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Audience engagement in practice tests and instructional videos on YouTube

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ABSTRACT

As a digital video-sharing platform, YouTube has vast resources for sharing educational content. It is an accessible, open educational resource to assist the audience in gaining information and knowledge for educational needs. The research explored audience engagement and viewing patterns between two types of educational videos- instructional videos and practice test videos on a single Indonesian educational YouTube channel. It employed a quantitative descriptive approach to identify audience engagement and viewing patterns for both categories of videos. The data is collected through YouTube analytics with a population of 218 educational videos. The sample used is 139 videos chosen from the two video categories using proportional random sampling, ensuring each category is represented. The finding reveals that instructional videos have high numbers in view and shares metrics, while practice test videos topped in likes, watching duration, and average view duration metrics. This research provides insight to teachers, educational content creators, and those involved in the educational field, optimizing content strategy for digital learning resources in video formats. Further research can explore audiences' motivations for watching educational content and other metrics related to watching long or short videos that can affect audience engagement, which can provide broader insights regarding learning preferences in online video platforms.

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INTRODUCTION

Digital education has transformed significantly since the COVID-19 pandemic, changing the perspectives and educational paradigm from traditional methods to online learning. This impacts students who usually learn collectively in conventional class settings to a more personalized environment by accessing learning resources online for knowledge construction (Goel & Rastogi, 2024). Consequently, the extreme disruption of education because of COVID-19 has affected the urgency to integrate technology and learning materials to create optimized digital learning systems (UNESCO, 2024). In other words, UNESCO emphasizes the immediate need for learning access-based technology to provide sustained and inclusive education and equitable learning opportunities.

One of UNESCO's strategies to improve education practices after the global pandemic is providing Open Educational Resources (OER), defined as teaching-learning resources in any format

and medium, including videos under public domains for public use (Elango & Kumaravel, 2022). Online video platforms have indeed become essential resources for learning and gaining information to master knowledge and skills in the education sector (Cihangir & Coklar, 2021). One of the OER formats in online video platforms is YouTube, which has become a medium for providing educational content since its establishment in 2005 (Hussain et al., 2024). YouTube has emerged as a powerful educational resource with a global impact on video-sharing platforms, providing a broad educational ecosystem (Guilherme et al., 2024). It also serves as a medium for providing educational content since it has evolved into a robust educational tool for students to get a better learning experience (Chalkias et al., 2023; Quintero-Rodríguez & Colás-Bravo, 2024).

Students are loyal users of YouTube, and they explore the platform for various purposes, including learning (Roy, 2023). Given YouTube's performance as a flexible learning resource, it provides expansive educational content that is readily accessible, from instructional videos to practice test videos. Instructional videos help learners understand conceptual knowledge and critical thinking and master their studying (Beheshti et al., 2018), while practice tests, also known as practice exam videos, help students prepare for the actual examination. Despite the widespread watching of these two academic video formats on YouTube, little is revealed about how the audience engaged with each video category. The phenomenon regarding audience preferences for different educational videos is paramount to gaining exploration since there is a growing focus on engagement analytics and educational data mining to identify student engagement with learning resources for better knowledge retention (Walsh et al., 2021). Because students turn to YouTube as part of their learning journey, understanding how audiences engage with different educational videos becomes crucial.

Understanding audience engagement between instructional and practice test videos is pivotal not only for strategic content design purposes but also for improving more meaningful learning experiences. Ilin (2022) emphasizes that making decisions about creating content, as well as what, when, and how they learn, are important considerations if we want to improve the learning experience. Getting insight into engagement with learning materials is needed to understand learning behaviors, adapt instructional strategies, and address engagement declines with required interventions (Adnan et al., 2021; Seo et al., 2021). Moreover, as it has a significant role in enhancing the overall learning experience, engagement is pivotal to be understood in education and online networking platforms (Shen et al., 2022). Therefore, by exploring audience engagement for instructional videos and practice test videos, we will gain more understanding regarding audience preferences for which learning videos are preferred most and what instructional strategies can be embarked on to optimize the learning experience in the shared educational resources.

Previous studies have established perspectives regarding audience engagement in learning materials through the YouTube platform. Yang et al., (2024) studied the YTCommentQA (Question Answering) dataset to address question answerability in instructional videos. Their work highlights the challenging multimodal inputs in Video QA that still need more development. Lijo et al., (2024) analyzed the performance of STEM educational videos versus their version in an informative format on a YouTube channel, suggesting that educational videos significantly surpass the other kinds regarding engagement metrics. Meanwhile, Saurabh & Gautam (2019) studied how YouTube is used for educational purposes by exploring the author's YouTube analytics, revealing that the everyday view number aligned with the seasonal pattern, showing that viewership skyrocketed during the semester and dropped during the semester break. Walsh et al., (2019) also conducted a similar study on viewing patterns by showing 17 videos over two years, suggesting that students spent more time watching videos with related learning topics during exam periods. The studies that have been referenced have comparable highlights regarding methods to optimize instructional videos, the popularity of educational videos, and audience preferences in watching educational videos, which are more intense during the semester than during study breaks. However, there is a lack of research on how audiences watch instructional videos compared to practice test videos measured with engagement metrics. Specifically, little is known about exploring audience engagement regarding views, watching hours, likes, shares, the timing, and frequency of uploading videos throughout regular school days and exam periods. In addition, the difference from this study is that it utilizes data from the owner's YouTube Analytics to examine audience engagement, providing a quantitative perspective on user engagement for over 100 educational videos. Therefore, this study aims to

explore the engagement patterns related to practice test videos and instructional videos in one of the open educational resources, YouTube.

Understanding audience engagement from online video platforms provides educators and content creators valuable insights into developing a strategy and plan to produce quality and effective digital educational content (Jayavardhini et al., 2023). Besides, it extends to transferring awareness of the current learning dynamic, such as helping the learning media developers and education institutions as one of their references in academic programs that establish teaching and learning resources between conceptual understanding and practical exercises through online video platforms.

METHOD

This study utilized a quantitative descriptive approach, as the goal is to explore audience engagement with instructional and practice test videos on an educational YouTube channel. The approach is suitable for identifying audience preferences without intending to test specific hypotheses, giving insights into audience needs (Cohen et al., 2018; Fraenkel & Wallen, 2019). By leveraging this approach, the study provides a nuanced understanding of audience engagement within the educational videos on the observed YouTube channel.

This study utilized data from the YouTube channel owner @lulu's_learning. This channel was selected because the accessibility of data from the channel owner provided a more comprehensive analysis than what could be achieved with publicly available data (Saurabh & Gautam, 2019). The channel has a YouTube Studio, a channel-specific tool that content creators use to manage, edit, and evaluate the performance of their videos (Sweatt, 2023). The data collected on YouTube Analytics are for these metrics: Views, Watching Time, Likes, Shares, and Average View Duration. Identifying the Watch Time shows the effectiveness of students watching the video, and it indicates the extended time they spent viewing it (Walsh et al., 2019). Besides, Views, Likes, Comments, Shares, and Sharing to external platforms are the metrics that impact actions, expressions, and effects based on the four-level framework by Aldous et al., (2019). However, the Comment metric is eliminated in this study because YouTube has labeled the two types of videos as "made for kids" and "not made for kids" videos on the owner's YouTube channel, impacting the comment feature for the "made for kids" videos as unavailable due to YouTube Policy.

Data collection from YouTube analytics is generated by filtering the specific date range. The date range is from August 31, 2022 (since the channel was created) to March 15, 2024, used for data collection. The procedures involved identifying the population of 218 videos, which consist of 167 Instructional Videos and 51 Practice Test Videos. Data were collected from YouTube Analytics by filtering the data between August 31, 2022, and March 15, 2024. Still, in the Date Picker, the four metrics were chosen for the sample videos: views, watching time, likes, and shares, as well as for the average view duration.

The sampling technique used is the proportional random sampling. Proportional random sampling is the sampling of identified sub-groups represented in the same proportion in the population where they exist (Mertler, 2019). It is used to describe the representativeness of each video category. The sample numbers were determined based on the sample size table developed by Isaac and Michael, which has a margin error of 5%. As we know, the Formula 1 for the sample size is as follows.

$$S = \frac{\lambda^2.N.P.Q}{d^2.(N-1) + \lambda^2.P.Q} \quad (1)$$

λ^2 Chi-square value with 95% confidence level
P = Q = 0,5
N = Population size
D = 0,05
S = Sample size

Based on Table 1 in Sugiyono (2013), the population of 218 is nearly 220, with a margin error of 5%, which requires a 135-sample size. However, this study chose 139 videos as the samples to

increase the representative numbers. Since there are 167 instructional videos and 51 practice test videos, the proportion is determined as follows: Instructional videos = $\frac{167}{218}$ x 100% = 76.61%, and Practice test videos = $\frac{51}{218}$ x 100% = 23.39%. Therefore, a total of 106 instructional videos and 33 practice test videos were included in the sample of 139 videos.

Table 1. Proportion of Video Types

No.	Video Type	Video Population	Percentage	Video Sample
1	Instructional Videos	167	76.61%	106
2	Practice Test Videos	51	23.39%	33
Total		**218**	**100%**	**139**

RESULTS AND DISCUSSION

Results

Below are the results of audience engagement between instructional videos and practice test videos in terms of video uploading frequency, general audience engagement, duration of viewer watching in hours, average view duration, and audience engagement during exam periods.

The Frequency of Uploading Instructional and Practice Test Videos

Table 2. Video Upload Frequency (Instructional Videos)

No.	Month	Instructional Video (IV)	Total Video
1	August 2022	IV1	1
2	September 2022	IV2, IV3, IV4, IV5, IV6, IV7	6
3	October 2022	IV8, IV9, IV10, IV11, IV12, IV13, IV14, IV15, IV16	9
4	November 2022	IV17, IV18, IV19	3
5	December 2022	IV20, IV21, IV22, IV23, IV24	5
6	January 2023	IV25, IV26, IV27, IV28, IV29, IV30, IV31, IV32, IV33, IV34	10
7	February 2023	IV35, IV36	2
8	March 2023	IV37, IV38, IV39, IV40, IV41, IV42	6
9	April 2023	IV43, IV44, IV45, IV46, IV47, IV48, IV49, IV50	8
10	May 2023	IV51, IV52, IV53	3
11	June 2023	IV54, IV55, IV56, IV57, IV58, IV59, IV60	7
12	July 2023	IV61, IV62, IV63, IV64, IV65, IV66	6
13	August 2023	IV67, IV68, IV69, IV70, IV71	5
14	September 2023	IV72, IV73, IV74, IV75	4
15	October 2023	IV76, IV77, IV78, IV79, IV80, IV81	6
16	November 2023	IV82, IV83	2
17	December 2023	IV84, IV85, IV86, IV87	4
18	January 2024	IV88, IV89, IV90, IV91, IV92, IV93, IV94, IV95, IV96, IV97, IV98, IV99, IV100	13
19	February 2024	IV101, IV102	2
20	March 2024	IV103, IV104, IV105, IV106	4
Total Video			**106**

From August 31, 2022, to March 15, 2024, the uploading schedule for instructional videos showed significant variation each month. Noticeably, despite how many times videos are uploaded in a week, in January 2023, 10 instructional videos were uploaded. Meanwhile, the most frequent video upload occurred in January 2024, with 13 instructional videos.

Table 3. Video Upload Frequency (Practice Test Videos)

No.	Month	Practice Test Video (PT)	Total Video
1	October 2022	PT1	1
2	November 2022	PT2, PT3, PT4, PT5, PT6,	5
3	December 2022	PT7, PT8	2

No.	Month	Practice Test Video (PT)	Total Video
4	February 2023	PT9, PT10, PT11, PT12, PT13	5
5	March 2023	PT14, PT15, PT16	3
6	May 2023	PT17, PT18	2
7	August 2023	PT19, PT20, PT21, PT22	4
8	September 2023	PT23, PT24, PT25	3
9	November 2023	PT26, PT27, PT28, PT29, PT30	5
10	February 2024	PT31, PT32, PT33	3
Total Video			**33**

Meanwhile, the uploading schedule for the practice test videos follows an identical pattern, indicating that they are uploaded based on the specific moment, especially during the school exam periods. The time intervals are 1, 1, 2, 1, 2, 3, 1, 2, 3 (in months), with an average interval of 16/9 = 1.77 months. The video upload interval in the period above is 1.77 months, which means that practice test videos are uploaded every two months.

Audience Engagement Between Instructional and Practice Test Videos

Table 4. Audience Engagement

No.	Video Types	Total View	Total Watching Time	Total Likes	Total Shares
1	Instructional	262.774	10.117	2.993	3.950
2	Practice Test	239.842	17.186.88	3.046	3.291
Total		**502.616**	**27.304**	**6.039**	**7.421**

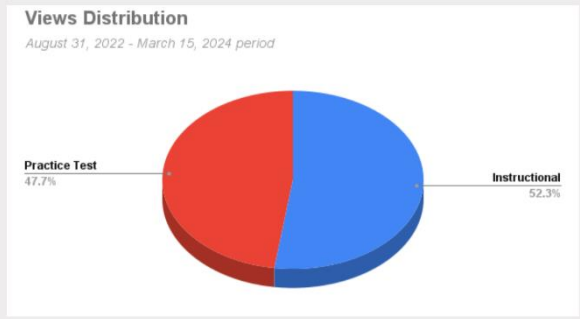

Figure 1. View Distribution

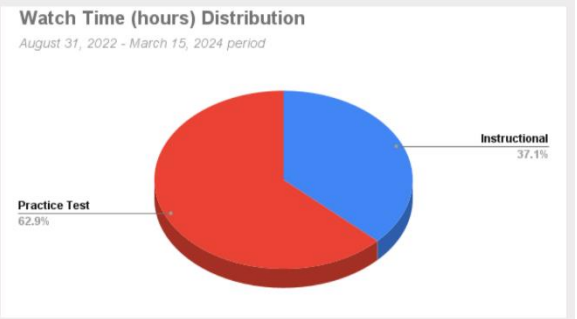

Figure 2. Watch Time Distribution

There are considerable differences between the practice test and instructional videos. Instructional videos topped the viewership with a slight difference from the practice test videos. In contrast to the viewer metrics, the watch time metrics show a significant proportion between the two types of videos. Despite the instructional videos gaining more viewers, the practice test videos exceeded the watching time proportion with 17.186 watching hours in 33 videos, while the instructional videos exceeded threefold the number of practice test videos gained less watching duration. This noticeable distinction suggests that audiences spend more time watching practice test videos than instructional videos.

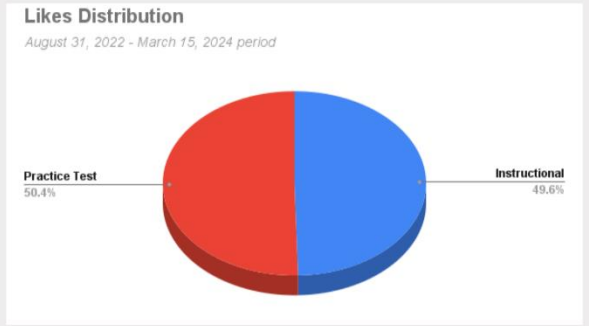

Figure 3. Likes Distribution

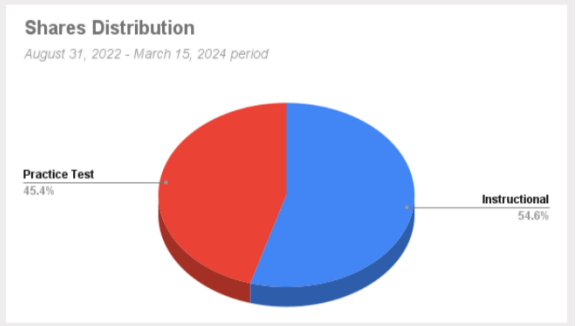

Figure 4. Shares Distribution

Furthermore, practice test videos still get more likes numbers than instructional videos, although the difference is slightly narrow. However, when the two video categories were compared regarding the distribution of shares, instructional videos gained a more noticeable increase. It was 9.2% higher than practice test videos.

Duration of Viewers Watching the Instructional and Practice Test Videos

Table 5. Instructional Videos

No.	Publish Time	Watch Time	Video	Total Video
1	2022-Aug	<100 Hours	IV1	1
2	2022-Sep	<100 Hours	IV2, IV3, IV4, IV5, IV6	5
3	2022-Sep	100-250 Hours	IV7	1
4	2022-Oct	<100 Hours	IV8, IV9, IV10	3
5	2022-Oct	100-250 Hours	IV11, IV12, IV13, IV14, IV15, IV16	6
6	2022-Nov	<100 Hours	IV17, IV18	2
7	2022-Nov	100-250 Hours	IV19	1
8	2022-Dec	<100 Hours	IV20	1
9	2022-Dec	100-250 Hours	IV21, IV22, IV23	3
10	2022-Dec	500-750 Hours	IV24	1
11	2023-Jan	<100 Hours	IV25, IV26, IV27, IV28, IV29	5
12	2023-Jan	100-250 Hours	IV30, IV31, IV32, IV33	4
13	2023-Jan	250-500 Hours	IV34	1
14	2023-Feb	<100 Hours	IV35	1
15	2023-Feb	100-250 Hours	IV36	1
16	2023-Mar	<100 Hours	IV37, IV38, IV39, IV40	4
17	2023-Mar	100-250 Hours	IV41, IV42	2
18	2023-Apr	<100 Hours	IV43, IV44, IV45, IV46, IV47, IV48, IV49	7
19	2023-Apr	100-250 Hours	IV50	1
20	2023-May	<100 Hours	IV51, IV52, IV53	3
21	2023-Jun	<100 Hours	IV54, IV55	2
22	2023-Jun	100-250 Hours	IV56, IV57, IV58	3
23	2023-Jun	250-500 Hours	IV59	1
24	2023-Jun	500-750 Hours	IV60	1
25	2023-Jul	<100 Hours	IV61, IV62	2
26	2023-Jul	100-250 Hours	IV63, IV64, IV65, IV66	4
27	2023-Aug	<100 Hours	IV67, IV68	2
28	2023-Aug	100-250 Hours	IV69, IV70	2
29	2023-Aug	250-500 Hours	IV71	1
30	2023-Sep	<100 Hours	IV72, IV73, IV74	3
31	2023-Sep	100-250 Hours	IV75	1
32	2023-Oct	<100 Hours	IV76, IV77, IV78	3
33	2023-Oct	100-250 Hours	IV79, IV80, IV81	3
34	2023-Nov	<100 Hours	IV82	1
35	2023-Nov	100-250 Hours	IV83	1
36	2023-Dec	<100 Hours	IV84, IV85, IV86, IV87	4
37	2024-Jan	<100 Hours	IV88, IV89, IV90, IV91 IV92, IV93, IV94, IV95, IV96, IV97, IV98	11
38	2024-Jan	100-250 Hours	IV99, IV100	2
39	2024-Feb	<100 Hours	IV101, IV102,	2
40	2024-Mar	<100 Hours	IV103, IV104, IV105, IV106	4
Total Video				**106**

Table 6. Practice Test Video

No.	Publish Time	Watch Time	Video	Total Video
1	2022-Oct	100-250 Hours	PT1	1
2	2022-Nov	<100 Hours	PT2, PT3, PT4	3
3	2022-Nov	100-250 Hours	PT5	1
4	2022-Nov	250-500 Hours	PT6	1
5	2022-Dec	250-500 Hours	PT7	1

No.	Publish Time	Watch Time	Video	Total Video
6	2022-Dec	500-750 Hours	PT8	1
7	2023-Feb	<100 Hours	PT9, PT10	1
8	2023-Feb	>1000 Hours	PT11, PT12	1
9	2023-Feb	100-250 Hours	PT13	1
10	2023-Feb	500-750 Hours	PT14	1
11	2023-Feb	750-1000 Hours	PT15	1
12	2023-Mar	<100 Hours	PT16	1
13	2023-Mar	100-250 Hours	PT17, PT18	2
14	2023-May	250-500 Hours	PT19	1
15	2023-May	500-750 Hours	PT20	1
16	2023-Aug	>1000 Hours	PT21	1
17	2023-Aug	100-250 Hours	PT22	1
18	2023-Aug	500-750 Hours	PT23	1
19	2023-Aug	750-1000 Hours	PT24	1
20	2023-Sep	100-250 Hours	PT25, PT26	2
21	2023-Nov	>1000 Hours	PT27	1
22	2023-Nov	100-250 Hours	PT28	1
23	2023-Nov	250-500 Hours	PT29	1
24	2023-Nov	500-750 Hours	PT30	1
25	2023-Nov	750-1000 Hours	PT31	1
26	2024-Feb	100-250 Hours	PT32, PT33	3
Total Video				**33**

During the 19 months, the audience watched 66 instructional videos under 100 Hours, distributed about every month. This indicates that 62,3% of instructional videos were watched in less than one hundred hours. Meanwhile, 35 instructional videos, or approximately 33.02%, were watched within 100-250 hours, which is longer than the earlier watch time range. This means that most videos are watched for shorter durations, while only a few videos are watched for more extended periods.

The distribution of watching time is relatively even among all 33 videos for the practice test category. Five practice test videos have been watched for less than 100 hours, with the publishing time mainly in the earlier phases. Meanwhile, 36.36% of the videos were watched for 100-250 hours. The most extended watching number is more than 1000 hours the audience spends watching four practice test videos. Compared to the instructional videos, when the highest watching time is 500-750 hours, the practice test videos have a greater number beyond 1000 hours on several practice test videos.

Average View Duration

Table 7. Instructional Videos

No.	Publish Time	View (Average)	Instructional Video	Total Video
1	2022-Aug	< 2 Minutes	IV1	1
2	2022-Sep	2-4 Minutes	IV2, IV3, IV4, IV5, IV6, IV7	6
3	2022-Oct	< 2 Minutes	IV8, IV9, IV10, IV11	4
4	2022-Oct	2-4 Minutes	IV12, IV13, IV14, IV15, IV16	5
5	2022-Nov	< 2 Minutes	IV17	1
6	2022-Nov	2-4 Minutes	IV18, IV19	2
7	2022-Dec	2-4 Minutes	IV20, IV21, IV22, IV23, IV24	5
8	2023-Jan	< 2 Minutes	IV25, IV26, IV27, IV28	4
9	2023-Jan	2-4 Minutes	IV29, IV30, IV31, IV32, IV33, IV34	6
10	2023-Feb	< 2 Minutes	IV35	1
11	2023-Feb	2-4 Minutes	IV36	1
12	2023-Mar	< 2 Minutes	IV37, IV38, IV39, IV40	4
13	2023-Mar	2-4 Minutes	IV41, IV42,	2
14	2023-Apr	< 2 Minutes	IV43,	1
15	2023-Apr	2-4 Minutes	IV44, IV45, IV46, IV47, IV48, IV49, IV50	7
16	2023-May	< 2 Minutes	IV51, IV52, IV53	3

No.	Publish Time	View (Average)	Instructional Video	Total Video
17	2023-Jun	< 2 Minutes	IV54, IV55	2
18	2023-Jun	2-4 Minutes	IV56, IV57, IV58, IV59, IV60	5
19	2023-Jul	< 2 Minutes	IV61, IV62	2
20	2023-Jul	2-4 Minutes	IV63, IV64, IV65, IV66	4
21	2023-Aug	< 2 Minutes	IV67, IV68, IV69, IV70	4
22	2023-Aug	2-4 Minutes	IV71	1
23	2023-Sep	< 2 Minutes	IV72, IV73	2
24	2023-Sep	2-4 Minutes	IV74, IV75	2
25	2023-Oct	2-4 Minutes	IV76, IV77, IV78, IV79, IV80, IV81	6
26	2023-Nov	2-4 Minutes	IV82, IV83	2
27	2023-Dec	< 2 Minutes	IV84, IV85, IV86	3
28	2023-Dec	2-4 Minutes	IV87	1
29	2024-Jan	< 2 Minutes	IV88, IV89, IV90	3
30	2024-Jan	2-4 Minutes	IV91, IV92, IV93, IV94, IV95, IV96, IV97, IV98, IV99, IV100	10
31	2024-Feb	< 2 Minutes	IV101, IV102,	2
32	2024-Mar	< 2 Minutes	IV103, IV104, IV105, IV106	4
Total Video				**106**

Table 8. Practice Test Videos

No.	Publish Time	View (Average)	Practice Test Code Video	Total Video
1	2022-Oct	< 2 Minutes	PT1	1
2	2022-Nov	2-4 Minutes	PT2, PT3, PT4, PT5	4
3	2022-Nov	4-6 Minutes	PT6	1
4	2022-Dec	6-8 Minutes	PT7, PT8	2
5	2023-Feb	2-4 Minutes	PT9, PT10	2
6	2023-Feb	4-6 Minutes	PT11, PT12, PT13	3
7	2023-Mar	2-4 Minutes	PT14, PT15	2
8	2023-Mar	6-8 Minutes	PT16	1
9	2023-May	2-4 Minutes	PT17, PT18	2
10	2023-Aug	2-4 Minutes	PT19	1
11	2023-Aug	4-6 Minutes	PT20, PT21, PT22	3
12	2023-Sep	2-4 Minutes	PT23, PT24	2
13	2023-Sep	4-6 Minutes	PT25	1
14	2023-Nov	4-6 Minutes	PT26, PT27, PT28, PT29 PT30	5
15	2024-Feb	2-4 Minutes	PT31, PT32	2
16	2024-Feb	4-6 Minutes	PT33	1
Total Video				**33**

The average view duration in Table 7 and Table 8 is derived from the selected date range in YouTube Analytics. It can be noticed from Table 7 that the duration of watching instructional videos is under 4 minutes. From the total viewers of 262.774 with 10,117 watching time (in hours), the audience spent an average of 2-4 minutes watching 65 instructional videos. 41 videos were watched for less than 2 minutes, which means 38.6% of the instructional videos remained on the lower end.

Meanwhile, the practice test videos experience a higher duration for getting audience engagement towards average view duration; despite its total views being 239.842, the hours spent are 17.187. Only one video was watched in under 2 minutes, 15 videos were watched in the range of 2 to 4 Minutes, and 4 to 6 minutes were spent watching 14 practice test videos. The top three videos have been watched for an average of between 6 and 8 minutes. In light of this, both types of videos are still watched in under 10 minutes. Despite that, the practice test videos still topped instructional videos, as the duration spent watching practice test videos is higher than that of instructional videos.

Audience Engagement Proportion During Exam Periods

Audience engagement fluctuates during exams due to academic pressure, study priorities, and limited free time. The results are presented in Table 9.

Table 9. Engagement Proportion

No.	Metrics	Instructional	Practice Test	Total	Proportion Instructional	Proportion Practice Test
1	Views	62.342	151.019	213.361	29.22%	70.78%
2	Watching	2.563.30	11.015.10	13.578.40	18.88%	81.12%
3	Likes	675	2.050	2.725	24.77%	75.23%
4	Shares	1.041	2.130	3.171	32.83%	67.17%

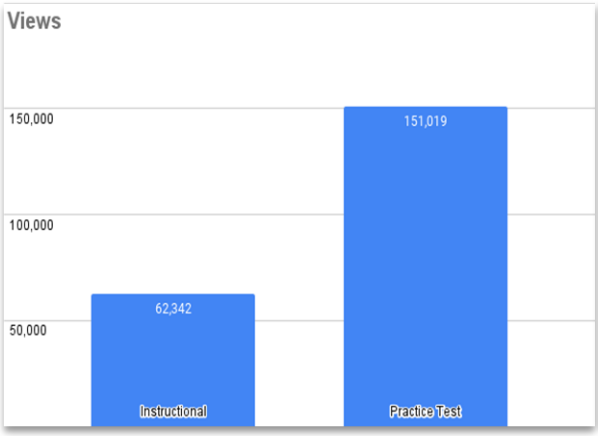

Figure 5. View Numbers

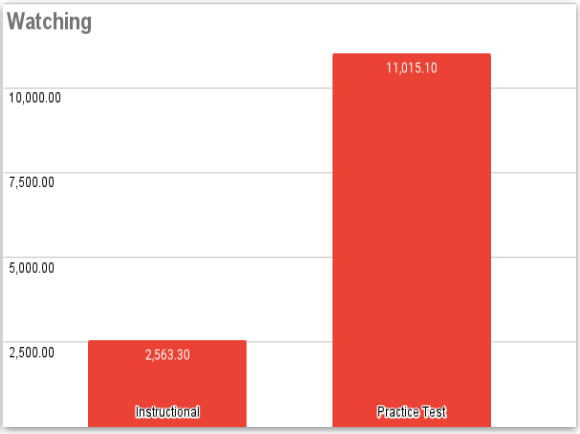

Figure 6. Watching Time Numbers

Two different types of videos are compared during the exam periods with the four engagement metrics: Views, Watching Time, Likes, and Shares. During the exam periods, the audience engaged more with the practice test videos rather than instructional videos, topping in all engagement metrics with at least 67% of the total proportion. The most significant distinction can be seen in the chart of watching time. The number of watching time in hours was almost six times higher than instructional videos, getting 2563 hours during the exam periods. This means that the audience spends more time watching practice test videos in the exam sessions, with 81.12% of total videos compared to instructional videos, which get 18.88% of watch time. Views metrics also gained a comparable number, more than twice the instructional videos' viewers.

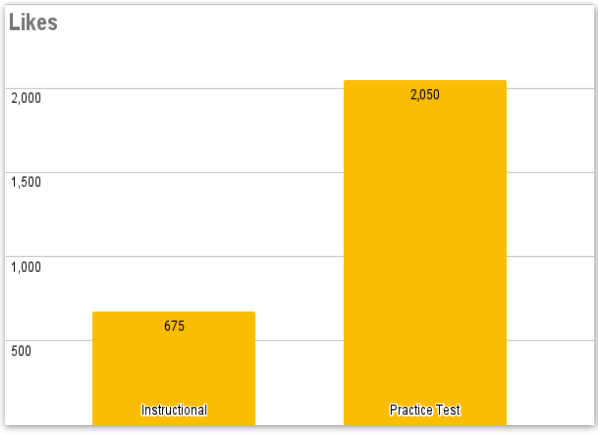

Figure 7. Like Numbers

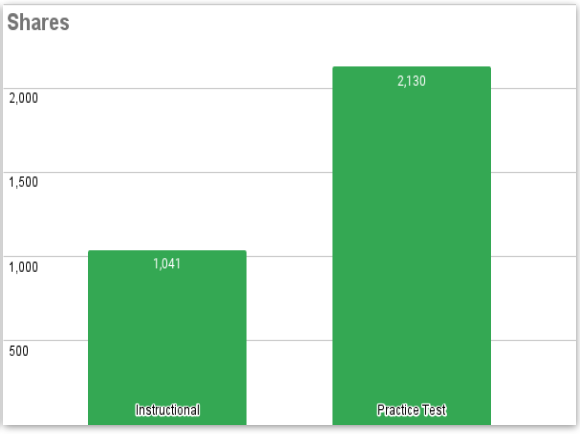

Figure 8. Share Numbers

For the Likes metrics, the audience gives more thumbs up to the practice test videos during the exams than instructional ones that get threefold lower-end thumbs up. As for Share metrics, the practice test videos still get more content sharing outside the YouTube platform, twice the sharing rate than instructional videos. Thus, practice test videos lead to engagement metrics during the exam periods.

Discussion

The frequency of uploading instructional videos in Table 2 is more intense during the selected period, while the practice test videos remain less frequent. These show that the higher upload frequency of instructional videos that lay a foundation of knowledge over time increases the viewership, as shown in Table 4, compared to practice test videos aiming to reinforce concepts tied to specific exam schedules. This is aligned with the study conducted by Saurabh & Gautam (2019) on how video upload frequency influences viewer engagement, suggesting that consistent uploads can retain viewer interest over time. Instructional videos have high viewership due to frequent uploading, meaning consistent educational video uploads boost viewers, which leads to promoting continuous learning.

Foster (2020) highlights that the more views a video gets, the fewer likes or interactions it gains in return. The pattern of these metrics is usually identical; the view count is consistently higher than the like count on a video (Dubovi & Tabak, 2021; Sui et al., 2022). These are not much different from the findings of this study, which show that instructional videos have increased viewership metrics despite the number being lower than that of practice test videos. This provides insights into educational video consumption; although popular videos are in the traffic, basic audience needs are the key, as shown by feedback given through the likes.

Shares are significant in reaching viewers, showing the video's value, increasing the video's visibility, and drawing a larger audience (Hussain et al., 2024). The higher sharing rate of educational videos means the greater educational use of learning materials, aligning with the higher view counts reflecting a consistent pattern of learner engagement (Lijo et al., 2024). This study also found similar conditions where the share metrics for instructional videos get more numbers due to their higher viewers than practice test videos. This finding indicates that instructional videos provide room for massive learning, where disseminated educational materials can promote the construction of knowledge together. It also gives insight into the importance of creating educational content that optimizes its reach and impact on a massive audience.

The proportion of watching durations for each video category is significant in Table 5, which shows that instructional videos were watched on average for less than 750 hours, while several practice test videos can reach more than 1000 hours in Table 6. From this research, it can be confirmed that students watch instructional videos for shorter durations while practice test videos are watched longer. This is a similar condition applied to the study conducted by Firmansyah et al., (2024), which shows that despite explaining videos as a valuable educational resource, it receives low student interest, showing that only 30% of students watch these videos until the end. Students select videos based on their perceived usefulness for acquiring knowledge or improving their academic performance (Dussel & Ferrante, 2023). Besides, the timing of the video's release can impact its success since it is published at optimal times for the targeted audience, who can watch it in full (Jayavardhini et al., 2023). This research confirms that practice test videos published in the intended time for students' exam preparation get more attention to be watched thoroughly.

In terms of the Average Video Duration, the instructional videos perceived less span attention as the viewers stand to watch for an average of under 4 minutes. This is not much different from the study conducted by Guo et al., (2014), who suggested that students watch educational videos for an average of 2-3 minutes, regardless of the length of the video. However, practice test videos have a much greater average view duration in the 4–8-minute range. This is aligned with the research by Dussel & Ferrante (2023), reporting that most students watch videos between 5 and 10 minutes long, as they value the content to be straightforward. The results validate prior studies and provide an awareness of how different educational video formats are used and engaged differently. Audiences are rarely influenced by popularity or external factors when watching a video because they look for the content that matters and supports their educational needs (Foster, 2020; Shoufan & Mohamed, 2022). These findings have proved the distinct average viewing time for different educational videos, which is beneficial for educators and content creators to optimize their video strategies for diverse learning goals.

During exam weeks, students are more likely to focus on specific parts of the videos and study efficiently since the content is directly related to their exams (Saurabh & Gautam, 2019; Seo et al.,

2021). Student engagement rises at the end of the class term, indicating that students become concerned as exams approach, driven by the necessity of adequate preparation (Walsh et al., 2021). This research identified a similar situation where the practice test videos gained more attention during the exam period, topping all four metrics examined, especially for the watching hours. The practice test videos during exam season draw the audience's attention immediately so that they can rehearse and familiarize themselves with potential exam questions. Students learn more effectively with educational videos that facilitate active learning and are appropriate for practice (Eamcharoen, 2024). Therefore, with the high engagement in practice test videos, this finding gives insights into providing practice test questions that often appear in the exam, followed by an explanation.

This study significantly contributes to the world of open educational resources by providing insight for educators, content creators, and other stakeholders to understand the learning dynamics in digital platforms. This research is also essential for stakeholders who will build digital content in the field of education. They need to see and read trends related to strategies for uploading digital content, in this case, on the YouTube platform and beyond, to meet the learning objectives and the audience's needs. The present study has only investigated one YouTube channel regarding audience engagement with four metrics between two video types during the selected periods, which restrains the dimension of long-term trends. Also, there is still a limitation to knowing audiences' motivations for watching educational content and other metrics related to watching long or short videos that can affect their engagement.

CONCLUSION

Based on the study described in this article discussing audience engagement between instructional and practice test videos in a single YouTube channel, the instructional videos gained high views and shared metrics. In contrast, the practice test videos topped in likes, watching duration, and average view duration metrics, especially in the exam periods. This finding presents an educational phenomenon of audience preferences in the digital learning ecosystem; therefore, the implications can provide references to teachers, educational content creators, and those in educational sectors when designing and producing learning resources in video format. Further research can explore audiences' motivations for watching YouTube educational videos. It is also an area of exploration to other metrics with long-term trends, as well as whether long or short videos can affect audience engagement, which can provide broader insights regarding audience engagement in YouTube educational videos.

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