Students' Engagement in Youtube for E- Learning During COVID-19: A Study Based on Islamic and Arabic Students of South Eastern University of Sri Lanka

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Abstract: Information and Communication Technology dominating all the sectors to provide better services to the relevant organization. In that sense, social media from web 2.0 not only provide connections between the world, but also creating better service to education in terms of e-learning. Therefore, this case study analyzed the students' engagement in YouTube for E-learning from the selected years of students from Islamic studies and Arabic language of the South Eastern University of Sri Lanka. In this regard, a clustered sampling was used to select the sample, and YouTube's inbuilt tool called YouTube analytics was used to analyze the data collected through uploaded videos. Where those videos uploaded in different qualities, different duration, and different types of videos. It was found that short timing videos were expected by the students rather than long time videos and not only subject-related videos but also revision or answer methods videos; furthermore, this paper confirmed that students who enrolled for the practical-free subject can learn easily in the e-learning process. Errors in the number of views due to the subscribers and less number of the available number of related research papers were the main limitations. It is suggested to motivate students to use downloaded videos rather than watch online to reduce the data usage; further, conduct further studies to find the most suitable social media for the e-learning purpose and any comparative analysis between practical related subjects and practical-free subjects for students' engrossment towards social media. This case study mainly focused on students' engrossment towards YouTube in e-learning will help to the development of e-learning platform through social media.

Keyword: YouTube, COVID-19, E-learning, Higher education, Pandemic

Introduction: Digital revolution introduced so many advancement in all the sectors, such as, education, health, business, and entertainment. In that sense, educational sector allows not only face to face methods but also distance mood. It is the method of correspondence educational institutes, which has developed the electronic form to provide education at a distance (Harting

& Margaret, 2005). Management of educational institutes spending huge amounts of time and money to provide education to their students at anytime and anywhere. Therefore, they were choose e-learning to develop virtual learning platform to provide education to their students. It is the fundamental need of the educational sector in this era (Ellis, Ginns, & Piggott, 2009). Apart from this, e-learning or online education play the core part in today's educational environment to prevail from the pandemic crisis that happening around the world today. The epidemic of COVID-19 closed the educational organizations around the globe but e-learning providing unstoppable services to the education (Radha, Mahalakshmi, Kumar, & Saravanakumar, 2020).

There were various web based software tools has been introduced and developed to complete the teaching and learning purposes for both online and offline mode. Such as ZOOM (Rahayu, 2020), Virtual Learning Environment (VLE) (Heaton-shrestha, Gipps, Edirisingha, & Linsey, 2007), Google class room (Bhat, Raju, Bikramjit, & Souza, 2018), and Social Media (Mnkandla & Minnaar, 2021). Where these social media applications not only use for the entertainment and business purposes but also in education too. Especially, in education sector both learners and teachers mainly using YouTube as their e-learning tool which can be used for both online and offline mode. In addition to that, it is allow the teachers to upload their recorded videos, which can view in real time as well downloadable, at anytime and anywhere. Students' perceived usefulness and ease of use towards YouTube in education has a strong relationship (Maziriri, Gapa, & Tinashe Chuchu, 2020). Furthermore, YouTube provide user preferences to watch the videos in various qualities which is help to the students to control their data usage and reduce the buffer time while watch the video online. In addition to that, YouTube provide a mobile application which is provide user friendliness while learning online.

YouTube has an inbuilt statistical tool called YouTube analytics which is been automatically analyzing video data in real-time; that is, gender, traffic source, region, device types, operating system, vies, and average watch duration. Furthermore, it can use to compare those details between videos. Where all the above details were summarized via YouTube analytics based on the cluster sampling technique to find and make some suggestions to eliminate the gaps between YouTube usage for e-learning and students. This further leads to suggest the teachers develop video course materials that attract students' concentration towards the use of subject materials for their academic purposes, and to motivate the student about the ease of use of YouTube for e-learning.

Furthermore, there are many more researches focused on education and social media or e-learning and social media but only limited number of researches occupy in YouTube and education or e-learning and YouTube. Also, the results of this study try to focus with the previous works with the help of the review of the literature. In addition to the analytical findings and literature reviews, students' suggestions and comments in the videos are add to the results to increase the validity of this paper.

Methodology: This Research work was based on YouTube analytics to collect required findings for this article. Therefore, course videos were recorded and uploaded to the YouTube channel that are based on course guideline for the Information Technology subjects of the 1st semester for the Faculty of Islamic Studies and Arabic Languages, South Eastern University of Sri Lanka; where those videos were recorded from April 2020 to October 2020. Furthermore, links of those videos were provided to the students via Virtual Learning Platform (VLE). Duration of those practical videos were between 5 to 10 minutes of each while Theory sessions were around 1 hour long.

A Clustered sampling was used to collect the required number of data for the analyzing purposes. Where it can be a group of individuals from a large group (Wang, Critchley, & Liu, 2004). 2 different groups of students were selected for the analysis as a sample among 4 groups; namely 2nd year and 3rd year of students. Furthermore, selected groups were instructed to watch the recorded videos via VLE online platform. Meanwhile, the required analysis of demographic variables was done automatically using an inbuilt tool of YouTube called YouTube Analytics; It can help to monitor the performance of any videos on the YouTube channel (Google, 2021). Where this tool used the data of students who watched those videos; such as age, device type, type of operating system, and gender. In addition to that, average video watch duration, number of views in a particular time, and traffic source were generated. In addition to that, collected data from YouTube were exported to MS-Excel for the creation of required charts.

Furthermore, past E-Learning research works especially based on YouTube were used for the literature reviews. These articles were searched mainly based on the keyword as follows pandemic, COVID-19, Online education, YouTube, and Social Media. In addition to that, those articles were sort listed based on year of publication; in that, the majority of the papers were selected that were published after 2017. The following research questions (RQ) were formulated to overcome the gap of students' online learning interest via YouTube and motivate both students and staff towards the use of YouTube towards E-Learning.

RQ1: How are students expecting video duration for their learning purpose?

RQ2: What is the type of devices students prefer to use during their video learning?

RQ3: Which period of the semester receives more views of the videos?

RQ4: Which kind of videos students expecting from the teachers in terms of their subject?

Conclusions, suggestions, and limitations were drawn based on the above RQs, YouTube analytics' Analyzes, and Literature reviews.

Literature Review: A study confirmed that the students expecting user-friendly e-learning and supported applications especially during pandemic situations (Nafrees, Roshan, Baanu, Nihma, & Shibly, 2020). Meanwhile, in another study, it was revealed that the students who has less practical subjects has more interest on e-learning practices (Nafrees, Roshan, Nuzla Baanu, et al., 2020). It was found that majority of the students happy about online education due to its mobility and flexibility even though there were technical challenges (Mahat, 2021). Moreover, students positive satisfaction on the online education was confirmed by a prediction research work (Alqurashi, 2019). But, in another study, researchers mentioned that the teachers and students facing serious issues in handling of technological tools and applications (Rasheed, Kamsin, & Abdullah, 2020). Therefore, It is advisable to motivate towards using ICT devices, and getting proper training to use e-learning tools for both of students and staff (Ali, 2020). Although, it was advised to conduct through blended learning compared to purely either online or traditional methods (Razeeth et al., 2019). A study has proved that the student prefers online education during the pandemic, in addition to that they were expecting recorded videos with quizzes in the last (Muthuprasad, Aiswarya, Aditya, & Jha, 2021). The researcher concluded that the majority of the students benefited from YouTube educational channels and YouTube enables the student to become autonomous in their course (Balbay & Kilis, 2017). Meanwhile this study supports the previous statement if the internet connection speed is good (Gracella & Nur, 2020). An analysis showed that YouTube is user friendly and easy for online learning (Irawan, Ahmadi, Prianggono, Saputro, & Rachmandhani, 2020). (R. K. A. R. Kariapper, 2020) has found the same result in his study. It has confirmed that the students' intention towards the use of YouTube improve their academic performance (Bardakcı, 2019). But lecturers were not prefer to use YouTube into their course (Abdullah Almobarraz, 2018). A study proved that YouTube videos improved the academic writing skills, by supporting the traditional learning (Olasina, 2017). In addition to that, analysis confirmed that the YouTube clips remarkably increase students' strength of their vocabulary (Kabooha & Elyas, 2018); the previous statement support the study conducted in (Zaidi et al., 2018). Furthermore, a study confirmed that the YouTube videos help to properly answer the academic questions

(Moghavvemi, Sulaiman, Jaafar, & Nafisa Kasem, 2018). A research mentioned that the students' academic performance negatively affect by the Facebook, but it is help to improve students' other skills (Habes, Alghizzawi, Khalaf, Salloum, & Ghani, 2018). But, another study of the literature positively supports Facebook in higher education sectors towards teaching and learning, despite there are limitations and data privacy (Chugh & Ruhi, 2018). Similarly, a statistical survey confirmed that there is a positive relationship between students' online interaction via Facebook and academic performance (Al-Dheleai & Tasir, 2017). Likewise, the authors confirmed that the intention to use Facebook for e-learning has increased too (Moghavvemi & Salarzadeh Janatabadi, 2018). Furthermore, probability of students' interest on e-learning via Facebook was very high compared to traditional methods (Moghavvemi, Paramanathan, Rahin, & Sharabati, 2017). Meanwhile, Facebook helps students' individual and group academic activities (Šebo & Hašková, 2020). Although, students prefer Whatsapp messenger for their communication compared to FB messenger (Roshan & Nafrees, 2019). Meanwhile, a research study confirmed that any computerized based attendance system using RFID via IoT can strongly support digital education systems in the higher education system (R. K. A. R. Kariapper & Razeeth, 2019). Another research confirmed the same conclusion (R. Kariapper, 2021).

Results and Discussion: The following table shows the device comparison against views and average watch duration of the recorded videos for the semester.
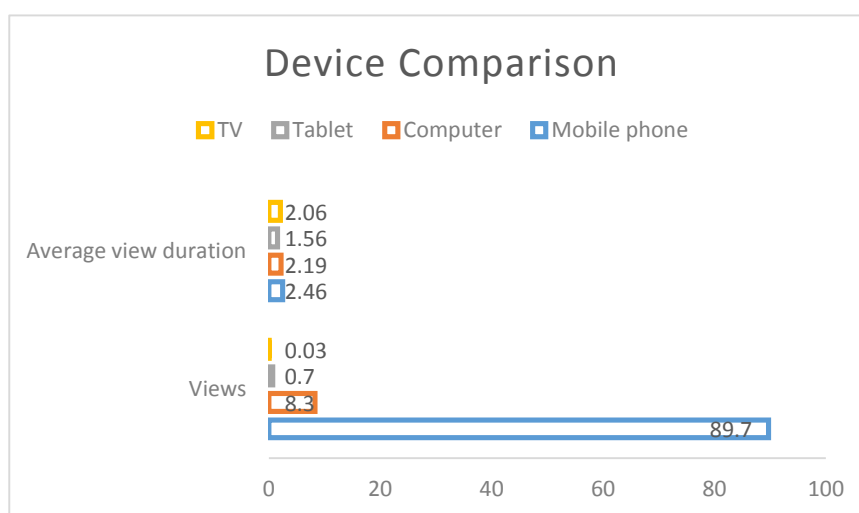

Figure 1: Device Comparison against number of views and average view duration

It is shown that the students were used smartphones compared to other digital devices for their e-learning (89.7%) purposes. Meanwhile, the average duration of recorded videos was 8.0

minutes, but the average watch duration of the videos by the students was 2.3 minutes. It is confirming that students expecting very short videos rather than long hours and at the same
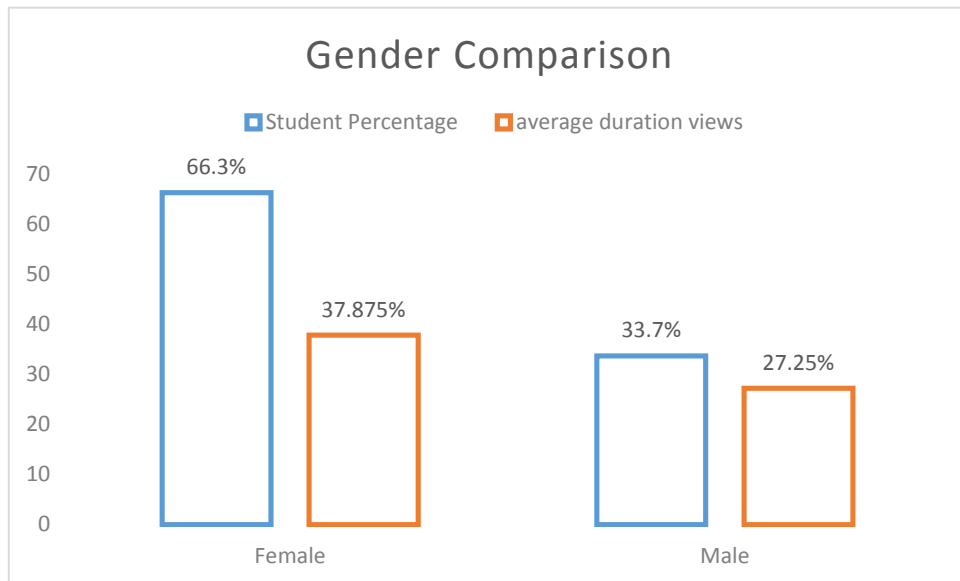
Gender Comparison

time handy mobile devices to engage with their online learning. Below figure 2 is visualizing the comparison of gender against average durations of the recorded videos throughout the semester for the information technology subjects for the 2nd and 3rd year students.

Figure 2: Gender against the average duration of views

From the above figure 2, it is confirmed that the number of registered students for the subject and the number of students who watched the videos is almost equal by gender-wise, that is confirmed that all the students individually watched the videos for their online learning. Furthermore, it is showing that the average duration views of videos watched by the female students (37.8%) are higher than the male (27.25%). Students' weekly average video durations were calculated based on the number of views automatically by YouTube analytic tool; which then drawn as a line graph for the whole semester and showed below in figure 3.
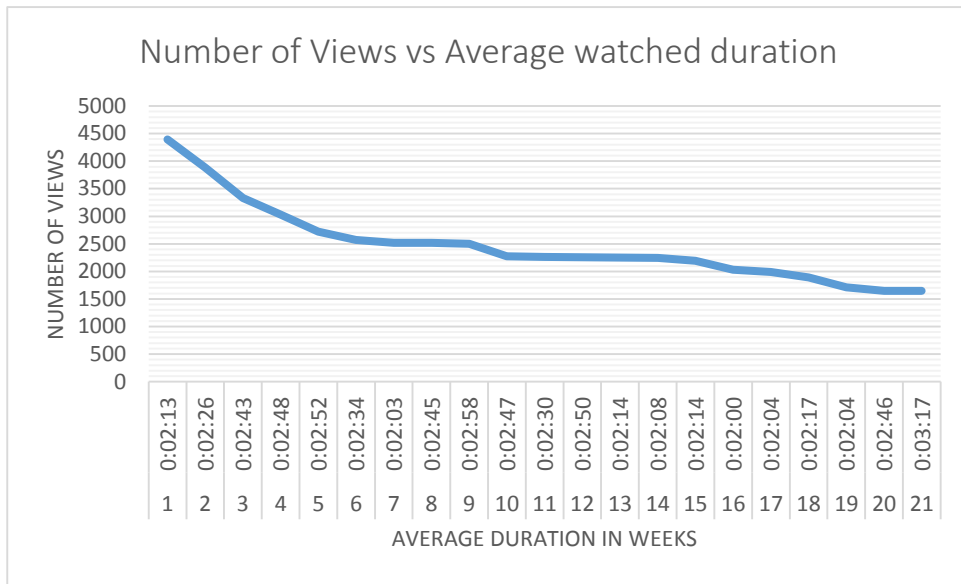
Figure 3: Weekly average view duration and number of view for the semester

In figure 3 clearly shows that the highest number of views recorded in week 1 (4395), while the least number of views is 1646 in the examination week; at the same time the average durations are 2:13 and 3:17 respectively. Furthermore, the line graph keeps decreasing throughout the whole semester from the first week to the last week. This clearly shows that students downloaded the videos and used them repeatedly without internet connectivity; meanwhile, many students prefer to watch online rather than download, which may be the reasons to avoid mobile storage issues by those videos. Finally, the online watched average duration in the examination week was high is confirmed that students' expectation about subject recorded video duration in the future.

The following table 1 representing the comparison of the number of views and average watch duration during the examination period, where this table includes the answer methods for questions and the most viewed subject video.

Video title	Views	Average view duration
Pass paper	461	0:03:20
Subject video	300	0:02:52

Table 1: Video types and the respective number of videos and average watched duration

We can conclude from the output of Google analytics that the students' expectation is not only the recorded video of syllabus contents but also the answer methods for the examination

questions. Since the number of views and average watch duration of pass paper (461, 3:20) was significantly higher than other subject videos (300, 2:52).

Conclusion: Past studies positively support social media to conduct online education among the higher education sectors; especially via YouTube. Which is used to upload, download, and watch the recorded videos anywhere and anytime with the help of the internet connectivity via any kind of smart devices and computers.

Required data were collected from the students of faculty of Islamic studies and Arabic language through YouTube by asking them to watch the subject-related recorded videos in different duration and different types. Further, YouTube analytics has used to automatically analyze the required factors of the uploaded videos; which is an inbuilt analytical tool to analyze the YouTube videos.

Students prefer to use smartphones compare to computer devices to watch subject-related YouTube videos, which confirms that students expecting to use handy devices and mobility in their online education. Further, the average watch duration supports the previous conclusion. In addition to that, this result suggested to the teachers to create short videos for their online teaching rather than long hour videos. On the other hand, the student gender ratio and gender video viewed ratio confirm that all the students watched the videos at least once online. Although, students' number of online video watched throughout the semester from the beginning to end has been decreasing slowly, which shows that a portion of the student prefer to watch online always meanwhile another portion of students prefer to watch after downloaded. Furthermore, Students expecting not only the subject-related videos but also revision or pass paper or answering method-related videos related to their subjects in their online learning. It was found that video average watch duration high during the semester examination compared to the rest of the semester. Finally, it is confirmed that students who enrolled for the practical-free subject can learn easily in the e-learning process.

Limitations and Recommendation: There were fewer research papers only available related to social media and e-learning; particularly relate to YouTube. Furthermore, there were none of any options provided by the YouTube analytics to find the significance between variables to check the hypothesis. And, the number of views in each video calculated through YouTube analytics was not accurate since there is maybe a chance to watch the videos accidentally by the subscribers too.

It was suggested to the teachers create short videos for online education in different qualities. And motivate students to use downloaded subject videos rather than watch online frequently which reduces data usage. Further, this paper suggested the researchers conduct researches to find the relationship between different social media platforms towards e-learning to find the most suitable social media for online education.

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