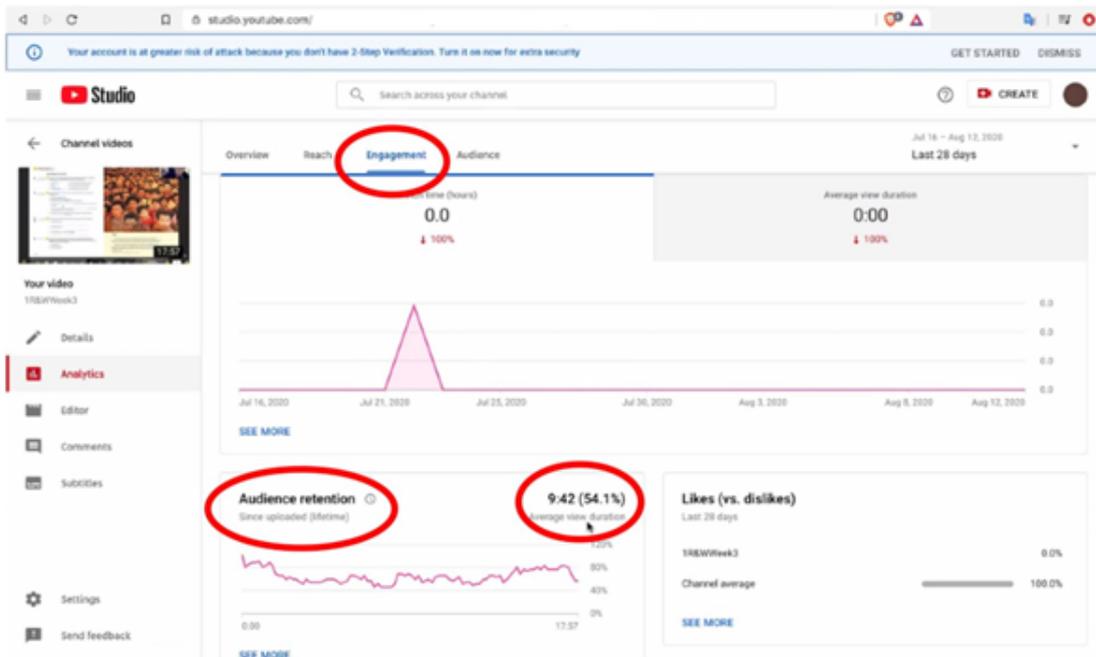
Step-by-step explanation on how to find viewer data



2. Hover over the video and click on "analytics". Please select a video which includes teaching as opposed to procedural information like syllabus information. If possible, include videos that are under 6 minutes, as well as videos that are over 6 minutes.



3. Click on "engagement". Look for the section titled "audience retention". Enter the information indicated on the spreadsheet. For example, 9:45 indicates the Average View Duration (AVD) and 54.1% indicates the Average Percent Viewed (APV). Repeat these steps for each video.

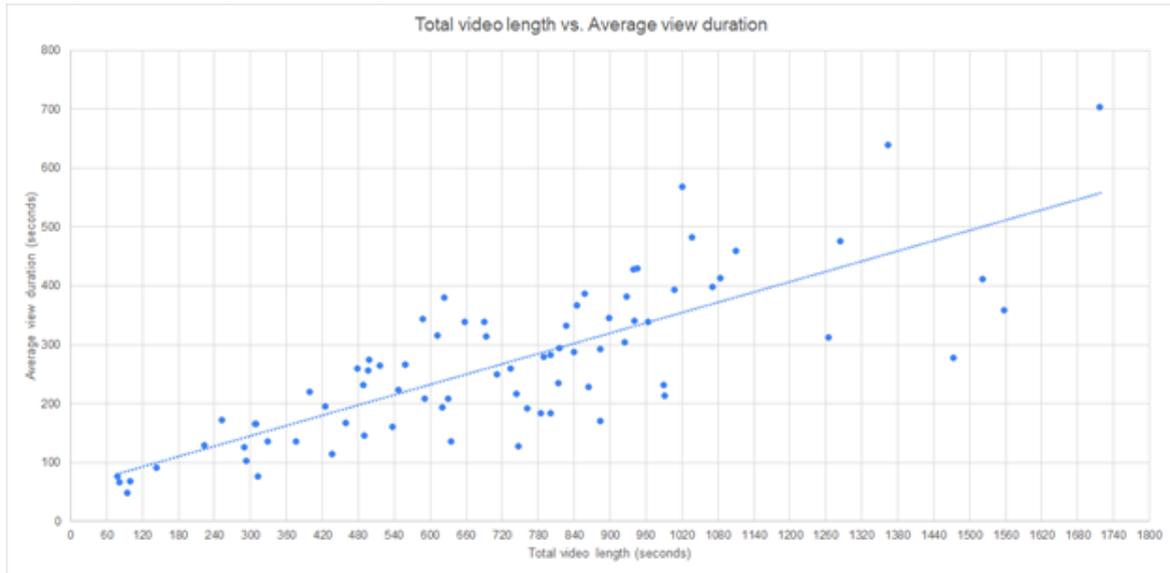


In total, viewer data for 77 videos were collected. After data collection, the values entered into the spreadsheet were converted to usable data. For example, a value of "4:50" does not mean "4 and a half minutes" but rather "4 minutes and fifty seconds". To make entered data easier to work with, all time values entered were converted from "minutes:seconds" into "seconds". These data were then analyzed in Excel to find Pearson's correlation coefficients for total video length in relation to APV and AVD values, as well as all associated mean and median values.

Results

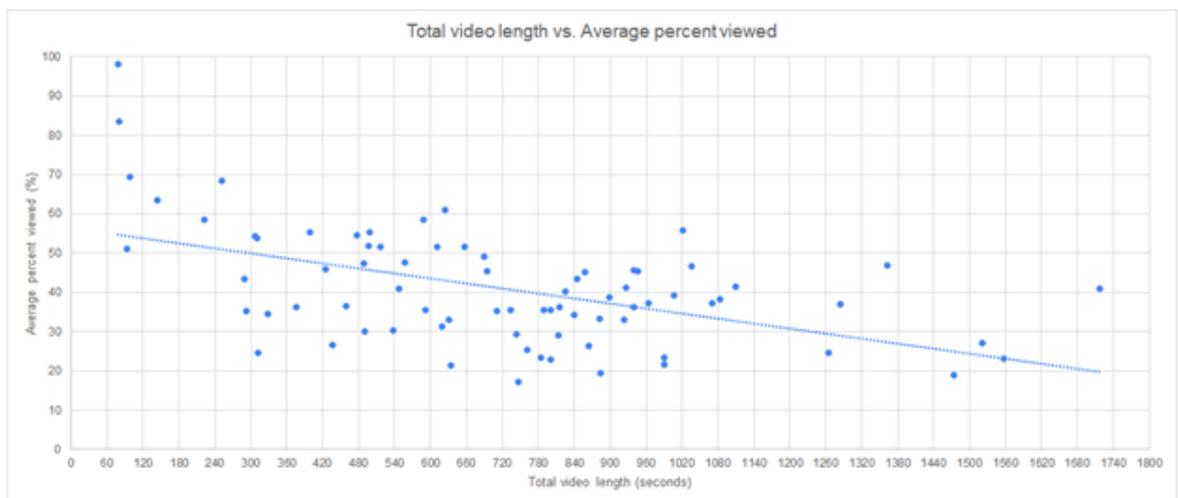
The results are displayed in Figures 2 and 3. The median APV was 38.2%, the median AVD was 259 seconds (4 minutes, 19 seconds), and the median total video length was 734 seconds (12 minutes, 14 seconds). The data gathered from this survey (see Appendix) were used to calculate Pearson’s correlation coefficients. Total video length and average view duration were found to have a strong positive correlation, $r(77) = 0.7915$, $p < 0.01$.

Figure 2
Average video length vs. average view duration



Total video length and average percent viewed had a moderate negative correlation, $r(77) = -0.5174$, $p < 0.01$.

Figure 3
Average video length vs. average percent viewed



Discussion

The results of this analysis are not in line with previous research in this field. Guo et al.'s (2014) research indicated that students studying in a MOOC environment had a median engagement time of 6 minutes, while the data from this study indicate a median AVD time of 259 seconds, or 4 minutes 19 seconds. However, research conducted since the onset of the COVID-19 pandemic indicates that for videos with shorter durations, an APV value of approximately 40% is not unusual. Elsamanoudy et al.'s (2021) study of short and long video-based lessons after the start of the COVID-19 pandemic found that short videos, those of approximately 5 minutes in length, had a mean APV value of 42.8 with a standard deviation of 7.9. For all videos in the current research, the mean APV was 40.958 with a standard deviation of 14.670. While the standard deviation was greater in the current study, the overall mean APV value found in the current research is not outside of the range found in previous research on this topic. A direct AVD comparison between the current study and Elsamanoudy et al.'s (2021) study is not possible given that their research encompassed videos that surpassed one hour in length, while the longest video in the current research was 28 minutes. Nevertheless, some conclusions can be drawn about why not all students are fully engaged in online learning.

Pandemic Teaching and Student Viewing Habits

Students in a MOOC environment are not always engaged in compulsory classes. Courses such as those found at mooc.org or through Khan Academy are free and not part of any compulsory course of study and are in contrast with the mandatory English classes that were part of this study. In addition, students in this particular learning context may be viewing the first few minutes of a video lecture and then skipping around until they find the content most relevant to them - the part of the video where the lecturer describes and explains the homework for the week.

The nature of the courses themselves may also play a factor. For example, students enrolled in English classes that rely on a textbook to set the pace of the course may rely less on lectures delivered by video to understand a linguistic concept as opposed to reading the textbook for themselves. Teachers who provide students with a detailed syllabus outlining a schedule of homework may unwittingly be contributing to a low AVD. This is especially true if instructors indicate which week an exam will take place, as students can simply watch the video before the examination to receive the most relevant information. Walsh et al. (2019) found a similar viewing pattern among students in their research of IT-major students (pg. 89).

The sheer volume of online learning may also play a factor in the decreased engagement time observed in this study. Given that almost all classes at this university - not just English - were delivered online in the 2020-2021 academic year, it may be the case that students simply did not have the time to devote to watching an English lecture video all the way through. Students enrolled in demanding science or mathematics courses could have spent more time on those subjects and less time on English overall.

Finally, instructors delivering educational content through pre-recorded videos have no way of knowing which students watch and which students do not. In other words, teachers have no way of taking attendance, and if attendance is not mandatory and part of a student's final grade, students will have far less motivation to "attend" the lecture than if they were learning through synchronous online classes.

To increase the chances that students will watch pre-recorded videos for longer, teachers are advised to keep their videos to a reasonable length. Teachers should also keep in mind that there are diminishing returns for longer videos. The APV for all videos 12 minutes or longer was 34%, while the APV for videos 15 minutes or longer was 36%. Meanwhile, videos 5 minutes or shorter had an APV of 63%, while videos 10 minutes or shorter had an APV of 49%, indicating that teachers who record longer videos are not holding students' attention more than teachers who are recording shorter videos.

Limitations and Conclusion

The current study has a number of limitations. First and foremost, the amount of videos that were used in this study is low, and it is difficult to draw a definitive conclusion just from this data set. This limitation comes as a result of the teaching context in which this research was conducted: online teaching through pre-recorded YouTube videos. Such teaching is just one method in which early-pandemic classes were implemented. Other teaching methods may include different video sites (e.g., Vimeo), privately shared cloud services (e.g., Google Drive, Dropbox, OneDrive), and videos hosted on a university's learning management system (e.g., Moodle, Blackboard). Because this research is limited to videos which were hosted on YouTube, the researchers do not have access to the viewing data of these other types of videos. This limitation makes drawing general conclusions difficult.

Another important limitation is the lack of context for the videos themselves. Sufficient data was not available to separate videos by when in the semester they were created and viewed by students. It may be the case that students studying in compulsory classes will view videos at the start of the semester for longer periods of time for orientation purposes, as well as videos available just before important examinations. Therefore, the researchers are only able to give general prescriptive advice regarding video length: shorter videos are better and students will watch pre-recorded videos for an average of about six minutes, even in an emergency teaching situation like the kind that the COVID-19 pandemic has forced upon teachers around the world.

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Appendix A: YouTube video data

Average percent viewed (APV) (%)	Average view duration (seconds)	Total video length (seconds)
98	76	78
83.6	67	81
51.2	48	94
69.5	68	99
63.5	91	144
58.5	130	223
68.5	172	252
43.5	126	290
35.3	103	293
54.3	166	307
53.8	166	310
24.6	77	313
34.6	136	329
36.2	136	376
55.3	220	399
45.9	195	425
26.5	115	436
36.6	167	459
54.5	260	478
47.5	231	488
30	146	490
51.8	257	497
55.2	274	498
51.5	265	516

30.2	161	537
41	224	547
47.7	266	558
58.6	344	588
35.4	209	591
51.5	315	612
31.2	193	620
61	380	624
33.1	208	630
21.5	136	634
51.7	339	657
49.1	339	690
45.3	314	694
35.3	250	711
35.4	259	734
29.2	217	743
17.3	128	747
25.4	192	761
23.3	183	784
35.4	279	789
35.5	283	800
22.9	183	801
29	235	813
36.3	295	815
40.3	333	826
34.3	288	840
43.5	367	845

45.1	387	858
26.4	228	864
33.3	293	883
19.3	170	884
38.6	346	898
33.1	305	924
41.1	381	927
45.6	428	939
36.3	341	940
45.4	429	946
37.3	339	964
23.4	231	990
21.6	213	991
39.1	393	1007
55.7	568	1021
46.6	483	1036
37.2	398	1070
38.2	414	1084
41.5	460	1110
24.7	312	1264
37.1	476	1284
46.9	639	1363
18.9	277	1473
27	411	1521
23.1	359	1557
41	704	1717