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Looking for Digital Media: Motivation, Learning and Message Design

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Abstract

This study aims to investigate design principles that keep university students on digital platforms through the learning process. The participants of the study are university students who use actively digital platforms in their learning process. The qualitative research is used in the design of the study. In this scope, 27 university students were interviewed to learn about their digital learning experiences. The results of the study showed that design elements that motivate university students use digital media in their learning process are categorized under five themes. These are visual design, audio-visual design, content design, interaction, and narrator characteristics. The results of the study can help to understand the university students' learning behaviors on digital media. Furthermore, they can be used in the development and enrichment of educational content in digital media.

Keywords: Digital Learning, Instructional Design, Design Elements

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Introduction

Digital media can be defined as any media that is presented through interconnected computer networks. Any type of content such as audio, text, graphics, video that is presented electronically is called as digital media (Smith, 2013). Campbell (2014) defines digital media as the merge of content with the technology. Smith (2013) emphasizes that digital media is a term that takes the lead in interactivity and group forming by the use of computers, internet, and special software as media in communication. In that way, digital media can also be called a communication tool that gives an opportunity for people to interact with each other, come together and produce together.

Studies show that digital media became a popular area for learning (Fidan & Debbag, 2018; Saini & Abraham, 2019). People frequently use social media tools such as Youtube and Facebook for educational purposes (Cuesta, Eklund, Rydin, & Witt, 2016). In addition to social media, there are specialized platforms that produce educational contents such as open coursewares, for-profit and non-profit organizations. These platforms are also used by students for studying and practice, and by teachers to integrate activities into the lecture (Atiaja & Proenza, 2016).

Buckingham (2007) indicates that digital media provides an autonomous and self-directed area for individuals for their learning activities. He describes digital media as a platform that enables people to learn through "discovery, experimentation and play" (Buckingham, 2007, p.17). Furthermore, digital media enables communication and collaboration between individuals with common interests by providing an environment in which people can interact with each other (Taylor & Gibson, 2017). In addition, digital media enables the creation of flexible learning environment in which there are no time and place limits. (Goldie, 2016). On the other hand, digital media might have an effect on increasing students' motivation for learning and related subject (Greenhow & Askari, 2017).

The extensive use of digital learning platforms, the transfer of learning and teaching processes to digital platforms and broad usage of digital media in learning processes motivate us to make this research. There are too many for-profit and non-profit organizations that provide teaching and learning activities on digital platforms. On the other hand, there are not clear indicators about design issues that makes students use these platforms for learning. Therefore, we studied with the university students who use these platforms in their learning processes and tried to understand the design issues that make them use these platforms. The results of the study can help to understand design issues that motivates students in these platforms. Furthermore, they can be used in the development and enrichment of educational content in digital media. The research question of the study is:

What are the design issues that motivate university students to learn from digital media?

Digital Media and Motivation

Digital media gives learners an opportunity to create their own way in the learning process according to their own choices. According to Ryan and Deci (2000), the attributes that enhance students' feeling of autonomy, competence and relatedness might have an effect on students' motivation for learning. Learning through digital media affects students' perception of autonomy with its flexible and student-driven structure (Buckingham, 2007; Goldie, 2016; Greenhow & Askari, 2017). In addition, since digital media provides an environment in which users can communicate and produce interactively (Chassiakos, et al., 2016; Kim, Wang, & Oh, 2016; Taylor & Gibson, 2017), it also supports students' feelings of relatedness (Ryan & Deci, 2000; Ryan, et al., 1984). Furthermore, convenience of digital media makes people feel competent in this area, which also increases users' motivation.

Previous studies also show that the use of digital media in the learning process has an effect on increasing students' motivation (Flewitt, Messer, and Kucirkova, 2015). Studies indicated that engaging and fun structure of digital media motivates students for learning activities presented through digital media (Lee,

2015). The findings of Lin, Chen, and Liu (2017) also indicate that learning with digital media has positive effects on both learning motivation and learning outcomes. Kelsen (2009) also showed that students found the use of YouTube in class interesting, relevant, beneficial and motivating. This means that motivation that comes with the use of digital media in learning processes not only motivates students in the learning process but also enhances what learners have achieved through this process. In summary, some attributes of digital media provide an increase in motivation in the learning process. This argument is supported by various studies.

Instructional Message Design and Motivation

Instructional message design can be defined as "the manipulation of a pattern of signs and symbols that may provide the condition for learning" (Fleming & Levie, 1978). Message design aims to evoke people's perception in order to provide them with an easier learning experience. Fleming (1993) states that the purpose of message design is to motivate learners by considering some principles. Keller and Burkman (1993) also propose to use some design principles to stimulate and sustain motivation in students in digital media.

The other purpose of the message design is to make the content easy for learners to comprehend. To accomplish this, message design focuses on learners' cognitive structures and memory. Five main theories namely Cognitive load theory (Paas, Renkl, & Sweller, 2003), Pavio's dual coding theory (Paivio,1991), Baddeley's episodic buffer theory (Baddeley, 2000), Information processing theory (Atkinson, & Shiffrin, 1968) and Mayer's multimedia learning theory (Mayer, 2005) provide framework for instructional design. Analysis of these theories indicates that the aim of message design is to help users to select, organize and integrate the information easily in a meaningful way (Lohr, 2008). The principles derived from these theories are used to support learning and enhance motivation in multimedia instruction.

This study intends to analyze the design principles that attract students and keep them on digital media in the learning process. Participating students are active users in educational platforms on digital media. They have considerable experience on educational platforms provided via digital media. Therefore, this study intends to learn about these experiences to reveal the design principles that keep students on digital media platforms through the learning process in line with university students' experiences. In this scope, students' opinions about the factors that motivate them to learn from digital media, their experiences and descriptions about the digital media as a learning platform were asked and students' responses were analyzed.

Method

Design of the Study

Qualitative research design was used in this study. Qualitative research helps researcher to understand the participants' interpretation of a concept. The aim of qualitative research is to reveal the participants' meanings about a single concept or phenomenon. In this study, our aim was to describe design issues that make university students use the digital platforms in the learning process. Therefore, qualitative design is used for this study.

Participants and Sampling

One of the types of purposeful sampling, criterion sampling was used for this study (Yildirim and Simsek, 2013) in order to select knowledgeable participants. The criteria used in the participant selection was; the use of digital learning environments in their learning process both at high school and university life, the use of these platforms at least once a week regularly, subscription on one of the for-profit or non-profit platform.

The participants consist of 18 female and 9 male university students. Most of them are freshmen (*n=11*), four sophomores, three from Prep. school, three juniors, three seniors, and three Master of Science students. Their ages range from 17 and 26 and the average age is 20. The participants use mostly smartphones (*n=21*) to access the content provided in the digital platforms. The other devices that are used to access the digital platforms are desktop computers (*n=13*) and Tablet PC (*n=3*).
The participants use digital learning environments at least once a week. Furthermore, in the exam period, the frequency to use digital media platforms increases. In other words, students use digital media platforms for learning more frequently in exam period. In addition to learning, they use digital media platforms to satisfy their curiosity (*n=14*), to relax (*n=11*), to spend their free time (*n=2*). To summarize, the participants use digital platforms regularly for their personal development, entertainment, relaxation, and learning.

Data Collection and Analysis
Data collection instrument of the study was an interview form that consists of open-ended questions and was developed by the researchers. Researchers interviewed with 27 university students and each of the interviews took twenty minutes on average.
In this study, qualitative data were analyzed by using MAXQDA 18. The codes and themes are derived by using content analysis. The frequencies related to each code were shown in a frequency distribution table.

The Trustworthiness of the Study
In this study, the methods suggested by Lincoln and Guba (1985) were used to ensure the trustworthiness of the study. To ensure dependability, inter-coder agreement (Creswell, 2009) process was applied. Some parts of the interviews were coded by another faculty member, the codes were compared and the degree of agreement was calculated according to the formula suggested by Miles & Huberman (1994). Agreement rate between two coders was found as 83%, which is sufficient according to Miles & Huberman (1994). After that, the parts coded differently were discussed by the coders to provide consistency. To ensure the confirmability peer debriefing was conducted with a Ph.D. student to get feedback about the interview form.

Results

The phenomenon investigated in this study is the design elements that make students use digital media in their learning process. The phenomena were investigated through open-ended questions that make participants talk about their experiences about the with digital media. After that, the following results derived.

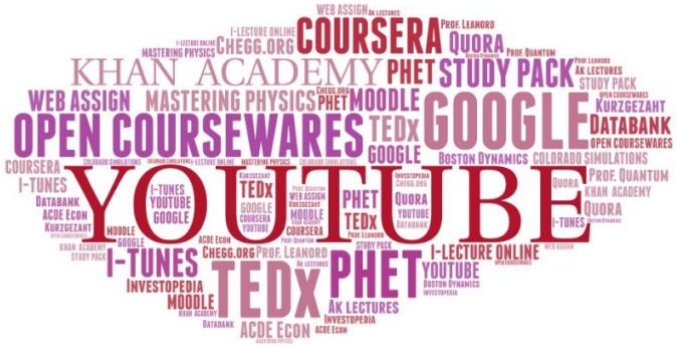

Figure 1. *Wordle image:* The platforms used by participants to support their learning

Figure 1 shows the platforms that are used by the participants in their learning process. The most frequently stated platform by the participants is Youtube (*n=19*). Other frequently indicated platforms are Google (*n=4*), open coursewares of various universities (*n=4*), and Khan Academy (*n=4*). These are followed by TEDx (*n=2*), Coursera (*n=2*), Phet (*n=2*), Studypack (*n=1*), I-tunes V(*n=1*), Moodle

(*n=1*), Mastering Physics (*n=1*), Web Assign (*n=1*), I-lecture Online (*n=1*), Colorado Simulations (*n=1*), Chegg.org (*n=1*), Boston Dynamics (*n=1*), Prof. Leanord (*n=1*), Ak Lectures (*n=1*), Prof. Quantum (*n=1*), and Kurzgezaht (*n=1*).

Figure 2. *Wordle image:* The Contents that Participants Follow for Relaxation and Fun

Figure 2 shows the contents that participant students follow for relaxation and fun. As seen in the figure, university students watch popular videos (*n=20*) the most and it is followed by social media (*n=12*) and documentary (*n=10*). University students use Instagram (*n=4*), eksi sozluk (*n=3*), twitter (*n=2*), and facebook (*n=2*) as social networking sites. Furthermore, how to videos (*n=5*), TV series (*n=4*), talk shows (*n=3*), movies (*n=3*), the videos about the computer games (*n=3*), music streaming platforms (*n=1*) and Vlog videos (*n=1*) are other contents that university students follow on digital media.
When university students' experiences are analyzed, five main themes emerge from university students' experiences about the design elements that motivate them on digital media.

Table 1. *Design Elements on Digital Media*

Theme	Code	*f*
Visual Design	Use of Relevant Visuals	29
	Use of Graphic and Schema	8
	Use of Relevant Colors	5
	Basic and Simple Design	5
	Legibility	4
Audio-Visual Design	Use of Animations	17
	Use of Relevant Music	9
	Quality of image and Sound	7
	Relevant Video Usage	3
Content Design	Simple, Clear and Laconic	27
	Use of Humor	26
	Use of Relevant Examples	21
	Simple to Complex Arrangement	15
	Use of Real-Life Examples	13
	Fluency	13
Interaction	Interaction Simulation	8
	Interaction with the narrator	3
	Instant feedback	2
Narrator Characteristics	Effective Use of Voice	15
	Expertise	10
	Being humorous	7
	Proper Diction	7
	Energetic	6
	Like in conversation	6
	Speaking clearly	6
	Being Natural, Warm and Cool	5

Table 1 shows the design elements that attract university students and keep them on digital platforms. These design elements are visual design, audio-visual design, content design, interaction and narrator characteristics.

Visual Design

This study reveals that one of the factors that make university students use digital platforms in their learning process is use of relevant visuals (*n=29*) through the presentation of the content. Students stated that the use of relevant visuals helps them to make the concepts clear in their mind. In addition, according to participants visuals helps to strengthen the idea or message of the content. Participant 8 explained the situation as "*They used images in the video and the images gave the intended message*". Another factor that emerged under visual design theme is the use of graphic and scheme (*n=8*). University students emphasized that they especially select the platforms that present content with the help of schemas and graphs. Participant 15 said "*I'm choosing videos that explain in a schematized way … He explains the answer by drawing or there is a schema and he uses that schema to explain the answer."* One of the factors that emerged under the visual design theme is use of relevant colors (*n=5*). University students stated that the use of relevant colors provides them with better understanding of the concepts. Furthermore, they emphasized that the use of more colors can distract their attention. Partcipant 12 stated that "*I understand better when it is more colorful*." on the other hand, participant 1 said "*I'm distracted if it's too colorful.*" Another factor that university students pointed out is basic and simple design (*n=5*). They indicated that when the screen is full of sentences or visuals and unorganized, this makes them confused. Therefore, they emphasized that screens which are designed in a basic and simple way attracts their attention more, and prevent them from confusion. Participant 22 expressed that "*I am confused when the screen is too messy*". The last issue about the visual design theme is the legibility (*n=24*). University students indicated that in the videos where instructor presents the content by writing on the screen, the person's handwriting must be readable in terms of saving time. Participant 17 said "*If it is explained by writing, the beauty of handwriting is a reason for my preference*." As it understood from the results visual design is an important factor for university students on digital environment.

Audio-Visual Design

The second theme which arises from the university students' experiences about digital media is audio-visual design. Audio-visual design is one of the factors that has deterministic role on students' use of digital media in their learning process. The first element of audio-visual design theme is use of animations (*n=17*). University students think that animations turn abstract concepts into concrete and make the subject more comprehensible for them. Furthermore, university students think that use of animations makes the subjects more attractive and memorable. Participant 9 stated that "*They uses animation, which makes it interesting and more understandable.*". Another important issue that makes the digital content charming is the use of relevant music (*n=9*). The experiences of university students show that digital content becomes more attractive, engaging and favorable when appropriate type of music is used. Participant 6 said "*They used music that attracted you to the video and increased your attention.*" On the other hand, it was also found that in some situations use of music could be distracting. Some of the students mentioned that the use of music on digital content causes distraction. The other element under the audio-visual design is the quality of image and sound (*n=7*). University students pay attention to the quality of image and sound on digital content. They indicated that when the image and sound quality is better, the content becomes more attractive and engaging for them. In addition, they emphasized that they give up the content when the content has low-quality sound and image. Paticipant 6 said "*If the sound quality is bad, I will quit.*". Results also showed that relevant video use (*n=3*) in the presentation of the subject makes the content more enjoyable. Therefore, university students prefer the use of short videos which are related to the subject being presented. Participant 3 explained the situation as;

> *A short two-minute video that is coherent with subject should be added. They may be funny videos about the subject. For example, if a free fall is described, a falling human video may be added.*

The results and participants expressions show that audio visual desing is also one of the important factors that provide engagement in digital content.

Content Design

One of the design elements that motivate students to use digital media for learning is content design. This study showed that arrangement of content affects the university students' attention on digital media. The study revealed that university students look for simple, clear and laconic content (*n=27*). They want to learn the key points without getting lost in the content. Participant 5 told "*If the videos contain too much information, I'm bored*". The second issue on the content design is use of humor (*n=26*). Study shows that university students prefer the contents that has humor in it. In addition, they also propose that they learn better when the subjects are presented in a humoristic way. Participant 26 said "*Some humor elements make it pleasurable.*". Participant 21 explain the situation as "*I want that they teach math in a fun way. They should add humor to math.*". This study also revealed that use of relevant examples (*n=21*) attract students to content in the digital media. University students indicated that the content should be supported by relevant examples. Participant 12 explained the situation as "*I want that the related example should be given right after the lecturing part.".* University students' experiences also show that the arrangement of content is also important for them. University students want the content to be arranged from simple to complex (*n=15*). Participant 18 said "*It should start from the simple things, and then, it should pass to complex issues gradually*." In addition, participant 23 explain the situation as "*The textbook is a little bit complex for me. It directly passes on to complex issues but it starts from the simple on digital platforms.*" In addition, this study revealed that use of real-life (*n=13*) examples about the content also attracts students' attention. University students stated that the formulas, concepts and theories that are explained in the content should be associated with the real life. Participant 10 explained that

> *It can be a little bit more similar to daily life … Physics rules or chemical experiments that we watch should explain how to use them in daily life or in history. For example, in documentaries they explain the usage of a theory in industry, like that. … I mean that it might explain how these are used in industry or different branches of science instead of only subject review or solutions to questions.*

Another important issue about the content design is fluency (*n=13*). University students' statements show that they give importance to content fluency in digital media. Students expressed that if there is no coherence within the content or there are disconnections between the parts of the content, university students give up the content. Results show that university students give importance to content design on digital media.

Interaction

The fourth theme which emerged under the design elements that engage students in digital media platforms through the learning process is interaction. University students indicated that interaction simulations (*n=8*), interaction with the narrator (*n=3*) and instant feedback (*n=2*) during the presentation of the content increase their engagement in the content. University students' experiences showed that students like the digital environments where they can act and interact with the subject through the simulations. Participant 12 explains the situation as

> "*I can try it myself, like simulations. … For example, an experiment about motion. I could measure the time when I shoot the ball or something. Or chemistry experiments. It was really like I can empty the tubes into each other*"

In addition, results show that university students want to interact with the narrator (*n=3*) through the digital content. One of them expressed that interacting with the narrator is also one of the factors that captivate students in digital content. Participant 25 said "*It could have been better if I had one-to-one interaction with the teacher as in the real lectures*". The other issue found under the interaction theme is instant feedback (*n=2*). Results of the study showed that university students seek for feedback in digital content. They expressed that it can be pleasant when they can take instant feedback on their

actions on the digital content. Participant 4 stated that *"A source with concise expression, humor, and instant feedback will be attractive for me".* Results show that university students also looking for interaction on digital media.

Narrator Characteristics

The fifth theme under the design elements is narrator characteristics. The results showed that narrator is one of the factors that draw students' attention to the digital content. University students like the contents more when narrator uses his/her voice effectively (*n=15*), have an expertise in subject (*n=10*), is energetic (*n=6*) and teaches the subjects in a conversational tone (*n=6*). University students expressed that when the narrator speaks in a monotonous manner without any word stress or intonation, they lose their attention. Participant 12 states that "*If there is a monotonous tone of voice, after a while, I will disengage"*. University students also seek for expertise in the subject (*n=10*). They indicate that they search for the qualifications of the people who prepared the digital content. They expressed that they use digital content to learn the subject from an expert in the field. Participant 11 explains the situation as "The *people in the video are also professionals. They know the subject very well. They are experts in their field. That's why I use digital sources*". Results of the study showed that students also want the narrator to be energetic (*n=6*). They emphasized that when the narrator is an active and dynamic person, it is easy and enjoyable to follow the content. Participant 7 said "*It encourages me to watch when the narrator is active and he is not boring*". It was also found that university students become engaged in the content when the narrator speaks as if he/she were having a conversation with people (*n=6*). They do not like the content in which the narrator just reads a text about the subject. Participant 3 explains that "*It must be like talking to other people*". Results of the study also showed that university students become engaged in the content when the narrator is natural, warm and cool (*n=5*). They do not want to fallow the content when the narrator behaves in an arrogant way. They expect the narrator to have affection and kindness. Participant 3 said "Narrators should not be swagger, they should be natural, as in real-life lectures." Another noteworthy point about narrator characteristics is narrator's speaking style. Research showed that university students like the contents in which narrator speaks clearly (*n=6*) with a proper diction (*n=7*). Students indicated that they become engaged in the content when the narrator speaks in an unhurried manner with a leisurely pace. They also indicated that when narrators have a proper diction following and understanding the content become easier. Therefore, they prefer narrators whose articulation is good and understandable.

In conclusion, this study investigated university students' experiences about learning via digital media. Results show that as well as university students use digital media for relaxation and fun, they also use it for learning. The design elements that motivate them to use digital media for learning were identified as visual design, audio-visual design, content design, interaction, and narrator characteristics.

Conclusion and Discussion

This study examines university students' opinions about the design elements that motivate them to learn from digital media. Analysis of university students' profiles for digital media use reveals that they frequently use YouTube for both learning and entertainment. YouTube, which is one of the most frequently used video sharing sites, became an important part of popular culture (Bhatia, 2018; Burgess & Green, 2018). Many surgical learners (Derakhshan, Lee, Bhama, Barbarite, & Shaye, 2019), nursing learners (Johnston, Barton, Williams-Pritchard & Todorovic, 2018), performing arts learners (DeWitt et al., 2013), pre-service teachers (Szeto & Cheng, 2014; Szeto, Cheng, & Hong, 2016) and college students (Fleck, Beckman, Sterns, & Hussey, 2014; Sherer & Shea, 2011) utilize YouTube videos as supplemental tools in their education. Our study also revealed that Youtube is followed by Google, open coursewares, Khan Academy, TEDx, Coursera, and Moodle as a learning source. For fun and relaxation, students often prefer to watch popular videos, and documentary videos. Another study also shows that motivation for using youtube for entertainment is higher than motivation for using it to get information and enhance learning (Klobas, McGill, Moghavvemi & Paramanathan, 2018). Interpretation of this finding could be that motivation for entertainment is stronger than motivation for learning on digital platforms. The contents that university students follow on digital platforms for entertainment can

be listed as such: how-to videos, TV series, talk shows, movies, videos about computer games, music streaming platforms, Vlog videos.

Analysis of university students' experiences reveal five main themes emerging from university students' affective experiences about the design elements on instructional material presented through digital media. These are visual design, audio-visual design, content design, interaction, and narrator characteristics.

University students emphasize the importance of the use of related visuals and animations about the visual design of instructional material. This issue is followed by supporting the subject with graphics and diagrams, the context-related color selection, basic and simple design and legibility of writings. Studies about instructional design give attention to enhancing learning performance while having limited attention to users' affective experiences (Keller & Burkman, 1993). Literature shows that there are some studies which examine the effect of design issues such as color selection, legibility, simplicity, and use of graphic and scheme on learners' motivation and affective experiences on printed materials such as textbook, handout (Duchastel, 1980; Hartley, 1987; Keller & Burkman, 1993; Keller & Suzuki, 1988; Levie & Lentz, 1982). Another study conducted by Teng, Bonk, Bonk, Lin, and Michko (2009) shows that youtube videos that are supported with text, pictures and narrative voice are preferred the most by users. The same study also indicates that the richness of digital content also has an effect on users' perception, learning, and motivation. To use multimedia technologies effectively, writers have to use practices that are not just verbal but visual, spatial, aural, and gestural to make meaning (Cope and Kalantzis, 2000).

In their study about strategies for multimedia learning object, Wang, Mendori & Hoel (2019) observed that the motivation of visual learners is increased when the subject is presented with both visual and verbal learning objects rather than using only visual learning objects. Mayer and Sims (1994) found that when animation and narration are given simultaneously, better results are taken in terms of the transfer of learning. The findings of Mayer ve Sims are also compatible with similar studies (Massa & Mayer, 2006; Mayer, 2001; 1997) in later years. These findings are called the multimedia effect by Mayer (2001), who maintains that presenting the subject with words and pictures makes learning easier than presenting with words alone. The findings that are derived from the university students' opinions on instructional materials presented through digital media are also compatible with the findings of the studies in literature. In other words, relevant visuals used in instructional materials provide motivation for learning.

One of the factors that motivate students learning through digital media is the use of graphic and schema in the presentation of the content. There are a number of studies in literature which reveal the relation between use of graphic and scheme and learning. Ausubel's (1960) research found that when graphics are used as advance organizers, they make it easier to link between new knowledge and learners' existing schema. Dye (2000) emphasizes the importance of graphics and schema in storage and recalling of knowledge. Jitendra (2002) used graphics to teach problem-solving to learners with disabilities. Similarly, Root, Browder, Saunders, and Lo (2017) also used schema-based instruction to teach problem-solving to students with autism. Alvermann (1981) expressed that all learners who have different reading levels can benefit from the use of graphic organizers. These results suggest that teaching materials on digital media may respond to the individual differences and needs of the students in terms of learning.

University students indicated that some of the characteristics of content design also motivate them for learning. These characteristics can be listed as simple, clear and laconic design, use of humor, use of relevant examples, arrangement from simple to complex, use of real-life examples and fluency. Pettersson (2011, s.33) states that an effective message design will be achieved with the reduction technique. He explains that instructional designer should eliminate unessential elements to draw learners' attention to essential elements. He also adds that for effective design, the composition should be presented with its essential components and these components should also be presented in their essential forms. University students also want simple, clear and laconic design in the content. Some of

the design principles for smartphones advised by Wang and Shen (2012) are short and "condensed" design. These principles are compatible with the content design that is described as simple, clear and laconic by university students who use smartphones frequently as a device in their learning process on digital media. In his article titled "be smart, be simple", Wallace (2006), who is an expert in the brand industry, cites a saying by the minimalist sculptor Brancusi: "Simplicity is complexity resolved", which seems to describe the design of the teaching materials depicted by university students.

University students' engagement and motivation increase when humor is used in the design of the content. Lee & Hao (2015) found that there is a significant positive correlation between the perceived fun and humor and learning motivation. Ziv (1988) indicated using humor in the teaching and learning process has a contribution to learning. Dreon, Kerper, and Landis (2011) explain the positive effects of courses supported with humor which are given through digital stories on Youtube. There are also counter findings in literature about the use of humor. In his article titled "Principles of educational multimedia user interface design", Najjar (1998) cited Markiewicz (1974) and Sternthal & Craig (1973) and proposed that humor distracts learners, conducts them away from the goals of the instruction and interrupts the comprehension rather than increasing motivation. Although there are controversial findings in literature, university students who participated in this study think that the use of humor increases their motivation for learning through digital media. Considering that the students who participated in the study use digital media mostly for entertainment, it is natural that they prefer to have fun while learning and also prefer to think while entertaining.

University students emphasize the importance of interaction in their learning via digital media. They indicated that their motivation increases when they use the platforms that have interaction simulations, enable interaction with the narrator and provide instant feedback. An empirical study done by Zhang, Zhou, Briggs & Nunamaker (2006) proposes that when the students are taught in an environment that is supported with interactive videos, they have a better learning performance and a higher level of satisfaction. Similarly, other studies (Roblyer & Edwards, 2001; Wetzel, Radtke & Stern, 1994) show that interactive instructional videos increase students' attention to subject and motivation. The results of both our study and other studies in literature indicate that students learn better and their motivation remains alive in the digital environments in which they can participate actively.

University students indicated that the narrator characteristics on digital media affect their motivation for digital media. The subcategories of the narrator characteristics are listed as effective usage of voice, expertise, being humorous, proper diction, energetic, conversational tone, speaking clearly, and being natural, warm and cool. When the characteristics are analyzed, it can be seen that they are the characteristics of effective teachers who motivate students in learning. Students see the narrator as an effective teacher if there is a narrative figure in learning on digital media. Analysis of studies (Minor, Onwuegbuzie, Witcher & James, 2002; Onwuegbuzie, et al., 2007; Walker, 2008) about the effective teacher characteristics reveals that the findings of the effective teachers coincide with the characteristics indicated by university students.

When the findings of the study are analyzed as a whole, it can be seen that university students benefit from digital media to support their learning. The research on design elements on digital media, experiences about the learning through digital media and their description in the context of instructional message design revealed results as such: effective audio-visual design, simple and clear design, humorous content, plenty of examples, interaction with material and a narrator as an effective teacher. University students will continue to support their learning with digital media. Designers, who are interested in message design, information design, and instructional design, and educators can consider these and similar studies that include opinions of target audience rather than considering only the number of "likes" and "clicks" on digital media.

Implications and Future Research

In this study, the design elements that make students use digital media in their learning process was investigated. The data was collected through interviews. The aim of this study was to explore the design elements. In further studies, the results of the study can be used for scale development studies to evaluate the digital platforms in terms of educational attractiveness. In this way, the generalization of the results could be tested.

In addition, the results also can be used as a guide in the development of educational platforms in digital environments. Furthermore, the created educational environment could be evaluated in terms of educational attractiveness for university students based on the results of this study.

This study has some implications for practice. According to the results of the study, e-learning platforms should be designed in a way that students can be able to have control over it. The learning time, pace, and amount of time that should be allocated for the parts of the subject should be able to arranged by the students. In addition, audio-visual support such as graphs, images, and short videos should be used in the explanation of the subjects instead of text-based expressions.

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