

Using Youtube as an Education Environment: Examining Follower Views¹

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SUMMARY

Youtube is one of the most popular video sharing platform in the world. According to the statistics provided by Youtube in 2020, 1 billion hours of video content is watched daily on Youtube and 2 billion registered users visit Youtube per month. In education and lifelong learning, it has been seen in some studies that Youtube as a video learning tool has benefits and potential benefits with its popularity and easy access. This research is generally to evaluate the educational use of the platform with the views of those who followers educational videos on Youtube. In this context, the research has been designed as a qualitative. The sample of the study is 47 people from the 2020-2021 active followers of the "kabloşuz kedi" Youtube channel, which shares educational content on the software field. The data were collected with a semi-structured interview form and analyzed with content analysis. According to the results of the research, the average daily time spent on youtube to watch educational videos is less than 3 hours. The most used platform other than Youtube is Udemy. The most frequently listed reasons for dropping an educational Youtube video were boring lecture, expertise, tone and diction of the instructor, content and education quality. The problems faced on Youtube are the excessive amount of advertisements, premium suggestions, bullying and inferiority in the comments, while the non-boring, sad and understandable speaking-lecturing, the dominance of the subject of the education, the sound and video quality, the continuing education have been the prominent expectations about the educational video. Finally, they made different suggestions for an ideal educational video duration for the participants.

Keywords: Youtube, video-based learning, online education, e-learning

INTRODUCTION

The digital natives, who is born and grows in digital technology can quickly adapt to the changes in digital technologies and learn new technologies faster than digital immigrants and digital nomads, the generation defined as "digital native" likes to receive information quickly, and more information with visual and graphic content than reading texts. It was seen that they gave priority (Prensky, 2001). It can be said that it is not possible to create education and training processes suitable for "digital native" learners with traditional education methods. For this reason, new education methods have emerged that are suitable for digital native learners born and raised with technology and can be adapted to current technologies. From the view of education based on memorization offered by traditional education, where the outcome is important, not the process; Modern education, that is, an understanding of education where not only the result but also the process is important and education is not only seen as a teaching process but also as a "learning to learn" process for learners. In this context, it has been observed that social media, content sharing and video sharing platforms where digital natives are predominant have started to be used as an educational environment (Kurt et al., 2013).

In terms of education, video sharing platforms with high visitor numbers can be divided into two categories: platforms used only for educational purposes and platforms where videos are included only as a category. The most popular platforms where educational videos are just one category and whose main purpose is video hosting; It can be expressed as Youtube, Vimeo and Dailymotion platforms. There are also platforms whose purpose is for educational purposes only, namely, platforms with high popularity and usage known as Mass Open Online Courses (MOOCs). In these types of platforms, there are usually video lecture series of an instructor. These educational video series vary from platform to platform, but are available to learners for paid or free of charge. The most used of these platforms are Khan Academy, Udemy, EdX, Coursera and Udacity platforms. Educational video sharing platforms play an important and effective role in the field of education. The reasons for this are generally; It is known as being easy to access and mostly free of charge, providing fast access to desired educational materials, providing the opportunity to learn individually and at their own pace, and providing the opportunity to interact regardless of time and place (Atik & Ata, 2018).

The features that distinguish Youtube from traditional media tools (Television, Radio, etc.) and have an important effect on reaching such large followers can be listed as being free of charge, allowing them to comment on the

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content, and allowing followers to be content producers. The contents on Youtube range from videos of amateur content producers to movies, series, music and live broadcasts of major media companies. The Youtube channel, which has the most subscribers among the top 100 channels in Turkey as of 2019, is a music sharing channel called "Netd Müzik". In addition, this music channel has exceeded 33 billion views as of 2019. The categories with the most content on the top 100 channels in Youtube Turkey are Entertainment and Film categories with a total of 70%. The ratio of videos in the educational category is only about 7%. As can be seen in this research, it is seen that the ratio of videos in the educational category on the Youtube platform is very low compared to the platform's usage statistics and the platform's general traffic density (Zinderen, 2020). Youtube accounts for more than 30% of internet traffic worldwide (Casas et al., 2013). According to the research conducted by Cisco in 2017, the ratio of video content hosting platforms (Youtube, Vimeo, Netflix, etc.) to all internet traffic may reach 79% in 2021. Youtube leads this traffic with video hosting, publishing and live streaming services (Ragimova et al., 2019). With Youtube becoming one of the most used platforms on the internet, opinions about the content and qualities of educational videos on Youtube have started to emerge. These views are generally about the content quality, pedagogical value, relevance and reliability of the videos. According to a study, the usability and high access capacity of videos on Youtube is positive, but the content quality and reliability of educational videos are educationally risky (Chintalapati & Daruri, 2017).

It has been revealed that the Youtube platform is mainly used for three purposes. These are determined as having fun, accessing information and academic learning. There are many educational videos that people come across as a result of their searches on that subject to learn (find information) how to do an action. These videos made by different people, with different structures and qualities. This situation creates the content and richness of Youtube. With this richness and high access, it has been seen that Youtube can be used as a complementary tool for education systems and educational situations. The general reasons for this are; It contributes to the visual and auditory perception and comprehension of concrete objects that cannot be accessed in the physical environment, and to contribute to the learning of abstract concepts without physical form (Moghavvemi et al., 2018). As mentioned, Youtube has negative aspects as well as educational benefits. The most important issues that are seen as a problem in the context of educational videos on video sharing platforms such as Youtube; content reliability, accuracy and quality of videos. Youtube etc. It has emerged that platforms must be examined in terms of their educational qualities and qualifications in order to be used as a supportive tool in the teaching environment (Jones & Cuthrell, 2011).

There are many researches about the motivation, habits and content of the videos on the Youtube platform. Some of these were made by Akınç (2019), Çiçek (2018), Gök, Kırık and Akşit (2019), Holland (2016), İç (2017), İlhan and Aydoğdu (2019) are generally based on channels with entertainment content. When the literature is examined in terms of the research on educational videos on the Youtube platform, it has been observed that research has been conducted by Alp and Kaleci (2018), Chintalapati and Daruri (2017), Dreonet et al., (2011), Duncan et al., (2013), Kuyucu (2019), Moghavvemi et al., (2018), Orús et al., (2016) and Rosenthal (2018). When the literature is examined, no research has been found in which the educational quality of the educational videos on Youtube is discussed from the followers' point of view, and the reasons for watching or not watching. In this context, it is assumed that the educational content channels on Youtube are evaluated from the follower's perspective and that the content producer knows the reasons for choosing the channel of the followers and produces their educational content, it is assumed that it is of great importance for the content producer. The need for video producers with educational content on Youtube to determine the educational needs of the follower and to set their video content in accordance with these needs was seen as a problem and the research was shaped within this scope. In general terms of this research, "What are the expectations and suggestions of the followers about the educational videos on Youtube and what they see enough or not enough about the videos?" formed within the framework of the question.

The aim of the research is to determine the views, experiences and suggestions of youtube followers on the use of educational videos. In this context, answers to the following questions were sought.

1. How long does users spend on average daily for educational videos on Youtube?
2. Which platforms other than Youtube do the participants prefer for their educational needs?
3. What are the reasons for followers on Youtube to stop or continue watching an educational video?
4. What are the problems experienced by followers who use Youtube content for educational purposes?
5. What are the suggestions and expectations of followers for an ideal educational video content on Youtube?
6. What is the ideal duration of an educational video on YouTube?

METHOD

Research Model

The research was designed as a phenomenology, one of the qualitative research methods. Phenomenology is a qualitative research method that allows people to express their understanding, feelings, perspectives and

perceptions about a particular phenomenon or concept and is used to describe how they experience that phenomenon (Gerring, 2006).

Participant Group

Participants of the research are video followers with educational content on Youtube. The sample of the study is the 2020-2021 active followers of the "kablosuz kedi" Youtube channel, which is selected with the stratified purposeful sampling method and shares predominantly educational content on the Youtube video sharing platform (Büyüköztürk et al., 2018). The stratified purposeful sampling can be stratified or nested by selecting particular units or cases that vary according to a key dimension (Patton, 2002). Channel followers participating in the research are a total of 47 people. The related Youtube channel mainly produces educational videos on software development.

Data Collection Tools

The semi-structured interview form was used as a data collection tool in this study, which was formed as a qualitative study considering the Youtube platform followers for the purpose and purpose of the study (Hoy & Adams, 2015). One of the reasons for this is that the criteria developed to measure the quality of educational videos on platforms such as Youtube (Shoufan, 2019). A semi-structured form, which is used as a data collection tool, was created. The form contains 2 multiple-choice and 7 open-ended questions for the audience. In order to determine the content validity of the data collection form, two faculty members were consulted on computer education as field experts. Before applying the data collection tool, the participants were informed about the aims of the research and the use of the obtained data.

Data Collection

Communication was established with the owners of the designated channels that shared educational video content on Youtube on the subject of the research. The forms consisting of open-ended questions developed in line with the sub-objectives of the research were asked to answer on a voluntary basis. Online forms were used to collect data due to sampling, physical inaccessibility and pandemic conditions.

Data Analysis

Content analysis method was used in the analysis of the data. Content analysis is a systematic technique in which some words of a text are summarized with smaller content categories with codings based on certain rules (Creswell, 2002). The answers of the participants in two semi-structured interview forms were evaluated during the analysis process, and themes and sub-themes were created in this way. These headings, participant responses included in the title (n) and the percentage ratio (%) of the answers matching the title to the total number of participants are tabulated. Interpretations were made on these tables for each question.

For the validity and reliability of the study, the reliability formula proposed by Miles and Huberman (1994) was used to determine the opinion congruence. The codes were coded by two different researchers in accordance with the aims of the study and a consensus of 0.92 was achieved with the reliability formula. In addition, the personal information of the participants was not used, direct quotations were given and analysis confirmation was obtained from the participants.

FINDINGS

The data obtained from the participants are given under the titles in the order given in the purpose of the research.

Average Daily Time Spent for Educational Videos on Youtube

The average daily usage time that participants spend on educational videos on Youtube is shown in Table 1.

Table 1. The time participants spend daily on educational videos on Youtube

Average daily time	n	%
Less than 1 hour	24	51.1
Between 1 - 3 hours	20	42.6
Between 3 - 5 hours	2	4.3
More than 5 Hours	1	2.1
Total	47	100

When Table 1 is examined, the participants answered the question about the time they spend daily for the educational videos on Youtube, mainly less than 1 hour (n = 24, 51.1%) and 1-3 hours (n = 20, 42.6%). The time that the majority of the participants (n = 44, 93.7%) spend on educational videos on Youtube on a daily basis is in the range of 0-3 hours. In addition, when Table 1 and Table 2 are analyzed together, the number of participants who use more than 3 hours per day for general Youtube use is higher than the participants who spend more than 3 hours for educational content.

Other Platforms Used to Access Educational Video Content Other Than Youtube

Participants were asked questions about the platforms they accessed educational videos other than the Youtube platform, and the findings obtained from the answers given are given in Table 2.

Table 2. Other platforms participants use to access educational video content

Platforms used for educational video content	n	%
Udemy	38	61.3
Video Class	4	6.5
Custom Websites (Web Pages, Web Forums, Google Search Results)	4	6.5
Laracasts	2	3.2
Other (Social Media Sites, Onedio, Lynda, Videobu, Khan Academy, Scrimba, W3Schools, Codecademy, Stackoverflow)	14	22.6
Total	62	100

When Table 2 is examined, Udemy (n = 38, 61.3%) came to the fore as the educational video source used by most of the participants other than Youtube. Participants' preferences are followed by social media platforms and educational-oriented platforms like Udemy (Videobu, Video Classroom, Khan Academy, Scrimba, W3Schools, Codecademy, Stackoverflow) after Udemy video education platform.

Reasons For Followers on Youtube To Stop Or Continue Watching an Educational Video

The answers given by the participants to the question to determine the reasons for the followers to stop or continue watching the educational video content or video lists on Youtube were analyzed, and the results are given in Table 3.

Table 3. Reasons for participants to stop or continue watching educational channel content on Youtube

Reasons	n	%
Not being boring and having a fluent, simple, understandable and regular expression	11	14.3
The level of knowledge, expertise and dominance of the instructor	9	11.7
Instructionar's tone of voice, accent, and diction	8	10.4
Quality of content and training	6	7.8
Regular grouping of video training series and continuity of videos	5	6.5
It is a subject of interest	4	5.2
Picture and sound quality	4	5.2
Providing the requested information and content	4	5.2
Information is not superficial	3	3.9
The accuracy of the information in the training provided	3	3.9
The duration of the video (not too long)	3	3.9
Training content to be up-to-date and usable	2	2.6
Too many product placements and no ads in the video	2	2.6
Compatibility of the video title with the content (no click trap)	2	2.6
Other (Self-discipline, my upcoming course exams, etc.)	11	14.3
Total	77	100.0

When Table 3 is examined, it is the theme that has the most (n=11, 14.3%) answers among the themes formed from the answers given by the participants to the relevant question: "Not being boring and having a fluent, simple, understandable and regular expression". When the other themes are examined, in general, the participants; The expertise level of the educational video content producer (n=9, 11.7%), the tone and diction of the instructor (n=8, 10.4%), the quality of the content and training (n=6, 7.8), the image and sound quality of the educational video (n=4, 5.2%), it is seen that many criteria such as. Examples of the themes that the participants gave to the relevant question are given below;

"Content and style of expression"

"The reason I quit is because the video is long and the topic is interesting."

- "I would stop watching if the sound image was bad, I would continue if it was clearly grouped in order."
- "The trainer's knowledge level and ability to explain."
- "Speech fluency and command of the subject"
- "Whether it is related to the problem I am looking for or not, the title does not match with the content, etc. reasons"
- "Keep going; the series is complete and can complete the training Don't quit; too superficial narrative, as if it was shot just for video.
- "Too many ads"

Problems and Criticisms of Participants on Youtube

The questions asked to the participants about the problems they experienced in line with their educational content experiences on Youtube and the distribution of the themes created from the answers given by the participants to these questions are given in Table 4.

Table 4. Problems and criticisms of the participants on YouTube

Problems and Criticisms	n	%
<i>No problem, very good video platform</i>	8	14.3
Too many ads	20	35.7
Continuously recommending Youtube Premium	3	5.4
Bullying, levellessness and lack of control in comments	3	5.4
Video content and video tags are not compatible	2	3.6
Everyone creates and uploads content without information and content control	2	3.6
Suggested videos are irrelevant	2	3.6
Video quality (resolution)	2	3.6
Bad, poor quality and useless videos	2	3.6
Other	12	21.5
Total	56	100.0

In Table 4, 8 participants (14.3%) stated that " No problem, very good video platform ". Among the themes that constitute the subject of problems, the theme with the highest number of answers (n=20, 35.7%) emerged as "Too many advertisements". Some of the answers given by the participants to the relevant question are exemplified below, regardless of the themes.

- "Including excessive advertisements, popping up ads suddenly at important moments"
- "The biggest problem I have on Youtube is resolution and ads."
- "I do not think the recommended videos part is working correctly, the algorithm needs to change"
- "It would be quite comforting to remove the advertisement on channels with Ad, Educational content"
- "Abundance of ads. Content upload by anyone who is not knowledgeable. "
- "Youtube search could be improved a little bit."
- "I have no problem with YouTube, the problem is usually with the video owner"

The Expectations of the Followers about the Educational Video Quality and Video Content

Participants were asked "What are the problems you see in the educational videos on Youtube, what are the shortcomings you find and your suggestions that you deem necessary?". The distribution of the themes consisting of the answers given by the participants to this question is as in Table 5.

Table 5. Expectations of the participants from the educational videos on Youtube

Expectations of the participants from the educational videos	n	%
A non-boring, clear and understandable speaking/lecturing	12	16.2
The lecturer must be an expert in her/his subject.	6	8.1
Sound and video qualities	6	8.1
Continuity in training series	4	5.4
Not to leave the subject described in the video halfway	4	5.4
Visual and animated teaching	3	4.1

Designing the video stream from the viewpoint of the followers	3	4.1
Preparation and planning	3	4.1
Focus on a specific topic	3	4.1
Trainings suitable for different levels	2	2.7
Control and categorization of educational video content by Youtube	2	2.7
Clear information on the subject of the video content	2	2.7
At the beginning of the videos, provide a perspective on what to do with the video	2	2.7
Other (The video title is understandable, the content is in accordance with the design principles, the use of complementary examples, sincerity in the narration, avoiding inappropriate background music, etc.)	23	31.7
Total	74	100.0

When Table 5 is analyzed, it is revealed that among the themes consisting of the participants' answers (n = 12, 16.2%), "a non-boring, clear and understandable speaking/lecturing" theme was found. This theme is followed by the themes "The lecturer must be an expert in her/his subject." and "The sound and video qualities must be at a sufficient level" with the values of 8.1% (n = 6). Participants follow the themes of "Continuity in training series" and "Not to leave the subject described in the video halfway" with 5.4% participation. Finally, the "Other" theme with singular answers includes 31.7% (n = 23) participation. Some of the answers given by the participants to this question can be exemplified as in Table 5.

"It should be of high visual quality, be succinct and understandable, it should be specific"

"The voice should be clear, the lecturer should not be bored with unnecessary details, the view and the angle of view should be clear, the video topics should be understandable and orderly."

"Most educational content is interrupted. Also, there are educational videos shot in low-quality and wannabe"

"To be more explicit"

"It should be more serious in terms of expression. It should be prepared before making a video. Expression and pronunciations should be correct. It should be knowledgeable about the subject."

"Sound problems, not ending series started, inadequate interaction with the followers"

"Sound and image quality, diction, experience and knowledge of the instructor, production of understandable animated content, detailed information about the subject, (most of them go from memorization)"

"Complying with material design principles"

"Only the subject should be adhered to, the information level of the target audience should be given..."

"The instructor has an expert of the content, the visual content is rich, and it is supported with quality and entertaining visuals that will support the training."

Ideal Duration for an Educational Video on Youtube

Participants were asked about the ideal duration of educational videos on Youtube with the "What is the ideal duration of an educational video on YouTube?" question, and the theme and code information obtained from the analysis of the answers given by the participants are given in Table 6.

Table 6. According to the participants, the ideal duration for an educational video on Youtube

Ideal duration for an educational video on Youtube	n	%
Between 16-30 minutes	11	22.4
Between 5-15 minutes	9	18.4
Videos are divided by topic-subject, each video takes 10-20 minutes	7	14.3
Between 31-45 minutes	6	12.2
Duration may vary depending on the subject and content.	6	12.2
Between 46-60 minutes	3	6.1
Other	7	14.3
Total	49	100.0

When Table 6 is examined, the "between 16-30 minutes" theme, which consists of the answers given by the participants to the relevant question, includes the answers with the most participation (n = 11, 22%). In addition, the number of participants who have the theme of "between 5-15 minutes" about the ideal length of an educational content on Youtube has emerged as 9 (18.4%). In addition, 14.3% of the participants (n = 7) stated that the

educational videos on Youtube should be in the range of 10-20 minutes with the theme "Each video should be between 10-20 minutes, with the videos divided by subject-subject". Only 6% (n = 3) of the participants gathered under the theme of "between 46-60 minutes". Some of the participant responses that cause the themes to be formed in Table 6 are listed below, regardless of the themes.

"It is not easy to answer that. There may be some long-running series, I do not find it right for these series to break down. But videos on more than one topic can be 5 to 20 minutes long. "

"If this training is a long training, it can be divided into 10-20 minute pieces ..."

"About 10-15 minutes by separating the subject"

"Between 5-10 minutes, if a longer training video is to be created, it can be divided into sections"

"Between 20 and 30 minutes"

"8-12 minutes for each subject on average"

"It depends on the content and subject."

CONCLUSION AND DISCUSSION

It is known that there are many platforms that provide online educational content such as video, text, audio, visual. It is also known that these educational contents can lead to more permanent learning by interacting with more than one sense on the learner (Yılmaz & Akkoyunlu, 2006). It is seen in a study conducted on Youtube usage motivations that the users use the Youtube platform mainly for information purposes, followed by the purpose of having fun (İlhan & Aydoğdu, 2019). In this context, the time spent on educational content on the Youtube platform, where educational content can be produced and consumed for free, has been researched. As a result, 93.7% of the participants gave the answer between 0-3 hours for the time they spent on Youtube for educational content. This result is similar to the results of the research conducted by İlhan and Aydoğdu (2019). In another similar study, Youtube Usage Purposes on Generation Y were examined and in this research, Youtube is the most preferred content types of Youtube, and Youtube is used for information purposes (Arklan & Kartal, 2018). Also, Moghavvemi et al. (2018) confirmed that many students rely on Youtube to solve problems in their academic life and to find potential questions.

There are many other popular tools other than Youtube for accessing educational video content. It has been observed that the most preferred platform for the participants to access educational video content other than Youtube is Udemy with a rate of 61.3%. Udemy platform is followed by "Video Sınıf" platform with 6.5%. After a platform where different types of videos can be shared generally like Youtube, the two platforms that participants prefer are platforms that contain only educational content. Udemy is the most preferred platform for educational video content other than Youtube, under the name of Mass Open Online Courses (MOOC) in the literature; It is within the scope of platforms that can be used by a large number of learners with different qualifications, accessed online, paid or free, and obtain certificates through. Among the other answers (22.6%) of the participants, besides Khan Academy, Udacity, EdX etc. platforms; It is known that it provides a lifelong learning opportunity because it enables individuals to develop personal and professional development (Gökmen et al., 2016; Kesim, 2014; Yamamoto & Altun, 2020).

Reasons for watching or stopping educational videos on YouTube are also examined. It was revealed that the participants continued to watch the videos due to the reasons such as the non-boring, fluent, understandable and planned lecturing, the expertise of the instructor in the field, the instructor's tone of voice, accent and diction, the quality of the content and training, ensuring continuity, and interesting topics. In addition, suggestions regarding the content and instructor qualities as well as the technical quality of the video have emerged. Bae and Baxter (2017) similarly stated that a video with educational content should contain quality, complete and comprehensive information, and advertising and commercial videos may have a misleading effect. Another issue that emerged with the opinions of the participants is to group the educational videos regularly and to make preliminary preparations. This result agrees with Akdemir's (2008) view that although planning and design processes in online education require more time and technological competence than in traditional education, they are necessary processes for the improvement of quality. It is also known that the literacy of the instructors in new technological tools and technologies has an effect on the increase of the quality of online education. There is an opinion that in higher education institutions that use Youtube as a distance education environment, online education course quality standards should be determined in order to increase the quality of online education (Akdemir, 2008). From the results, with the opinion formed on the lack and inaccuracy of the information in the educational videos on Youtube; The conclusion that videos on prostate cancer reaching more than 6 million followers were analyzed and that there are potential misinformation and biased content in these videos or their comments (Loeb et al., 2019). The main reasons for the participants to continue watching videos with educational content on YouTube are the opinions of "Non-boring, fluent, understandable and regular lecturing" and "The instructor's tone of voice and diction is sufficient", the scenario prepared for the use of digital storytelling in mathematics education, It coincides with the result that an effective and remarkable video educational material can be produced with a planned digital

story. In addition, the results of the same study in terms of making sense of sound and image, providing auditory and visual balance, which are important in storytelling, agree with participant views (Dreon et al., 2011). The reason for continuing to watch educational videos on YouTube is in line with the results of the study conducted by İlhan and Aydoğdu (2019), as the content quality is preferred more than the image and sound quality.

Problems and criticisms experienced by the participants on the Youtube platform, excessive ad display, continuous Youtube Premium suggestion, lack of supervision in the comments, lack of levelness and bullying, incompatibility of video content and tags, irrelevance of the suggested videos, the ability to produce and publish content without information accuracy and content control, poor image quality It is listed as. In the study conducted by İlhan and Aydoğdu (2019), the main problem in Youtube is the excessive advertising display, as well as the lack of content control as a problem. In addition, it was stated that the image quality in video content is also important. The results of this research overlap with the excessive ad display in the opinions of the participants and Youtube's continuous Premium proposition, the results of the video quality. With the result on the information pollution in Youtube videos and the necessity of content control and inspection, ReFaey et al. (2018), the result of the inspection and filtering of the informative videos on Youtube by subject experts matches. Jones and Cuthrell (2011) also stated that the reliability and quality of educational videos on YouTube should be verified. Among these results, the study showing the same result with the suggestion of "Recommended videos do not work properly" stated by the participants could not be found in the literature. In addition, there are many studies about Youtube's video suggestion system in the literature. As with other content on Youtube, educational video content producers should understand the content suggestion system on Youtube and arrange their content accordingly in order to reach more learners. This is also true for the followers. Followers want to get the content they need. To achieve this, it is important to understand Youtube's content recommendation algorithm. Because it is known that the location of the video in the suggestions section plays an important role in clicking. Deep Learning is the primary viewing source of videos in this recommendation system of Youtube (Zhou et al., 2010). Different criteria that affect the content suggestion system on Youtube are mentioned in many studies in the literature. If some of the criteria for displaying content that emerged from studies on this subject in the literature are listed, it is more effective in terms of the proportionally watch time of the video compared to clicks (Covington et al., 2016), video tags play an important role in searches, suggestions and categorization of the video (Toderici et al., 2010), the genres that the user likes and watches a lot are presented to the user in special suggestions (Davidson et al., 2010). Most of these studies in the literature on the Youtube suggestion system are carried out by Google, which is a top firm of Youtube.

Suggestions for educational videos on YouTube are not boring, fluent and understandable, instructor's mastery of the subject, sound and video quality, continuity in videos, use of visual and animation, pre-preparation and planning before videos, consideration of different learning levels, youtube's educational videos It has been suggested that it should control and categorize, the paid membership system for educational content, the content of educational videos should be prepared in accordance with material design principles. These suggestions that emerged with the opinions of the participants and the results of the research in the literature are similar. When youtube is considered as a multimedia teaching tool, the harmonious design of the visuals and texts in the educational videos inside provides a more effective learning (Johnson & Mayer, 2012; Sung & Mayer, 2012). Considering this result, it can be said that it is important for the participants to consider the design principles in their suggestions. On the other hand, it is known that as the interesting details in an educational presentation increase, the cognitive load in learning increases and learning decreases. This result is in agreement with the opinion that the educational videos on Youtube should be self and concentrated information and that there are videos focused on specific issues (Mayer et al., 2008). It is known that Question Embedded Interactive Video Environment (QVE) encourages learning in learners and However, Volery and Lord (2000) stated that the interface design and interaction level of the tool used as success factors in online education and the attitude of the instructor, technical competence and interaction are important. These studies show similarities with the participants' suggestions for educational videos on Youtube (design, interaction, adherence to design principles in content). This result can be explained by the emphasis stated by Paulsen (2004) that three critical points are important in both online and classroom education: design and organization, comprehensible discourse, and direct instruction.

Regarding the duration of the educational videos on Youtube, the participants stated that the educational videos (40.8%) should be between 5-30 minutes. In addition to the opinion that the videos should be broadcast as 10-20 minutes and more than one video divided into topics, it was observed that they were included in different expressions. Some studies in the literature agree with this result. In a study examining the effects of edits in MOOC videos on student participation; It was stated that the length of the videos less than 6 minutes increases the interaction up to 100%, but the maximum length of 6-9 minutes for the video is also an ideal time. In the same study, it was stated that fast-talking and energetic trainers cause high interaction in educational videos, the appearance of the narrator's face in the video breaks the monotony, and the followers find the video more intimate and special. In this study, it was observed that although the students paused in certain parts of the tutorial videos, they generally did not pause in the lecture videos. This situation and the suggestions that emerged in the research

agree and reveal that large educational videos can be transformed into step-by-step videos in parts (Brame, 2015; Guo et al., 2014). The situation that the use of fluent and daily language in educational videos has a positive effect on students' learning and participation is in line with the item "It should be a non-boring, plain and understandable expression" which has the highest agreement in the suggestions. It is known that the use of visuals and animations in educational content and the use of good examples have a positive effect on learning and participation. The use of visuals and animations in the literature and the results, and the opinions of the participants who propose design principles agree (Brame, 2015).

The research was carried out with the participants of a single channel. A more comprehensive study can be suggested by reaching more educational content producers and followers. In addition, as a result of the research and with the support of the literature, it was seen that the duration and planning of the educational videos were important. It may be suggested to conduct experimental studies comparing the times. In line with the suggestions of the participants, suggestions can be made to provide educational video content producers with important competencies such as providing support or training on technical issues, preparation of materials, presentation and diction training, in addition to training formation.

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