# The Effect of Online Table Course Videos Created with the Micro-Learning Method on Learning According to the Participants' View

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## ABSTRACT

This study was an examination of the micro-learning method, which is a mobile learning approach. To examine the preferences of learners regarding the micro-learning method, a course consisting of educational videos and information on online tables was presented at Anadolu University using the Moodle Platform AKADEMA. The research methodology used was a mixed design. Due to the short attention span of young people in the 21st century, an online course was designed to determine the participants' preference for "bite-sized videos", and the research was examined in terms of the participants' video duration preference, their perspective on current education, and the necessity of microlearning. A published course, named "Online Tables", was prepared according to an ADDIE instructional design model, and videos which were no longer than five minutes each as well as included multimedia principles were prepared for the entire course following micro-learning methods. The research universe consisted of 584 learners, and among them, 73 participants were included in this study based on purposeful selection using criterion based sampling. Data were analyzed through content analysis using the categorical analysis method. The data obtained from participants were interpreted, and it was determined that participants preferred the micro-learning method.

**Keywords:** *E-learning, technology education, multimedia design, micro-learning, video content*

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## INTRODUCTION

Considering the rapid development of technology in the 21st century and the fact that the Y and Z generations are accustomed to technology use, it is possible they are better at multitasking and can focus on more than one task simultaneously. While those who are referred to as the Y generation are born between 1981-1999, the Z generation are considered people born after 2000 (Castellano, Cimino, Fanelli, Lazzerini, Marcelloni, & Torsello, 2014). Interestingly, while the Z generation tends to internalize technology (Bozkurt, 2014), they show little tolerance for delays due to the speed of acquiring information they have become accustomed too due to technology (Oblinger, 2003). As a result, in the 21st century, when the Z generation was born, the attention span of people has seemingly decreased. However, the Z generation prefers multimedia materials for learning due to speed and visibility (Günüç, 2011; Karabulut, 2015; Prensky, 2001). Multimedia materials are considered the environments created by the combination of images, video, sound, and animation as well as are a frequently preferred means of learning in the 21st century (Rogers, 2001).

In addition, when multimedia materials are presented, they can be complex for learners if they also contain information (Demirbilek, 2004). In the literature, this is referred to as cognitive load theory. This theory explains the amount of information learners need to process a specific topic along with the amount of information that is ultimately presented (Paas, Renkl, & Sweller, 2004). At the same time, according to this theory, when multiple learning environments contain too much information, learning becomes more difficult (Sweller & Chandler, 1994).

Cognitive overload in multi-learning environments occurs due to too much information being provided at once (Clark, 2003). The problem situation examined in the current study was related to the prevention of excessive cognitive load in multi-learning environments. Accordingly, the necessity of presenting multimedia material in small portions was considered as well as remembering that generation Z is impatient, and as a result, their learning can be negatively affected with excessive cognitive load. Importantly, the concept of micro-learning is revealed in the literature as specifically presenting information to learners in small portions. Thus, micro-learning is the ability of learners to learn easily by using small portions of information (Meyer et al., 2019). The concept of micro-learning has emerged as a means of making information attractive to learners as well as enabling them to receive information in smaller pieces (Jomah et al., 2016; Kamel, 2018).

According to Kapp et al. (2015), learning through micro-learning is 22% more permanent than traditional learning. Likewise, micro-learning can increase knowledge transfer by more than 17% (Gutierrez, 2018). Micro-learning is important because it manages important parts of information by eliminating those parts which are unnecessary, and as a result, learning can be more permanent (Darby & Lang, 2019; Kamel, 2018, Kapp et al., 2015). For this reason, educational videos, prepared according to the micro-learning method, are useful in providing the transfer of knowledge to the Z generation. Thus, in the 21st century, it is important to examine the preferences of micro-learning due to the decreasing attention span of the Z generation along with the more prevalent spread of learning through technology.

Based on these ideas, educational videos created according to learners' micro-learning method preferences were examined. The current research was aimed at revealing whether multimedia design prepared in accordance with the micro-learning method was preferred by the participants. -According to the purpose of this research, the following research questions were examined:

- Is micro-learning preferred in distance learning tools?
- What do learners think about the short videos prepared with the micro-learning method?

Based on these questions, suggestions were made regarding the preparation of a multi-learning environment prepared in accordance with the micro-learning approach as well as the necessity of the micro-learning method was discussed.

## RESEARCH METHOD

### Research Model

In the current study, the micro-learning method was examined according to participant experiences and was designed following a mixed research model. Importantly, mixed research models benefit from the best aspects of both qualitative and quantitative research (Johnson & Onwuegbuzie, 2004; Mills & Gay, 2016).

The data in the current study were collected following an exploratory design using a semi-structured interview form.

### Population and Sample

A total of 584 students were included in a course created in the AKADEMA environment, and through the purposive sampling method of criterion sampling, 73 participants were selected for this study. Criterion sampling method is the investigation of all situations by considering determined criteria (Şimşek & Yıldırım,

2016). In addition, a situation related to the subject of the research can be selected when determining the criteria (Grix, 2010). In determining the 73 participants, their voluntary participation in the research and their completion of the interview form were taken into consideration. In addition, successful completion of the course and watching all the videos are other criteria. In summary, the opinions of the participants who watched all the videos and successfully completed the course and participated in the research voluntarily were taken into account.

Based on this, the universe of the study consisted of 584 learners who were participant of the AKADEMA environment as well as attended the course. While determining the research sample, the fact that learners were to watch all the course videos was determined as a criterion. As a result, 73 people were included in the current study due to criterion sampling. The participants' demographic information was 39 (53.4%) female, 31 (42.5%) male, and three (4.1%) who did not report their gender. In addition, when the participants age distribution was examined, 2.7% (2) were under the age of 20, 28.8% (21) were between the ages of 20-30, 17.8% (22) between the ages of 31-40, and 38.4% (28) were over 40-years-old. Therefore, all of the participants were considered to be adults.

**Data Collection And Analysis**

A course named "Online Tables" offered in an online learning environment was created using the ADDIE instructional design model. The ADDIE instructional design model consists of five stages which are "Analysis, Design, Development, Implemelent and Evaluation" (Şimşek, 2013). ADDIE (Reiser & Dempsey, 2007; Emirtekin et al., 2020), which is the most preferred model for instructional design found in the literature, was used in this study to design instruction within the Moodle environment.

According to Aldoobie (2015), the ADDIE design process is suitable for both online and face-to-face learning environments. For this reason, the ADDIE design model was considered effective for creating the content of this research, as it is a frequently preferred research design model and can be applied in online environments in accordance with the research content.

**Preparation of Videos**

The video content for the course "Online Tables" was prepared according to requisite multimedia principles. For example, according to Mayer (2001) the principles which need to be considered when designing multimedia include the following:

- Multimedia Principle: Educational contents should be presented with visuals instead of text.
- Consistency Principle: Content should be as simple and understandable as possible.
- Principle of Style: Visual and verbal presentation of content is more effective than visual and written presentation.
- Extremism Principle: Oral presentation of visual elements is more effective than written presentation. Written and visual presentation together causes overload because they address the same channel.
- Principle of Signal: For effective learning, it should include visual, auditory, and short explanations.
- Principle of Segmentation: Short chapters divided into parts instead of a single chapter provide more efficient learning.
- Principle of Proximity: It should be divided into two elements: spatial and temporal. Spatial proximity explains that closeness of related images and texts provides more effective education. The principle of temporal proximity states that simultaneous presentation of images and texts provides more effective learning, rather than using sequential presentation.

Accordingly, the principles of Mayer (2001) were considered in the videos prepared for the current research. In addition, three distance education experts were consulted regarding the compatibility of the video content and the micro-learning method. As a result, according to experts' opinions, the finalized videos were set to be five minutes at the longest. Furthermore, when the literature was examined, studies showed that short-term videos increase the viewing rate of learners (Breslow et al., 2013; Hsin & Chas, 2013).

The stages of the video preparation process are provided in the following image:

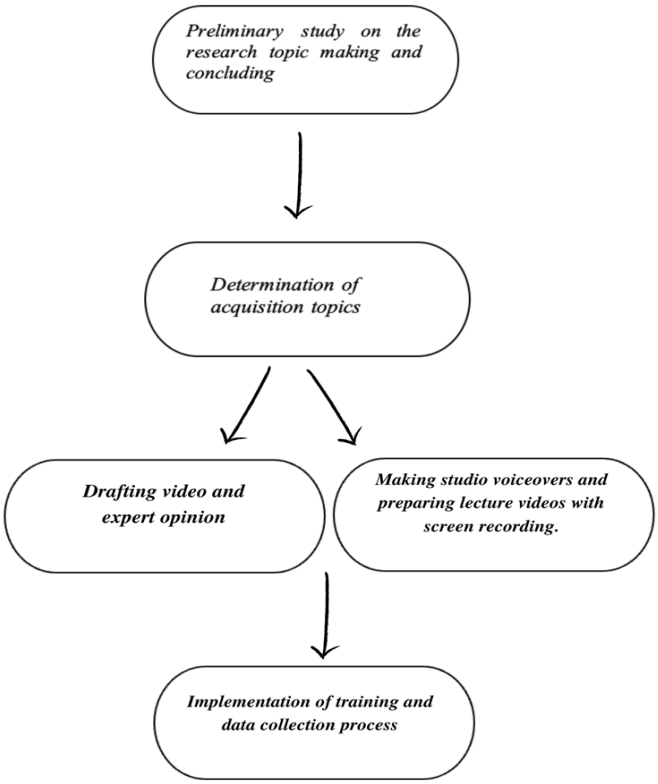


***Figure 1***: *Preparation of the Videos*

As shown in Figure 1, the instructional design began by considering the results obtained in a preliminary study regarding the micro-learning preferences of learners as well as their comments. In addition, voiceovers for the videos were created in a studio environment. However, these voiceovers did not appear in the teaching videos. The appearance of the videos in general was as follows:

- An E-tables training video captured by computer screen recording.
- The voiceover was completed in a studio environment using the show-tell-make technique.
- The teacher's image was not seen on the screen.
- The videos were prepared to last a maximum of five minutes.

Also, opinions gathered from experts along with recommended multimedia design principles were decisive in determining the final version of the video used in the current study.

**Preparation of the Interview Form**

In the research learning environment, AKADEMA, an interview form of research questions was shared with the participants. This was the start of the data collection process. When preparing the interview form, firstly researcher had complemented a preliminary study. According to the preliminary study mentioned, learners' preferences for the micro-learning method in multiple environments within social media was examined. It was revealed in the previous study that participants preferred micro-learning. Therefore, the participants' opinions from the preliminary study were considered when preparing the interview form for the current study. Thus, according to the preliminary study, questions were sized by taking advantage of the participants' desire to access information rapidly, increased focus from the micro-learning method as well as micro-learning preventing uniformity.

The Davis Technique was used to test content validity of the questions from the interview form. As

a result, according to the Davis Technique, the opinions of at least three and at most 20 experts are necessary (Davis, 1992). It was preferred to use the Davis Technique because the opinions of only three experts were consulted in the current study. When using the Davis Technique, the structured survey questions sent to the experts are graded on a 4-point Likert scale. For example, the "A item = OK, while B = should be lightly reviewed, C = should be heavily reviewed, and D = is not appropriate". As a result, the information gathered from the experts was arranged and the interview form in the current study was finalized.

**Course Content and Outcomes**

The course content in this study consisted of 19 videos. The first three weeks were divided into five videos, while the fourth week was divided into four videos. The weekly topics and duration of the videos are provided in the following:

Week 1 - Introduction:

- Training Overview: one minute, 14 seconds
- Tabs, Page View, and Sharing Settings: one minute, 40 seconds
- View of Data: one minute, 25 seconds
- Interval Keep, Freeze: one minute, 44 seconds
- Gridlines: one minute, 54 seconds

Week 2 - Add Tab and Its Functions:

- Adding Rows, Columns, and Graphs: two minutes, 11 seconds
- Adding Images and Drawings: one minute, seven seconds
- Adding Comments and Notes: one minute, 43 seconds
- Formatting Cells: 48 seconds
- Conditional Formatting-Alternate Colors: two minutes, five seconds

Week 3 - Filtering and Introduction to Functions:

- Sort-Filter: two minutes, 16 seconds
- Find Replace: two minutes, 42 seconds
- Four Operation Formulas: two minutes, five seconds
- Merge and Swap: three minutes, 28 seconds
- Left, Right, Partial, and Date Formulas: two minutes, 19 seconds

Week 4 - Functions:

- If, IfError, IfCount: three minutes, 52 seconds
- Vertical Formula: two minutes, 34 seconds
- Importrange Formula: one minute, 36 seconds
- Filter Formula: one minute, 36 seconds

**Data Analysis**

The quantitative and qualitative data in this study were collected through a semi-structured interview form. Frequency analysis was used for analysis of the quantitative data, whereas content analysis was used for analysis of the qualitative data. According to Yıldırım and Şimşek (2016), content analysis is the expression of data through concepts as well as explaining them in a logical manner. To summarize, the data analysis process of the current study was in the form of data coding, theme editing, and determining interpretation.

In this research, Invivo coding was preferred for analysis of the qualitative data. Through the use of Invivo encoders, data becomes more conceptual (Keller, 1995). Importantly, when utilizing the Invivo coding method, the researchers code without changing the participants' expressions (Yumbul et al., 2017). In addition, analysis of a data set by two or more different researchers increases reliability and is defined as inter-coder agreement (Miles & Huberman, 1994). As a result, the data set in the current study was analyzed and coded by two different researchers and then calculated according to their consensus or disagreement. This calculation included the "Number of Codes with Consensus/(Number of Codes with Consensus + Number of Codes with Disagreement) x 100", and the value must be at least .80 (Miles & Huberman, 1994). The codes utilized in this study along with the opinions gathered from experts are provided in Table 1.

**Table 1**. *Expert Opinions on the Codes Used in The Analysis of the Data*

| Theme for the specified code | Codes determined by the researcher | Consensus status of expert opinion |
|---|---|---|
| Expectation | Duration | Agreed |
| Expectation | Sample | Agreed |
| Expectation | Continuation status | Agreed |
| Expectation | Instructor visibility | Agreed |
| Course content | Focusing | Agreed |
| Course content | Sufficiency | Agreed |
| Educational environment | Suitability | Agreed |
| Educational environment | Access | Agreed |
| Course content | Video content | Agreed |
| Course content | Dubbing | Agreed |
| Course content | Certificate of completion | Agreed |

As is shown in Table 1, consensus could not be reached with the experts' opinions for two codes. As a result, the inter-coder reliability was calculated as (81.82). Therefore, according to Miles and Huberman (1994), the codes were found to be reliable.

## FINDINGS

The findings of the data collected through the semi-structured form from the learners of the "Online Tables" course applied in the current research are included in the results section.

To collect data regarding the participants' preferences of the micro-learning method, questions were asked about the content, vocalization, and length of the course content videos. As a result, when the opinions of participants taking part in the online training course regarding the ideal video length were examined, the opinion of "must be less than three minutes" was preferred by 8.2% (6) of participants, while the opinion that it should be more than 15 minutes was preferred by only 6.8% (5) of participants. In addition, regarding the remaining opinions, 47.9% (35) of participants stated, "educational videos in the online environment should be between three to five minutes". While the second highest percentage of responses was 37% (27) of participants whose view was "video duration should be between five to 15 minutes". As previously mentioned, micro-learning is considered to be the acquisition of small pieces of information obtained through easy access to mobile devices based on the shortened attention span of modern learners (Traxler, 2005). Furthermore, according to Grovo (2015), micro-learning is a learning process which occurs in short and well-planned segments, and its primary purpose is to gain practice. As a result, it was determined in the current study, that 3-5 minute videos were preferred for micro-learning.

In addition, regarding the findings of learners behaviors related to when they could not immediately access information they wanted was examined, it was determined that 26.1% (19) of participants watched the video until the end, while 73.9% (54) of participants stated, "I use the progress bar", "I watch by speeding up" or " I will stop watching".

When the audio of the video contents was examined, 53.4% (39) of participants preferred to listen to the lesson within an online learning environment that included the instructor's voice. While 30.1% (22) of participants preferred to listen to the lesson with expert voice actors within the online learning environment, and 16.4% (12) wanted to choose the voice-over presented to them. Importantly, micro-learning enables

the customization and extension of different media such as video, image, audio, and text (Purushotma, 2005). When the participants' opinions regarding these findings were examined, it was determined that the learners did not prefer the expert voiceover because they found it artificial and monotonous. For example, Participant 6 stated that "...I found the vocalization a bit mechanical", while Participant 8 stated that "...the sound is mechanical and sometimes distracts me". Other studies in the literature including, Cihangir (2021), Pak, Özden and Çoban (2018) also support these findings. As a result, it was determined that it was more beneficial to use the teacher's voice for video voiceovers.

When the participants' expectations regarding the video content were examined, 83.6% (61) of participants preferred video content to be short and solution-oriented, while 16.4% (12) preferred long and multi-example videos. The spread of connectivism learning theory has led to the rapid increase in importance of distance education as well as the need for rapid production of information and rapid access to information, and as a result, the inclusion of mobile technologies in education has become inevitable (Sharples, Taylor, & Vavoula, 2010). Thus, according to the data, it was determined that participants preferred short videos more than longer videos. For example, Participant 1 expressed the opinion, "the subject should be conveyed without further ado". On the other hand, Participant 34 stated, "All the topics should not be in one video. The video duration should be short, so that it is not distracting. Therefore, the whole topic can be shared in 2-3 videos". Furthermore, he stated that the video duration should not be longer than 2-3 minutes as well as the video contents should be separate in a way that is not distracting.

In addition, Participant 62 stated, "Repetition should not be avoided. The trainee has a chance to get it back. The video should be short…". As a result, it was determined from these findings that learners preferred micro-learning. Also, 67.1% (49) of participants thought that short-term videos were a driving factor of attendance in the online environment. On the other hand, 6.8% (5) found long videos motivated their attendance. Whereas 26% (19) stated that the duration of the video did not affect their motivation for continuing the course. Accordingly, the participants found short video duration motivating for attending the lesson. When the literature was examined, some studies, including Çoban (2020) and Jumabaeva et al. (2020), also examined the motivation-enhancing effects of short videos. Furthermore, in environments where massive online open courses are offered, video-based learning materials play an important role and videos longer than 12 minutes tend to reduce the motivation of learners (Guo, Kim, & Rubin, 2014). Thus, according to the research, the effect of video duration on course attendance is supported by the literature.

Regarding the participants' preferences for the visibility of the teacher in video content, 71.2% (52) of participants mostly preferred the teacher to be visible within the training videos and did not see the visibility of the teacher as a distracting factor. In addition, 28.8% (21) of participants did not prefer the trainer to be visible. Considering the decreasing attention span of learners in the 21st century, single bite educational videos enable learners to absorb information more easily by taking on information in small pieces (Meyer et al., 2019). As a result, it is necessary to minimize distractions in micro-learning. On the other hand, 21 (28.8%) participants considered the visibility of the teacher as a distracting factor. When the literature was examined, teacher interaction is found to be important for learners (Batmaz, Batmaz, & Kılıç, 2021). In addition, video content with an image of the teacher is seen to cause more interaction than professional studio shots (Guo et al., 2014). Thus, it can be stated that teacher visibility within a video is preferred in terms of micro-learning.

Next, the opinions of participants regarding the video content of the "Online Tables" course were examined. As a result, 72.6% (53) of participants found the video course content to be sufficient, while 27.4% (20) did not find the video content sufficient. For example, Participant 2, who found the video content sufficient, used the phrase, "basic information is conveyed without going into detail". Thus, he welcomed the delivery of videos suitable for micro-learning in the targeted time without going into excessive detail. In addition, Participant 4 expressed his opinion that, "video lengths are directly related to the content of the training. Especially on technical issues, short, solution-oriented videos provide a more suitable experience for the learner to watch the video and try what they see, compared to long videos". Thus, he specified the duration and content of the video to be a valid criterion in terms of proficiency. Next, Participant 35 provided his opinion regarding competence stating that, "Although the time seemed short, the content was full of information and the narration was very explanatory. Telling 2-3 topics in each video both provided an advantage to the short time and prevented too much information". These comments highlighted that the

absence of unnecessary information was viewed in terms of competence. On the other hand, Participant 38, believed the videos, “could have been more detailed”. While expressing his opinion on the inadequacy of the video content, Participant 66 believed, "it is not understood". As a result, the reasons for participants to find the video content sufficient were that the videos were presented concisely and clearly, whereas participants who found the video content insufficient stated that they expected there to be more detail within the videos. Considering the frequency difference between their views, it was determined that the participants most often found the “Online Tables” course to be sufficient.

When the views of participants regarding the voiceover of the video contents were examined, 54.4% (39) of participants said their voice preference was to have the teacher's own voice. On the other hand, 91.8% (67) of participants stated the vocalization increased their focus on the videos with the expert voiceovers were used. Whereas 8.2% (6) of participants found the expert vocalization distracting. Thus, according to the research findings, the participants stated mostly focusing better when there were expert voiceovers at 91.8% (67), yet 54.4% (39) of participants preferred the teacher to vocalize in their own voice. The reason for the differing results is that although expert vocalization did increase focus, it also reduced interaction and was not preferred based on the participants views such as being unnatural and mechanical. Importantly, these findings revealed that participants expected to interact with the instructor and it to be natural rather than being focused, which was a quite remarkable finding. Often video and book vocalizations are used in open education practices (Güler, 2018), and although there is no research found in the literature regarding the necessity of video voiceovers, there are studies in which voiceovers are preferred by experts in MOOC videos (Kayabaş & Mutlu, 2013; Emirtekin et al, 2020). Based on this, the expert voiceovers are preferred by participants in terms of focus. Whereas participants preferred to hear the trainer’s voice because they did not find the voice acting by experts to be natural.

Next, the views of participants regarding the duration of video content in the Online Paintings Course were examined. As a result, 68.5% (50) of participants thought the video was as long as it should be. While 28.8% (21) of participants thought the video duration was inappropriate. An additional 2.7% (2) did not express an opinion. Accordingly, most participants found the video content for the “Online Tables” course as being of an appropriate length. The opinions of participants who found the video content duration appropriate were examined in further detail. Accordingly, Participant 62 stated, “I liked the content of the videos very much. At the end of each video, I realized that I had learned something new... It didn't feel boring when I came across the sections I knew before. In a short time, I felt equipped with new information”. He also expressed that one-bite videos could be applied in other areas of education. Similarly, Participant 68 commented on the competence of the course stating, “I have attended many certificate programs... This course was different from the others... It was in a cloud environment... I thought the instructor would check on me. I left notes where I couldn't understand, and thanks to my teacher, he commented in a short time”. According to the participants statements, being short and providing interaction highlighted the sufficiency of one-bite educational videos. Likewise, Participant 65 commented on the focus created by the expert voiceovers by stating, "His speech is smooth, and he makes important points more permanent through his intonation".

When the opinions of participants who found the content insufficient were examined, they believed that more detail was expected as well as that it was incomprehensible that there was lack of detail. In addition, positive or negative opinions were collected from participants regarding the learning videos in the “Online Tables” course. Accordingly, it was determined that participants were most often positively affected by the video duration as well as preferred short concise information. The opinion was stated that the voice acting by experts made the voiceovers sound mechanized and lacking in emotion. Furthermore, the application and interaction in the cloud environment was among the positive opinions. Other studies also show that the presence of interactive videos has positive effects on increasing attention (Zhang et al., 2006, Vural, 2013; Delen et al., 2014; Bakla, 2017; Dong & Goh, 2015; Wachtler et al., 2016). The applications provided in these videos were requested by the researcher to be shared via e-mail. Thus, interaction between the teacher and learner was ensured.

When the data obtained from participants regarding the status of not receiving a course completion certificate for those who completed the course were analyzed, out of 73 participants, 34.2% (25) who did not receive a certificate of participation stated not knowing if they would receive the certificate. On the other

hand, in the announcement section at the end of the semester, the researcher announced course participants had to complete the course to receive a certificate. As a result, it was found that not continuing until the end of training or not regularly following the system could cause participants to not have knowledge about obtaining course completion documents. However, 27.4% (20) of participants could not spare time for the lesson. When the literature is examined, participants often show a desire to continue online courses (İlhan, Demir, & Arslan, 2013; Barış, 2015; Fidan, 2016; Ören & Karapınar, 2016; Durmuş, Baş & Güneş, 2017; Dündar et al., 2017; Akgün, 2018). This finding showed that although the participants wanted to attend the lesson, 27.4% (20) stated they could not find spare time for the lesson.

The participants views regarding the course environment in which they participated, AKADEMA, were also examined. As a result, it was determined that the participants mostly found the environment suitable regarding the course content. It has previously been determined in Seppala and Alamaki (2003), that mobile learning provides education to learners outside the classroom through the use of mobile devices and/or mobile phones. Similarly, mobile learning is defined as learning at the desired place and time (Korucu & Alkan, 2011) as well as just-in-time learning. Importantly, the environment in which micro-learning, which is one of the mobile learning methods, is presented is crucial in terms of access.

A majority, 94.5% (69) of participants, believed the distance education environment they attended was suitable for videos. On the other hand, 4.1% (3) of participants did not find the environment suitable for video content. Also, the remaining 1.4% (1), participant abstained from responding and instead stated that their opinion could change according to course content. Considering the features of mobile learning such as easy access to videos and accessing media content from anywhere, the environment where the videos were located was suitable according to video content.

Next, when the findings regarding participants' access to the educational environment were examined, 87.7% (64) stated easily accessing the distance education environment. While 12.3% (9) of participants stated they could not easily access the educational environment. This demonstrated the ease of access to micro-learning and suitability of the video content as well as that in the opinion of participants, the environment was in accordance with the micro-learning method.

Supporting this finding, a majority of participants, 94.5% (69), had easy access to the videos after entering the environment. Whereas 5.5% (4) of participants stated they could not easily access the videos. If there were any distracting factors within the educational environment, open-ended questions were asked to participants and their opinions were gathered. As a result, regarding any distracting factors in the educational environment, Participant 70 expressed his opinion, "There is a lot of unnecessary stuff on the page". On the other hand, there were opinions such as the "comments made at the bottom" and "notifications from other pages" tended to be distracting.

Considering the participants' statements, reasons outside the online environment were generally presented as distracting factors related to the environment. Among the distracting factors within the online environment, the participants mentioned, the video sound, notifications from other pages, and the discussion environment under the video. It is also noteworthy that the discussion environment was specified. For example, there are discussion sections offered to increase interaction within MOOC courses (Siemens, 2005).

The distracting factors in the lecture videos for participants were also examined through open-ended questions. As a result, the participants stated the focus problems based on vocalization as the most distracting factor. Despite these statements, which made up 8.2% (6) of participants responses, 91.8% (67) of participants stated this was a factor which increased focus. Despite this finding, 53.4% (39) of participants preferred the instructor's own voice, which was among the most striking findings of the current study. According to a study by Mutlu and Aydın (2018), video voiceovers are among the most effective factors for aiding in learners' focus. However, there was not insufficient research in the literature regarding vocalization as a factor which increased focus. Whereas according to Kuzu (2015), using the teacher's own voice in multimedia design provides more effective learning than using an automated voice. Accordingly, it was determined that the findings related to vocalization in the current research will ultimately contribute to the research literature.

The views of participants' regarding the question, "Should there be video content in the online environment?", were examined. Accordingly, 98.6% (72) of participants preferred to have video content within their online courses. Only 1.4% (1) of participants did not prefer to have their course videos online. There have been many studies which have shown videos to be an effective learning tool (Kay, 2012; Rackaway, 2012; Lloyd & Robertson, 2012; Allen Moore & Russell Smith, 2012; Uğur & Okur, 2016). As a result, the video content preferences of participants in the current study support the literature. Thus, it can be stated that this finding demonstrated the use of videos in online training is beneficial.

## DISCUSSION AND CONCLUSION

In the current study, the micro-learning method was applied and tested with 73 adult learners. As part of the application process, videos were prepared which were considered suitable for micro-learning and distance education. In addition, course lessons named "Online Tables" were presented to learners via the AKADEMA platform, which was the distance education environment utilized in this study at Anadolu University in Türkiye.

According to findings of the current study, it was determined that online tables training can be effectively presented to learners through the micro-learning method. In addition, it was found that learners who participated in this study generally preferred micro-learning. Considering that learning in the 21st century has increasingly become more rapid and easier, due to the widespread development of the internet as well as the desire and impatience of learners to access information more quickly, which supports the current study findings.

Importantly, as Bates (2014) points out, as distance learning becomes more widespread, there are always more and more opportunities to access information as well as the techniques and methods applied in distance education continue to expand daily. As a result, the micro-learning that was applied in this study has become an approach which needs greater research attention to better address the needs of future learners.

Most often in distance education, learners tend to want to reach the course information in the shortest and clearest way possible as well as in the quickest amount of time. Furthermore, with the continued development of the internet, it has become harder and harder to reach the desired information. For this reason, in distance education, information presented in smaller modules, with the logic of a part to whole approach, has become more preferable to learners.

In the current study, it was determined that when learners could not immediately reach the information they wanted in the course, they developed a negative perspective towards instruction and learning. Similarly, according to Demirzeren (1990), it is important how long students watch videos during a lesson. For example, new learners should be shown videos for a quarter of the class time at most. As a result, in case of longer video watching times, learners can seem to be watching television instead of making sense of instruction. These situations can also lead to a situation where learners begin to focus only on the visual element of instruction and ignore the auditory elements (McGovern & MacKnight, 1983). Furthermore, in Chandler (1991), the duration of videos watched within the classroom environment was also found to be important. In the 21st century, the importance of video duration continues to increase, which appears to be due to the fact that distance education has begun to invade every aspect of learners lives. As a result, past studies regarding this topic seem to support the results of the current study.

According to Prensky (2001), 21st century learners want to access information instantaneously, whenever and wherever they are, which can occur because that are constantly connected to the online network. As a result, the ubiquitous nature of the online connected life may ultimately cause problems for learners. According to the current study, learners most often preferred single bite information, and as a result, a majority of the learners tended to think the course video duration was sufficient. Therefore, it was concluded that participants preferred to take the online painting course through micro-learning. In addition, the views of the learners regarding the video length within the online learning environment supported this result. For example, learners most often preferred short results-oriented videos. Thus, micro-learning can be considered the preferred approach for not only the online training which took place is this study but also

in other future online types of training. The fact the learners stated they would prefer similar content in their subsequent online courses also supported these findings. In the course modules discussion section, the positive opinions of the learners were also noted, and accordingly, it was determined that learners preferred the micro-learning method.

The participants opinions regarding expert voiceovers within the course videos was that the expert voiceovers seemed automated and artificial. At the end of this study, the participants suggested the teacher's own voice in the videos was more functional. In addition, the most negative opinion of learners about the course content was the vocalization. For example, learners preferred more use of daily language within the online environment. In other research, it was determined that using the teacher's own voice could be a distracting factor. Thus, their aim was not to distract learners when the teacher was stuck on a topic and/or could not explain clearly. However, in the current study, it was determined that learners did not prefer expert vocalization.

In micro-learning, information should be provided in a short amount of time, while distracting factors be minimized. Interestingly, learners preferred that the teacher be visible in the videos. Accordingly, it was concluded that learners preferred interaction with the teacher. The fact that learners wanted to see the teacher as well as hear the teacher's own voice supported these findings.

According to this study, it was concluded that learners found long videos boring, gave up watching long videos in distance education, and/or exhibited behaviors such as speeding up or skipping the video if they considered it too long. Although micro-learning, which is one of the mobile learning approaches, does not provide definitive results, the video durations may take minutes or even seconds (Buchem & Hamellman, 2010). As a result, the conclusion was reached that, "micro-learning is necessary to minimize problems".

Importantly, learners appeared to want few distractions as well as be able to manage distractions for themselves. Accordingly, it has been concluded that when micro-learning is applied correctly, it is beneficial in terms of increasing attendance in distance education and also makes lessons more interesting.

Throughout the 21st century, it has been concluded that the previous format of distance education should be replaced with a new and updated approach. The important aspect of distance education is that it offers designs in which learners can fulfill their distance learning tasks (Baruque & Melo, 2004). As a result, long videos, too many examples, and too much text can distract learners, but they may also cause learners to drop the course or have poor attendance.

- In the 21st Century, where our dependence on online environments increases, it is important for educators to develop content in line with the expectations of the learners. For this reason, it is recommended to use short-term, result-oriented video content in future trainings.
- In addition to the video content being short and result-oriented, it is recommended to create interaction and increase the motivation of the learners.
- It is recommended to determine homework, content and duration according to the needs of the learners.
- It is recommended to conduct research from different perspectives to ensure continuity in video-supported Online Courses.
- It is recommended to determine how interaction should be provided and interaction channels in environments where the bite-sized learning method is applied.
- AKADEMA, is a distance learning environment where the course contents are uploaded within the research, uses the Moodle infrastructure, and is a very common distance learning platform. As a result, the learning environment is user-friendly and easily accessible.
- The Moodle environment used in this research utilizes the Canvas learning management system. This system was established in 2008 and has a quite strong mobile infrastructure. It is preferred by many institutions for use in distance education (Akkuş & Kapıdere, 2015). Due to the fact that this study was based on mobile learning foundations, it can be concluded that the environment was suitable for this study.
- In the current study, learners stated they had easy access to the training, there were no distractions in the learning environment, and they had easy access to the videos after entering the training

course. The findings obtained from the study data support the conclusion that the learning environment was suitable for education.

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