

The Views of University Students on Gamification-Enhanced Online Learning Experiences*

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Abstract. The aim of this study is to examine the opinions of students who have a gamification-enhanced online learning experiences to find clues about the design of online learning environments based on gamification. For this purpose, the opinions of students who took courses through gamification-enhanced online learning for eight weeks were examined through the case study method. The participants consisted of 12 students, who voluntarily and consented to participate in the study, from 36 students who took the Educational Films course at the Sakarya University Faculty of Education in the fall semester 2019-2020. The interview form created by the researchers was used as a data collection tool. The results of the study showed that according to the students, the learning process was efficient with this method and they used the online learning system without any technical problems. Students stated that learning in this way provides a comfortable learning experience that provides flexibility in learning and it seems that they have a positive attitude towards gamification. As some of the important results of the research in terms of instructional design, points, restricting access and curiosity have increased the number of entries into the system. Moreover, the discussion platform contributes to motivation and the leader board contributes to the course success.

Keywords: Gamification, Online Learning, Academic Achievement, Motivation, Student Opinions, Student Engagement.

* This study was produced from the first author's doctoral dissertation, which was conducted under the supervision of the second author.

The ethics committee approval for this study was obtained from the Ethics Committee of the Rectorate of Sakarya University, dated 08/11/2019 and numbered 61923333/050.99.

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1. INTRODUCTION

Technology-based distance learning helps educational institutions overcome temporal and spatial limitations in learning (Pituch & Lee, 2006). Advances and opportunities with new technologies for distance education, the desire of educational institutions to use e-learning for their increasingly diverse training needs is escalating. (Sun, Tsai, Finger, Chen, & Yeh, 2008). As information and communication technologies advance, online learning becomes available technologically, economically and operationally. Universities offer an increasing number of online programs to overcome financial problems, provide flexible learning opportunities, support international students, and keeping up with emerging technologies (Palvia et al., 2018). Due to the contribution of online learning, learning management systems and open online course tools, distance education is quite popular since the 2000s (Kumar, Kumar, Palvia, & Verma, 2017).

Online learning became the first choice in delivery of higher education services in the 21st century worldwide (Allen & Seaman, 2011). During the COVID19 pandemic, even the face-to-face lessons had to be instructed online with learning management (LMS) and virtual classroom systems. The availability of several paid or free LMS options for educational institutions was an important factor in easy and fast online learning. One of the most important factors for an effective LMS in the learning-instruction processes is the faculty members (Naveh, Tubin, & Pliskin, 2010). In addition to the presentation, management and organization of the course content, lecturers could monitor student performance through LMSs (Naveh, Tubin, & Pliskin, 2010; Berking & Gallagher, 2011). There are several studies on the effectiveness, contributions to learning, advantages and disadvantages of LMSs in the literature (Means, Toyama, Murphy, & Baki, 2013). It was also observed that students could experience problems such as non-completion dropping out when using these systems (Angelino & Natvig, 2009; Lee & Choi, 2011; Caruso, 2012). According to Xu and Jaggars (2013), although the source of non-completion and dropping out due to online learning was individual motivation, lack of interaction was also one of the most important factors. Lee (2011) reported that there was an inverse correlation between the student drop out rate and student motivation in online learning. While online learning provides easy and flexible attendance for the students in learning activities whenever and wherever they want, it may be insufficient to ensure student engagement when ineffective teaching strategies are adopted (Sun & Rueda, 2012). Thus, it could be suggested that the gamification strategy could provide a solution to increase both learner engagement and learning motivation. Because gamification is considered as a promising strategy in ensuring student participation, engagement and motivation (Lee & Hammer, 2011).

Gamification is described as the employment of digital game design principles and elements in non-game environments via adaptation (Deterding, Dixon, Khaled, & Nacke, 2011). Zichermann and Cunningham (2011) adopted gamification to improve user engagement in the learning process and to solve problems associated with dropping out of the learning process and described it as the use of digital game strategies and mechanisms. Gamification could raise the interest of the learners in a meaningful

learning process using reward and reputation systems such as scores, higher levels, avatars, leaderboards, and external motivations (Kapp, 2012). According to Muntean (2011), gamification helps students improve their motivation to learn and internal motivation due to positive feedback. Although the origins of gamification were in non-educational media, it became a subject of interest in educational sciences in recent years since its elements could be integrated into learning and instructional processes. The aim of educational gamification is to make learning fun by increasing student engagement in learning (Simoës, Redondo, & Vilas, 2013). The entertainment factor allows learners to focus on solving real life problems using the motivational digital game elements (Lee & Hammer, 2011). Because digital games have the potential to allow the individuals to employ their problem solving skills voluntarily for hours in a digital game environment (Gee, 2003).

The meta-analysis studies conducted on the effect of gamification on student achievement reported that gamification had a moderate positive effect on student achievement (Özcan, 2019; Yıldırım & Şen, 2019). Studies conducted on primary education students demonstrated that gamification was effective on science achievements (Karayılan, Çakmak, & Güzel, 2018; Karayılan & Tunç, 2019) and vocabulary skills (Genç Ersoy, 2017) in traditional classroom and laboratory environments. Furthermore, studies on online learning reported that implementation of both gamification and flipped classroom method at primary education affected information technologies and software course achievements of the students (Tarhan, 2019). Furthermore, it was reported that gamification and mobile learning method had positive effects on student achievement in biology course in primary education (Fan, Xiao & Su, 2015), and gamification and online learning positively affected the mathematics achievements of the students (Araya, Arias Ortiz, Bottan, & Cristia, 2019). On the other hand, it was stated that gamification and blended learning did not contribute to the information technology course achievements in higher education (Meşe, 2016); however, the employment of blended learning, flipped classroom model and gamification improved student achievement (Yıldırım, 2016). de-Marcos, Domínguez, and Saenz-de-Navarrete (2014) reported that the impact of gamification was weak when compared to conventional methods in achieving high-level learning goals such as the evaluation in Bloom's learning taxonomy. In a study conducted by Hew, Huang, Chu, and Chiu (2016) on gamified online courses, it was reported that the students in the gamification group produced better learning products when compared to the non-gamification group.

Several studies were conducted on student engagement and learning motivation based on gamification. In a study conducted on the employment of gamification in C programming course in higher education, Ibanez, Di-Serio, and Delgado-Kloss (2014) reported that gamification improved cognitive student engagement. Huang and Hew (2015) reported in a study on online learning application conducted with graduate students in the statistics course that gamification method improved student engagement when compared to the group where gamification was not utilized. Schöbel, Janson, Hopp,

and Leimeister (2019) stated that gamification improved student engagement in technology-assisted educational environment. Huang, Hew, and Lo (2019) reported that gamification and flipped classroom management had an effect on the cognitive and behavioral engagement of university students in the information management course. Furthermore, previous studies suggested that gamification improved student interest and motivation in the course (Erümit, 2016; Sarı and Altun, 2016; Alsancak Sarıkaya, 2017; Çakıroğlu, Başbüyük, Güler, Atabay and Yılmaz Memiş, 2017; Şahin et al., 2017; Karabacak, 2018; Kim, Rothrock and Freivalds, 2018; Bayram & Çalışkan, 2019; Schöbel, Janson, Hopp & Leimeister, 2019; Yılmaz & Karaoğlu Yılmaz, 2019, Fitz-Walter, Johnson, Wyeth, Tjondronegoro & Scott-Parker, 2017), language motivation (Polat, 2014) and writing motivation (Bal, 2019).

In the Horizon report (The New Media Consortium, 2014) that aimed to determine the trends in educational technology research, the potential of “gamification” in online learning was particularly emphasized. The present study was conducted to investigate the effects of gamification based on student experiences.

Thus, the following research questions were determined:

- What are the views of the participants
 - On gamification-enhanced online learning in learning-teaching process,
 - On the problems they experienced in the process
 - On earning points based on gamification elements
 - On the discussion platform
 - On the way that the films covered in the course are explained to the students?
- What are the recommendations on the design based on the participant responses for the above-mentioned questions?

2. METHOD

In the present study, the participants' perceptions about and the impact of gamification-enhanced online learning experiences were determined. For this purpose, the research was based on the case study design. Thus, the study aimed to explore and determine the student experiences in gamification-enhanced online learning. The Ethics Committee approval was obtained from the Sakarya University Ethics Committee on 08/11/2019 (No: 61923333 / 050.99).

The Study Group

The study group included 12 volunteering students who declared their participation with a consent out of 36 students who were attending "Educational Movies" common elective course in Sakarya University, Faculty of Education during the 2019-2020 academic year fall term. In the study group that included 12 individuals, 10 were females and 2 were males. 2 of the students in the study group were in the Guidance and Psychological Counseling program, 1 in the Social Studies Education program, 3 in the

Classroom Teaching program, 2 in the Turkish Language Teaching program, 1 in the Science Education program, 1 in the Computer and Instructional Technology Teaching program. program, and 2 study in Mathematics Teaching program. While 9 of the students are in the 4th grade, 3 of them are in the 3rd grade.

Data Collection Instruments

Demographic information form and a semi-structured interview form developed by the authors were used as data collection instruments.

Demographic information form

The form was developed by the author to collect participant demographics such as gender, weekly computer and internet use. To ensure the content validity, the form was organized based on the views of two educational technology experts with PhD degrees in the field.

The interview form

An interview form was developed to collect the views of the participating students about the application. The interview form was developed based on the research problems, and initially, a pilot scheme that included nine questions was implemented. The form was developed based on the views of two educational technologies, one educational measurement and evaluation experts, and one qualitative researcher with doctorate degrees, and the finalized form included seven questions. Two volunteer students were interviewed using the form in the pilot scheme. Based on the analysis of the pilot scheme findings, the form was finalized.

Data collection

Using the finalized form, interviews that lasted about 25 minutes were conducted with 12 students and the interviews were recorded with student approval.

Although the interview form questions were used in the interviews conducted with the participants, they were also asked probe questions such as 'please provide examples,' and the reasons behind their arguments.

Learning-Teaching Process

The Educational Movies course is included in Sakarya University course pool in the 2019-2020 academic year fall semester as a university-wide common elective course and could be selected by all teaching department students in Sakarya University Faculty of Education (SUFE). Since the course content could be easily adopted to the online learning method, it was selected for the present study, and the acquisitions identified in the course curriculum were reorganized for the application with the approval of the course coordinator. Course achievements, designed learning activities, measurement and evaluation activities, and the weekly course outline are presented in

Table 1

Weekly course topics and data collection process

Week	Topic (Movie)	Application and data collection
1	Motherland	LMS orientation
2	Three Fools	Collection of preliminary student information with online learning readiness and information forms
3	QUIZ	The students took a quiz to ensure active use of the system and as a course requirement
4	Emperors' Club	Continued use of LMS
5	The Chorus	
6	Black	
7	All Children are Special	
8		Participant interviews about their experiences

To implement gamification-enhanced online learning, the Talent learning management system that has Turkish language and gamification support was selected. The system interface is presented in Figure 1.

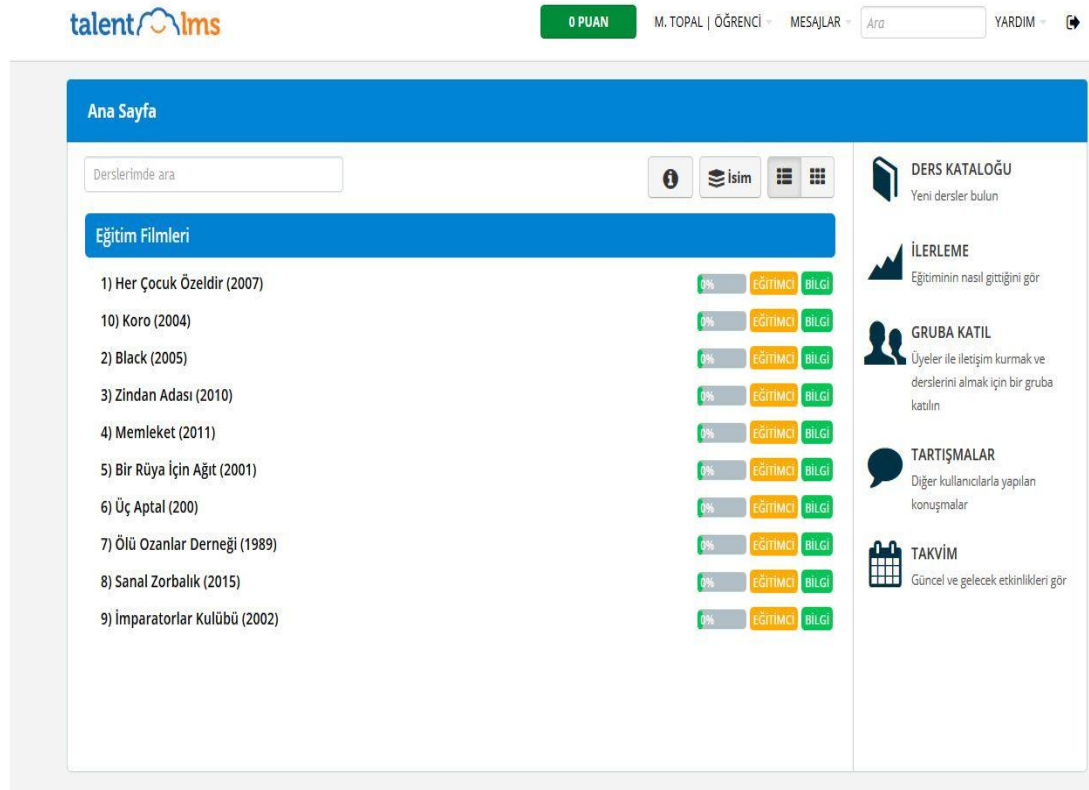


Figure 1. Talent LMS System Interface

In TalentLMS, students could attend the pre-defined classes, download and watch the instructional material available in these classes, submit assignments, take exams, participate in live lectures, monitor their learning, join various groups, view the learning calendar and participate in various discussions. Due to the gamification integration in the system, students are awarded points and badges for the completed activities such as course sections, classes, assignments, exams, quizzes, surveys, etc. Furthermore, they can earn badges and points for system logins, evaluated achievements and comments. During the classes on the system, students could see the points and badges earned by other students and could easily access point and badge leadership list. Furthermore, students can pass levels based on the number of completed courses, earned badges and points. Thus, the TalentLMS software includes the most commonly used mechanics of gamification such as points, badges, awards, leaderboards and levels, and due to its flexible structure, it allows to set the desired criteria.

The Octalysis structure developed by Chou (2016) was employed in gamification design in the study. The structure was preferred since it provides a concrete classification and a framework that offers concrete suggestions for this classification in gamification design based on several studies (Chou, 2016; Chou n.d.). In this framework, it was reported that the 8 driving effects of gamification, namely the motivation type and how these effects

could be achieved, could be reflected in practice (Chou, 2016; Chou n.d.). Among the motivation types in this model, "Development & Accomplishment", "Social Influence & Relatedness", "Unpredictability & Curiosity" and "Scarcity & Impatience" components were used based on the course content, student attributes, and the limitations of the employed learning management system (Chou, 2016). These motivation types and gamification mechanics are presented in Table 2.

Table 2

The Gamification Motivation Types Employed in the Study, and How to Score Points with Gamification Mechanics?

Gamification motivation type	The dynamic or element employed for motivation
Development & Accomplishment (The existing feature in the gamification system has been used)	*Points Points earning criteria; - Each sign-in (1 point) - Each lesson completion (10 points) - Each successful assignment completion (10 points) - Open any discussion topic and write comments (2 points) - Getting likes from every discussion comment she/he makes (2 points)
Social Influence & Relatedness (The existing forum feature in the gamification system has been used)	* Discussions on the discussion platform of the system before evaluation for each movie * Leaderboard showing the points earned by other participants and the participant herself/himself
Unpredictability & Curiosity	* Not sharing the order in which the films to be watched in the lesson. It will be shared randomly with the students.
Scarcity & Impatience	* Selected films not being announced before a certain day and time each week.

The points are given according to students' behavior in the system. The leaderboard and forum to be used for "Social Influence & Relatedness" are available within the system. The system used the feature of hiding the weekly lessons from the students before the specified dates and bringing the lecture lines randomly in the motivations of "Unpredictability & Curiosity" and "Scarcity & Impatience".

Sample screenshots of lessons and activities for lessons are given in Figure 2 and Figure 3.

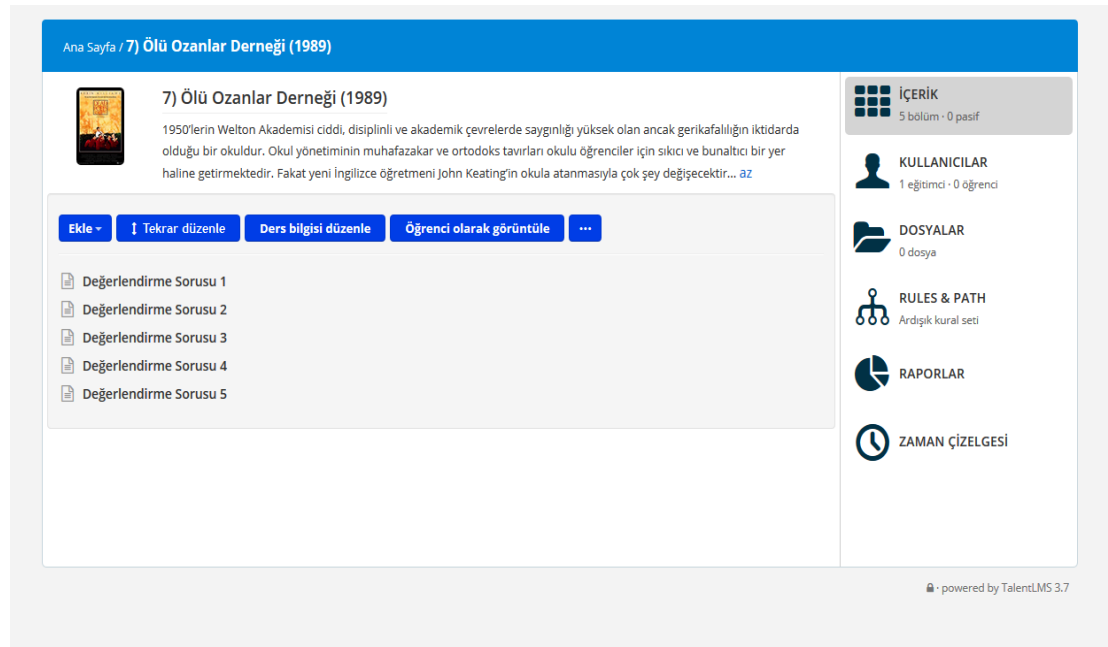


Figure 2. Course content example 1

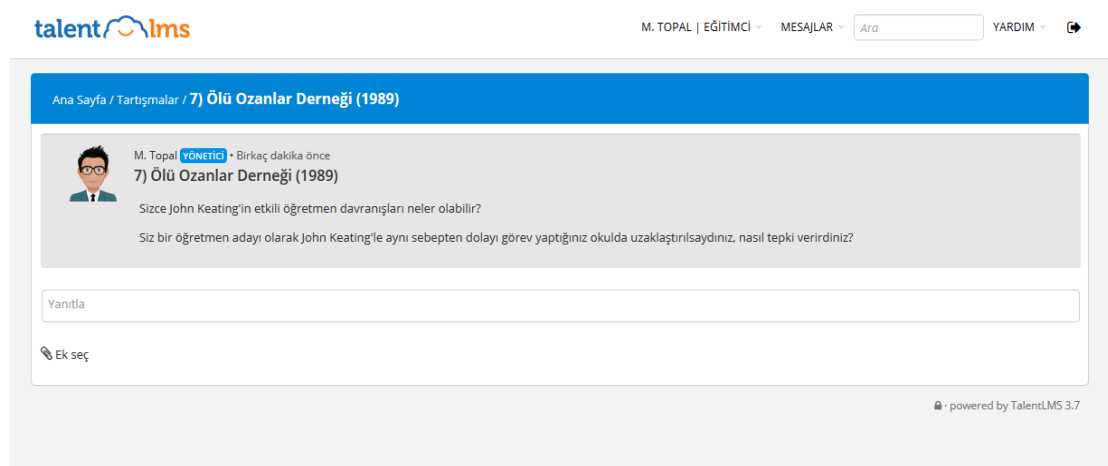


Figure 3. Course content example 2

In addition to these designs, a pilot scheme was conducted for two weeks for the formal analysis of the gamification- enhanced online learning process with four students. At the end of the pilot scheme, it was decided to implement the design without any reorganization.

Data Analysis

Content analysis method was employed in data analysis. To ensure the reliability of the content analysis, the interviews were transcribed. Then, these manuscripts were coded and sub-themes and themes were determined. Codes and themes were compared, and the form was finalized based on inter-coder agreement. Although the reliability of analysis results, could be determined based on inter-coder agreement or Kappa coefficient, etc., since these methods focus on comparing analysis products rather than the analysis process, and this approach was criticized in constructivist qualitative research (Hammer & Berland, 2015; Syed & Nelson, 2015), inter-author agreement was preferred in the study since the authors had similar experiences due to previous studies, and the nature of the data collected focused on describing concrete experiences rather than understanding abstract concepts (Guba & Lincoln, 1989). In data analysis, the student names were not disclosed, and gender-based codes were assigned. The female students were coded as F1,..., F10, and the male students were coded as M1,..., M2.

3. FINDINGS

The study findings are presented in the order of the research problems.

The views of the participants on gamification-enhanced online learning in the learning-teaching process

The analysis the views of the participants on gamification-enhanced online learning revealed that the views could be grouped under two themes, namely positive and negative. These themes and sub-themes and the codes of the participants who stated these views are presented in Table 3.

Table 3

The views of the participants on gamification-enhanced online learning as a model

Theme	Sub-Theme	Participants
Positive	• Productive	F2, F 3, M1, F4, F6, F 8, F10
	• The suitability of the movies [content]	F2, F3, F8, F10, F11, F12
	• Communicative	F2, F4, F6, F8, F11
	• Adequacy of the allotted time	F3, F8, F10, F11
	• Easiness of the system	F1, F8, F10

Negative	• Associative problems	F1, M1, F4, F5
	• Preference of in-classroom education	F12

Although some interviewed students stated positive views about the efficiency of the course, the adequacy of the movies, communication, the ease of the system, and the adequacy of the course hours, they also stated that they experienced difficulties in associating certain films with education and a student demanded that the classes should be conducted in the classroom. The students F2, F3, F4, F6, F8, F10, and M1 considered the classes efficient since taking the classes without having to go to school was as efficient, the professor was as efficient as the face-to-face instruction, the technology made instruction possible independent of time and space, the technology provided adequate communication facilities, and it allowed the students to plan their attendance. Certain student views on the above-mentioned reasons are presented below.

“... distance education and the predefined calendar are ideal for me, because at the end, we are the senior class and we have intense workload, we can prepare a program for ourselves and when we determine any day in a week when we can watch the movie based on our preferences...” (F3, 1min. 10s.).

“... so it is really good that it is on the internet. I can say that it is very efficient for me. I come here from afar. That is why it is better for me, and we can do it over the internet. Communication was good as well. So, we did everything that could happen in the classroom technologically on the system. We learned the course, and I think the course was good...” (F5, 1min. 28s.)

“... I quite liked the way the course was instructed. Movies, homework questions and everything else were great. It might not be so efficient if it was in the classroom. Fortunately, this course was instructed this way...” (F7, 0min. 32s.).

“... my general view on the course are positive. It was more comfortable for me to have instructed online. The interpretation of the assigned movies on flexible hours and days made me like the course even more.” (F11, 1min. 05s.).

It was observed that the students F2, F3, F8, F10, F11 and F12, who considered the movies educational, stated that the movies reflected situations that could be experienced in teaching profession and included educational content. Certain student views on the above-mentioned reasons are presented below.

“... the selected movies were very suitable as educational movies. I liked the movies. I watched most movies again to do the assignments...” (F2, 1min. 47s.).

“... I do not like watching movies, I do not like watching them in a movie theater either. I do not like it at home either. I do not like watching movies. But I mean, if this course was not on educational movies, it would not have appealed to me too much. I have seen a few

of these movies. But I did not really sat down and watch them. When I was at college, I watched them because some professors advised us to watch them. Because these were assignments, but I think the movies were educational movies..." (F3, 28 min. 23s.).

"...since the movies were educational, they contributed to us. By comparing the system in the faculty, the systems we experienced during the internships at regular schools, and the system reflected in the movies, our approach towards education developed a little further. We learned that we needed to learn about our approach towards students, student behavior and the factors behind this behavior..." (F8, 1min. 18s.).

"...the course is very functional for the education faculty. We both expand our movie knowledge and watch and analyze the movie as an educator rather than a normal spectator. Watching the movies gave us an idea about the examples we observed and allowed us to have an idea..." (F11, 1min. 29s.).

The students F2, F4, F6, F8 and F11, who considered that online education provided effective communication facilities, stated that the use of WhatsApp as a communication tool and e-mail notifications about the developments in the class were among the reasons. Certain student views on the above-mentioned reasons are presented below.

"... I think communicating via WhatsApp is a nice feature. Because, for example, when we are in the classroom, nobody can hear it, but in WhatsApp, everyone can see it..." (F2, 2min. 14s.).

"... on WhatsApp, we could get feedback for all our questions within a brief time. We received an e-mail about every change in the system. We were aware of everything. This made our job even easier..." (F4, 3min. 02s.).

"... We did not experience any communication problems, there was a WhatsApp group..." (F6, 4min. 12s.).

The students F3, F8, F10 and F11 considered the duration of the learning tasks such as watching the movies and submitting the assignments on the system were adequate since the learning tasks could be completed based on a plan and timeframe. Certain student views on the above-mentioned reasons are presented below.

"... I am more of a planner when studying in general. For example, if we had watched the movies in the classroom, I could have something else during that class hour, I might not be able to attend the class and it would have been disrupted, and then I would have to watch it myself at home, but in this way, for example, you want our assignments to be submitted on Sunday evening, and I am very busy during the week, I have to attend KPSS courses. So, it is more planned for me this way. And the follow-up date is decided by the student, at least in this way, I can plan myself in the given timeframe and it is good that there is a certain time..." (F3, 5min. 43s.).

"... assignment due dates were flexible with a week and were sufficient... unless there was an exception..." (F8, 4min. 38s.).

“... the questions were good. Assignment periods were sufficient, and I did not experience any problems...” (F10, 5min. 07s.).

The students F1, F8, and F10 stated that the online learning system was easy to use since the system was simple, it could be conveniently used on the phone, and the system was clear and organized. Certain student views on the above-mentioned reasons are presented below.

“... I was happy with the system. It was easy to use, it was simple. I used it on the phone comfortably...” (F1, 0min. 42s.).

“... It was an educational platform that I experienced for the first time in the university. The functions of the education platform were good. The education platform content was clear and comprehensible. Each section had its own title. We could watch the movies you uploaded to the platform. There was an explanation section that explained the content of each movie. There was nothing I did not understand because the system was orderly. I logged on to the system twice on my phone. I used the platform comfortably on the phone. I logged on the system mostly from my computer...” (F8, 6min. 28s.).

“... I really liked the distance education platform. We could log in to the system easily with our password and username without any problem. I did not experience any problems with the system. I could send my answers easily. I accessed the system on my phone the most...” (F10, 7min. 41s.).

The students F1, M1, F4 and F5 experienced difficulties in associating the movies and education since certain movies were not directly related to educational topics or did not directly tackle an educational problem. Certain student views on the above-mentioned reasons are presented below.

“... I think it was meaningless to associate certain movies and education, is not the movie “Migration” about immigrants?” (F1, 4min. 34s.).

“... there were really movies I did not like. Especially the movie “Migration.” It was simple, tasteless, was not artistic, it was an ordinary movie. I want to watch artistic movies. I do not know; the movie did not completely explain the phenomenon of immigration anyway. It was really off; I did not understand. I work hard to associate it with education. But naturally I tried to catch it. But, I mean, would it be fine if I did not watch it, I think it would be fine...” (F4, 5min. 57s.).

“...I had a hard time answering assignment questions since I could not establish the association between certain movies and education. Especially the “Shutter Island,” I did not understand anything...” (M1, 3min. 41s.).

The student F12 stated that it would have been beneficial if the students had watched the movies in the classroom. The view of the student was as follows.

“... it will never replace an environment where the courses are instructed and discussed in the classroom. Moreover, watching the courses together in the classroom could

contribute to the social environment and allow everyone to understand various ideas. At first glance, moving the lesson to a virtual environment seemed very attractive and less demanding for me, but it prevented the course to be a priority for us..." (F12, 8 min. 37s.)

The problems experienced by the participants during gamification-enhanced online learning

The analysis of the views of the participants on the problems experienced during gamification-enhanced online learning application revealed positive themes such as using the system without any difficulties, using the system with a smartphone, and getting used to the system later as presented in Table 4.

Table 4

The views of the participants on the problems experienced during gamification-enhanced online learning application

Theme	Sub-Theme	Participants
Positive	• Using the system without difficulty	F3, M1, F5, F6, F7, F8, F10, F11
	• Using the system on a smartphone	F1, F4, F7, F8, F10
	• Getting used to the system later	F1, F2, F12

The students F3, M1, F5, F6, F7, F8, F10 and F11 stated that they used the system without any problems since it was available on several platforms such as smartphones, computers, tablets, and the system interface was simple and clear. Certain student views on the above-mentioned reasons are presented below.

"...no, I didn't have a problem. Some friends wrote that they could not send their answers, I have never encountered such a thing on WhatsApp. There was an internet outage once, but despite that, we could still send it..." (F5, 6min. 32s.).

"... I had no problem using the distance education platform that we used in the course. Generally, I used it on my laptop..." (F6, 5min. 40s.).

"... I did not have any difficulties. I answered questions easily, both on the phone and on the computer. But I guess I answered mostly on the computer. It is a useful and easy to understand platform..." (F10, 6min. 11s.).

The students F1, F4, F7, F8 and F10 who used the system on a smart phone stated that this was due to the availability of the platform on these devices. Certain student views are presented below.

“... The system was easy to use. I can say that I used it more comfortably on the phone...” (F4, 4min. 27s.).

“... I only used it on my mobile phone. I had no difficulty in exploring or using it. It is a simple educational site, nice...” (F7, 6min. 32s.).

“... I used it mostly on the phone, but it was also very easy on the computer. It was easier for me to log in on the phone, it was not always possible to do it on the computer...” (F8, 7min. 56s.).

The participant experiences on gamification-enhanced online learning

The analysis of the views of the participants on their experiences in gamification-enhanced online learning revealed positive and negative main themes. These themes and related sub-themes are presented in Table 5.

Table 5

The views of the participants on their experiences in gamification-enhanced online learning

Theme	Sub-Theme	Participants
Positive	• Flexible learning	F2, F3, M1, F4, F5, F6, F7, F10
	• Comfortable learning	F1, F4, F8, F11
	• Permanent learning	F2, F5, F6, F8
	• Time saving	F10, F11
Negative	• Lack of instruction	F12
	• Watching the movies in the class	F12

While most participants stated positive views on flexible learning, comfortable learning, permanent learning, time saving, self-study and adequacy of course hours, a student criticized lack of teacher instruction and stated that the movies should be watched in the classroom. The reasons of the students F2, F3, M1, F4, F5, F6, F7 and F10, who praised flexible learning included attending the course without going to school, conducting learning and teaching activities with online learning tools, increased benefits of self-learning tasks, removal of the limitations of the activities that could be conducted during the class hours due to the availability of various tools in online learning, and adequacy of the course content for online learning. Certain student views are presented below.

“... distance learning affected my learning process positively. Because I am curious about movies. Since movies are a direct reflection of life, I think this course should be in a different format. The man shows it to the camera there somehow, the director's

approach, her/his previous movies, the chronological order of her/his movies; it is very difficult to talk about these in a class hour. The classroom environment is a bit more artificial and one may not be able to speak at that moment, but one can write somehow..." (M1, 8min. 23s.)

"... I do not think there is much that could be done face to face in this course. At most, the discussions on the movie could be conducted in the classroom. But I can already do those discussions on the internet. There were useful things during the discussions, and my friends could see what I could not. It was very easy to adapt to the system. Movie dates and times were predetermined. I received them on my mail. I could work whenever I wanted, it was nice, it was flexible..." (F4, 9min. 11s.)

"... I think instruction on the internet, which a contemporary requirement, was much better. Sometimes we do not have the opportunity to say everything in class, but I think that one can express herself/himself better in writing. I think the fact that the could be instructed outside the class led to additional flexibility..." (F7, 10min. 38s.)

The reasons for the students F1, F4, F8, and F11, who praised comfortable learning included the ease of learning in the comfort of the home at any time. Certain student views are presented below.

"... since I was a senior student, it was better for me not to go to school for classes, it was more comfortable for me to watch movies at home and write in the system, frankly, because I was a senior..." (F2, 10 min. 05s.)

"...we are four girls at home, we all attend your course. For example, not on the day you announced the movie, but the day we are all available, we watch the movies together. We have a TV at home, we bought an HDMI cable and connected it to the computer. On the day we watch the movie, we pop corn and prepare something. I typed on the phone when answering the questions, I write faster on the phone. We asked each other, had fun and I think it was very comfortable for us to do everything at home..." (F8, 14min. 17s.)

"...if I had to come to class every week, my motivation for the movies might have been lower. Instead, doing everything on the system at home and asking questions on WhatsApp provided us with a more comfortable and better facility. I also liked the system very much, we were able to log in and use the system easily without any difficulties..." (F11, 9min. 12s.)

The reasons for the students F2, F5, F6, and F8, who praised permanent learning included the ease of learning in the comfort of the home any way and at any time they wanted. Certain student views are presented below.

"...I had enough time to watch the movie and think about it as well. We are accustomed to non-formal instruction of the course, but I realized that the instruction of the course on a platform could lead to permanent learning. It was a very positive approach to learning..." (F2, 12min. 28s.)

“...I think the course provided different perspectives since we had the opportunity to watch old and must-watch cult movies. Apart from that, if we consider 1-2 movies, I was prejudiced against such cult movies. I mean, I do not follow the things that everybody likes and suggests. But I think this course provided me with the opportunity to realize what I could miss with such an attitude. Also, if we had watched the movies in the classroom, I would not have learned this much, I would not have remembered this much...” (F6, 9min. 17s.)

“...I think distance instruction and watching movies was nice and fun. I also think it was in our best interest that the movies were about teaching. Such an instruction positively affected my learning process and allowed me to learn more effectively and permanently...” (F8, 8min. 45s.)

On time saving, it was observed that the reasons for the students F10 and F11, who considered online learning experience time-saving, included the conveniences of the system for working individuals and the provision of all details in advance. Certain student views on the above-mentioned reasons are presented below.

“...It affected my learning process positively. Since I also work, I could watch the movies at a convenient time...” (F10, 8 min. 32s.)

“...distance education positively affected the learning process, because knowing every detail facilitated time management and also saved time...” (F11, 8 mins. 32s.)

The reasons for the negative views of the student K12 on online learning experience included the fact that the students did not watch the movies in the classroom and the lack of instruction by the professor in a classroom environment. The views of the student are presented below.

“...it was a nice difference, but it will never replace an environment where the course is watched and discussed in the classroom. Moreover, watching the course in the classroom could contribute to the social environment and allow everyone to comprehend various ideas. At first glance, moving the lesson to the virtual environment seemed very attractive and less demanding to me, but it prevented us to prioritize the course. Also, certain important points about the movies could be presented in the classroom...” (F12, 12min. 28s.)

The impact of scoring and leaderboard on gamification-enhanced online learning experience

The analysis of the views of the participants on the impact of scoring and leaderboard on gamification-enhanced online learning revealed the codes and sub-themes presented in Table 6.

Table 6

The views of the participants on the impact of scoring and leaderboard on gamification-enhanced online learning experience

Theme	Sub-Theme	Participants
Scoring	Increased login frequency	F2, M1, F6, F8, F10, F11
	Conducting actions to score	F2, F3, F6, F8, F10
	Not conducting actions to score	F1, F4, F7, F12
	Improvement of course achievements	F2, F8, F10, F11
	Improvement of motivation	F2, F3, F10, F11
	No impact on course achievements	F1, F7, F12
Leaderboard	Frequent control of the leaderboard	F2, F3, F6, F8, F10, F11
	Improved course achievements due to competition	F2, F3, F6, F8, F10, F11
	Increased login frequency due to competition	F2, M1, F6, F8, F10, F11
	Improvement of motivation due to competition	F2, F3, F8, F10, F11
	Inability to control the leaderboard	F1, F5, F12

While there were views about the scoring theme such as increased login frequency, conducting actions to score, not conducting actions to score, improvement of course achievements, improvement of motivation and non-impact on course achievements, the views on the leaderboard included frequent control of the leaderboard, improved course achievements due to competition, increased login frequency due to competition, improvement of motivation due to competition, and inability to control the leaderboard. The views of the students K2, E1, K6, K8, K10 and K11, who argued that scoring increased system logins, were based on the desire to score and competition with other students. Certain student views on the above-mentioned reasons are presented below.

"...if I have to tell the truth, I logged in for points. Those who ranked below me were getting closer, so the number of my logins into the system increased to score..." (F6, 10min. 11s.)

"... noticed the scoring system. When I logged in the system, I received a point. I guess I would not have logged in the system that much if I was not awarded points..." (F8, 11min. 40s.)

"...the scoring system was quite fair, I logged in and out several times to earn points..." (F11, 9min. 29s.)

The views of the students F2, F3, F6, F8 and F10 on conducting actions to score were based on reasons such as increasing their system score. Certain student views on the above-mentioned reasons are presented below.

"...I checked how I can score points, there were things like discussions, comments, likes, logging in the system, I conducted these actions to score..." (F2, 15min. 43s.)

"... I learned how to score later on. I was already logging in discussions to increase my score a little, I was writing messages..." (F3, 16min. 25s.)

"...the scoring system caught my attention. I accessed the system from time to time and reviewed the movies and the discussion section. I left comments in the discussion section to increase my score..." (F7, 13min. 37s.)

The views of the students F2, F3, F6, F8 and F10 on scoring to increase the course achievements were based on reasons such as increasing the system score. Certain student views on the above-mentioned reasons are presented below.

"...I think scoring had an effect on my achievement, it was an exciting process..." (F3, 18min. 14s.)

"... so, I spent efforts to earn points, it affected my course achievement..." (F6, 13min. 41s.)

"... since the points we scored in the system did not affect our grades, maybe we spent less effort to earn points, but my achievements have increased..." (F8, 14min. 08s.)

The views of the students F2, F3, F10 and F11 on scoring to increase motivation were based on reasons such as increasing the system score. Certain student views on the above-mentioned reasons are presented below.

"...so, it was actually exciting for me, the points contributed to my motivation..." (F3, 19min. 41s.)

"...scoring increased my motivation..." (F10, 10min. 52s.)

"...I logged in and out of the system several times to score points. The scoring on the platform motivated me..." (F11, 12min. 03s.)

The views of the students F1, F7 and F12 that scoring did not affect the course achievements were based on the fact that the scores did not contribute to the course grade. Certain student views on the above-mentioned reasons are presented below.

“...I know that scores do not contribute to the grade, so I did not care much...” (F1, 14min. 35s.)

“... I checked how to score but I did not make any extra effort for it, frankly because it did not contribute to my grade...” (F7, 14min. 57s.)

“... I noticed scoring but I did not care much because it did not have any effect on the grade, so it did not have any effect...” (F12, 15min. 18s.)

The views of the students F2, F3, F6, F8, F10 and F11 on checking the leaderboard frequently were based on reasons such as competition and curiosity of the scores of the other students. Certain student views on the above-mentioned reasons are presented below.

“...for example, there was something, for every successful course score, you earn a hundred out of a hundred. This is reflected on the leaderboard. People inevitably looked at it...” (F2, 18min. 13s.)

“... I checked my ranking on the leaderboard, I am curious ...” (F3, 22min. 18s.)

“... I often checked my score and my rank, my progress ...” (F10, 13min. 20s.)

The views of the students F2, F3, F6, F8, F10 and F11 that the leaderboard competition improved course achievements were based on reasons such as competition with other students and not losing the current rank. Certain student views are presented below.

“...for example, there was something, for every successful course score, you earn a hundred out of a hundred. This is reflected on the leaderboard. People inevitably looked at it...” (F2, 18min. 13s.)

“...I checked how to score points and the leaderboard. I logged in the system whenever to earn points. It started when I saw myself as the leader on the leaderboard. I was motivated to answer the assignment questions in detail. I often checked my ranking. Human nature makes us compete. We have a selfish nature. One says I will be the most successful. Even when the scores do not affect the course grade, a good spot on the leaderboard can make one to feel proud...” (F8, 17min. 32h.)

“...I always checked my rank in the leaderboard, I saw that I ranked 3rd with 691 points. I used the system with pleasure and liked it...” (F11, 15min. 21s.)

The views of the students F2, M1, F6, F8, F10 and F11 on the increase in logins due to leaderboard competition were based on reasons such as checking the leaderboard and curiosity. Certain student views on the above-mentioned reasons are presented below.

“...it promotes system logins. People inevitably wonder about their rank, especially after the assignments scores are earned...” (M1, 18min. 13s.)

“...I was checking the leaderboard. Even when it did not change. I really login to the system to check the leaderboard...” (F6, 16min. 24s.)

“... I was constantly checking my rank on the leaderboard, I guess there I feared of losing my rank since I was in the top three. It encouraged me to login to the system...” (F8, 19min. 41s.)

The views of the students F2, F3, F8, F10 and F11 on the increase in motivation due to leaderboard competition were based on reasons such as to making a difference and excitement. Certain student views on the above-mentioned reasons are presented below.

“...the leaderboard increased my motivation, yes, it made a difference...” (F2, 19min. 37s.)

“...the leaderboard created a different environment, it would be fine if it was not there, but I think it increased motivation...” (F10, 16min. 41s.)

“... I checked my ranking, it was nice to see what others were doing and my rank, it was exciting...” (F11, 17min. 17s.)

The students F1, F5 and F12 stated that they did not check the leaderboard since it did not affect the course grade, it was their style, and it did was not interesting. Certain student views on the above-mentioned reasons are presented below.

“...you score when you attend the class and do homework, there was a table about earning points. I once checked my rank. I did not spend much effort to score because it would not be reflected in my grade, so I did not care...” (F1, 17min. 23s.)

“... I never checked how points were earned because it did not affect the course grade. I can even say that I never noticed the scores or the leaderboard. I toyed with the system a little, but I do not remember. Maybe I could have seen it if it was more visible...” (F5, 12min. 45s.)

“...for me, it was never encouraging. I thought that I should get better grades and proceed normally. However, I think this was good for competitive friends who love racing. Of course, the scoring system could be improved. In short, it did not contribute to my achievements, but it certainly does not mean that it did not for others...” (F7, 17min. 03s.)

The impact of the discussion platform on gamification-enhanced online learning experiences

The analysis of the views of the participants on the impact of the discussion platform on gamification-enhanced online learning experiences revealed the codes and sub-themes indicated in Table 7 based on the positive and negative themes.

Table 7

The views of the participants on the impact of the discussion platform on gamification-enhanced online learning experiences

Theme	Sub-Theme	Participants
Positive	• Motivation	F1, F2, F3, M1, F7, F8, F11
	• Only reading the discussions	F1, F2, F4, F5, F6, F10
	• Improvement of course achievement	F1, F2, F4, F5, F8
	• Increasing the number of logins	M1, F4, F8, F11
Negative	• No impact on course achievement	F3, F6, F7
	• No impact on motivation	F10, F12

The positive views of the participants included that the discussions led to motivation, they only read the discussions, they improved course achievement and the number of system logins, while those who stated negative views reported that the discussions did not affect course achievement and motivation. The views of the students F1, F2, F3, M1, F7, F8, and F11 that discussions increased motivation were based on reasons such as the discussions supported brainstorming and curiosity. Certain student views on the above-mentioned reasons are presented below.

“...I was more curious about what my friends were actually thinking. That was why I checked the comments, I even liked some comments, they motivated me...” (F1, 21min. 37s.)

“...the discussions were not very active, but sometimes it was active about some movies. I wondered about the discussions between those who wrote constantly, there were interesting ideas. Curiosity motivates me...” (F3, 25min. 13s.)

“...it helped the course and my motivation. Before watching the movie, I reflected and brainstormed on the movie after I checked the questions and answers of my friends...” (F11, 19min. 20s.)

The students F1, F2, F4, F5, F6, and F10 who did not participate in but only read the discussions stated that they wanted to benefit from the views of other students, and they were curious. Certain student views are presented below.

“...I really liked the discussion section in this system. It was very efficient. I did not send any messages. However, I had the opportunity to read others’ statements...” (F2, 20min. 52s.)

“... I read the discussions on the internet. Before watching the movie, I particularly read them. There were some really useful things. I did not write any messages, but I always read...” (F4, 15min. 48s.)

“... I did not actively participate in the discussion section, but I read the discussions of others about the movies in my spare time, when I wondered about them...” (F10, 18 min. 28.)

It was observed that the view of the students F1, F2, F4, F5, and F8 who considered that the discussion section increased course achievements were due to the preliminary discussions about the movies. Certain student views are presented below.

“...I think the presence of a discussion system had a significant effect on course achievements, unlike scoring. Because there were preliminary discussions about the films. Thanks to our friends, they shared their views. I think the discussion section was the most efficient and noteworthy section in the system...” (F2, 21min. 24s.)

“... I read what others wrote. There were really good comments, and these affected my answers. It contributed to my course achievements...” (F5, 17min. 08s.)

“...I think that the discussion system contributed to course achievements and motivation due to the preliminary discussions about the movies...” (F8, 18 min. 12s.)

It observed that the views of the students M1, F4, F8, and F11 who argued that the discussion platform increased system logins were based on reasons such as sharing their views and benefits of reading the views of others. Certain student views are presented below.

“...we need to perceive something expressed in the movie and send it to life, and this could be done in discussions. You watched it, you will apply it to life you will discuss, you will look at things with that perspective and then you will see. To achieve this, I think a discussion environment is important. The discussion topics motivated me. I constantly logged in the system for this purpose...” (M1, 20min. 28s.)

“... some people want to share their ideas on public platforms. Observing your own feelings and ideas on the system could lead to a pleasant feeling. The discussion section encouraged me to constantly log in to the system...” (F8, 19 min. 10s.)

“...the discussion section was my favorite, good conversation always made me inquire about the movie. It encouraged me to log in to the system...” (F11, 19min. 52s.)

It was observed that the views of the students F3, F6 and F7 that the discussions did not contribute to course achievements were based on the lack of active participation and impact on the course grade. Certain student views on the above-mentioned reasons are presented below.

“...the discussion section was not as active as I expected. Perhaps, it would be more active if the participation was better. As I said, I red what was written, but it did not contribute to my achievements in the course...” (F3, 27 min. 32s.)

“...I cannot say that it would be more boring if there was no discussion section, but it would not be a big problem for me if it did not exist. I focused more on homework, I did not think it affected my grade...” (F6, 19min. 02s.)

“...it was nice to have a discussion section in the system. But since it was a student group, it was not very active. I did not participate in the discussions. But I checked out discussions on some movies to obtain information about the topic of the movie. I do not think it contributed to my achievements...” (F7, 18min. 30s.)

The students F10 and F12 stated that the discussions did not contribute to motivation based on reasons such as the good comments of other students and the virtual environment. Certain student views on the above-mentioned reasons are presented below.

“...I did not want to use this section because I experience problems expressing myself verbally and I thought I was not good at criticizing and interpretation. Although it did not contribute to me, the section may have contributed to the achievements of some students. Because my motivation was low due to good comments and analyses. As I saw the comments with good verbal expression, which I lacked, I was sometimes surprised that they could write such sentences...” (F10, 20min. 01s.)

“...I had the chance to participate in the discussion section about a few movies. It was a nice opportunity to share ideas, but reading everything that was written, sharing our own ideas, writing and reading on the computer or on the phone was a bit difficult for me. I am a person who can participate better verbally in these discussions, so it was not a source of motivation for me, but this would vary for others. I think everything associated with the fact that the course was instructed on a virtual environment reduced my motivation for the course...” (F12, 18min. 22s.)

The impact of the process where the movies were explained for the participants on the gamification-enhanced online learning experiences

The analysis of the views of the participants on the effect of movie selection and the explanation of the movies on gamification-enhanced online learning experiences revealed codes and sub-themes presented in Table 8 under the positive and negative themes.

Table 8

The views of the participants on the effect of movie selection and the explanation of the movies on gamification-enhanced online learning experiences

Theme	Sub-Theme	Participants
Positive	• Raising curiosity	F1, F2, F3, M1, F6, F8, F10
	• Increase in logins	F1, F2, F3, M1, F6, F8, F10
	• Increase in motivation	F2, M1, F4, F6
Negative	• No impact	F5, F7, F11, F12
	• Decrease in achievements	M1

While positive views such as raising curiosity, increase in system logins and motivation were expressed by the interviewed students, certain students had negative views such as the decrease in achievements and ineffectiveness of the system. It was observed that the views of the students F1, F2, F3, M1, F6, F8, and F10 on curiosity were based on reasons such as raising student interest and excitement. Certain student views on the above-mentioned reasons are presented below.

“...on the day and time the movie was announced, I logged in and checked. Because I was curious...” (F3, 28min. 04s.)

“...the random selection of the movies we watched in the course increased the excitement. I think the interest in the course would decrease if the movies were determined in advance. Because most people were asking about the movie of the week all the time...” (F6, 21min. 11s.)

“...I think it was very nice. The movie was revealed in the system after 22:00 on Tuesday. I was looking forward for the next movie...” (F8, 22min. 12s.)

It was observed that the views of the students F1, F2, F3, M1, F6, F8, and F10 that it increased system logins were based on the factor of curiosity. Certain student views are presented below.

“... I remember the days when I logged in the system to see if you announced a movie. It encouraged me to constantly login to the system...” (F1, 23min. 42s.)

“...it was nice that the movies were surprises, as soon as they were announced, I logged into the system and searched for them...” (F8, 22 min. 34s.).

“...it was nice that the movies were surprise, it raised curiosity about the movie of the week, I logged into the system and checked when the message arrived...” (F10, 21min. 42s.).

It was observed that the views of the students F2, M1, F4 and F6 on motivation were based on curiosity and planning. Certain student views are presented below.

“...after 23:00h, a message arrived introducing the new movie on the system. I wondered if it would be a movie that I watched previously. Or would it be a movie that I have not watched before. That was why I either asked a friend or logged into the system. So I can say that the surprise motivated me...” (F2, 23min. 37s.)

“...based on this perspective, the student could plan. It was very nice in that respect. Motivation increased...” (M1, 21min. 46s.)

“...I think it was good to be surprised. When the title of the movie was announced, I either checked the e-mail or logged into the system, which increased my motivation...” (F6, 23 min. 38s.)

The views of the students F5, F7, F11 and F12 who considered it ineffective were based on reasons that the application was unnecessary, and the planning was weak. Certain student views on the above-mentioned reasons are presented below.

“...there was no reason for the movies to be announced beforehand, and I think the surprise had no effect...” (F5, 20min. 15s.)

“...it did not lead to any problems or motivation for me. Most of the movies were great so randomness was not an issue nor it had any effect...” (F11, 20min. 38s.)

“...I think they should be announced beforehand. We could plan accordingly. In fact, watching movies in class would save time. We constantly felt under pressure that we should study all the time. I think the application did not contribute to achievements and motivation...” (F12, 21min. 02s.)

The student M1 stated that the application decreased the achievement since it was disorganized. He expressed his view as follows.

“...I think disorganization decreased achievements. I was really waiting, I was checking for the movie to arrive and I was happy when I saw the introduction, but I would prefer the achievement more. I was very excited but I prefer to be successful...” (M1, 22min. 52s.)

4. RESULTS, DISCUSSIONS AND SUGGESTIONS

The present study findings included the views of 12 participants, who participated in a gamification-enhanced online learning environment for 8 weeks on the system and process.

The study findings demonstrated that students did not experience any technical problems during gamification-enhanced online learning applications, and the system allowed an efficient and flexible learning process due to temporal and spatial conveniences. Certain students stated that the process provided comfortable learning

opportunities and contributed to permanent learning. However, the negative views of certain students indicated that gamification could not be sufficient in promoting higher-level cognitive skills towards the course achievements. In fact, de-Marcos, Domínguez, and Saenz-de-Navarrete (2014) reported a similar case and stated that gamification was weak when compared to conventional methods in the achievement of high-level learning goals such as evaluation. However, this could vary based on the course content and the learning goal type. In a study conducted by Hew, Huang, Chu and Chiu (2016) on gamified online courses, it was reported that students in the gamification group produced more qualified learning products when compared to the non-gamification group. Finally, the analysis of the views of the students on gamification elements demonstrated that the gamification elements that contributed to achievement included restricting access, leaderboard, and raising curiosity, and the score contributed but cited relatively less. This could be due to the fact that the gamification scores did not affect student grades. Although there were positive views on the use of scores for gamification elements in education in the literature (Goehle, 2013; Özkan & Samur, 2017; Sel, 2017; Aldemir, Celik & Kaplan, 2018), it could be suggested that there was no dominant variable that affected achievement in the present study. In a study, Meşe (2016) reported that restricting access was among the most effective gamification elements, similar to the qualitative results of the present study.

The study findings revealed that restricting access, leaderboard, scores and gamification elements had an effect on the number of student logins into the system. In previous studies, it was reported that gamification increased the number of comments in online discussion forums (Ding, 2019) and participation in online instruction activities (Kuo & Chuang, 2016; Sümer, 2017; Wingo et al., 2019). It was observed that these findings were partially consistent with the present study findings. However, it should be noted that the gamification-based discussion platform in the system which aimed to allow social interaction affected student motivation the most. As frequently stated by the students about the discussion platform, communicating their ideas may have contributed to their self-efficacy and task-oriented values about the course or learning tasks (based on observation).

Suggestions

Based on the study findings, it could be suggested that the most effective factors in gamification-enhanced online learning were restriction of access, curiosity, leaderboards and discussion platform. Scoring and leaderboards were effective for some students, but not for others. The students who claimed that they were ineffective stated that the grade was more important than the scores. However, it was also observed that students who ranked high on the leaderboard were willing to participate in learning activities to score points and to maintain their rank. It was observed that restriction of access and curiosity also affected the number of student logins and raised interest. These features could be used as a gamification element to attract student interest and increase logins in online learning environments with low course attendance. It was observed that discussion

platforms contributed to student motivation by providing a social environment. Thus, it was suggested that the use of gamification strategies in online learning environments could lead to better achievements and subject-specific planning. However, a team that would include an interface designer, field specialist, instructional designer, gamification designer, and even a game designer should be employed for more effective results in the reflection of gamification mechanics and dynamics to design and to investigate the effects of these factors in future studies on development of gamification elements in online learning environments. It was determined that certain students did not pay attention to some gamification elements due to design issues.

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The ethics committee approval for this study was obtained from the Ethics Committee of the Rectorate of Sakarya University, dated 08/11/2019 and numbered 61923333/050.99.

Statement of Contribution of Researchers to the Article:
1st author contribution rate: 60%
2nd author contribution rate: 40%
Conflict of Interest Statement:
There is no conflict of interest.
Statement of Financial Support or Acknowledgment:
No financial support was received from any institution for this study.