

## DROP-OUT in MOOCs

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### ABSTRACT

Advances in information and communication technologies have been influenced on the learning-teaching practices that fostered development of new learning environments and implementations. The Massive Open Online Courses (MOOCs) are one of these new learning environments. Although it is believed that MOOCs have a great potential in formal and informal education, high drop-out and low completion rates are considered as a major issue about MOOCs. This study examined the factors that effected the MOOC participants' noncompletion in the MOOCs Platform, entitled as AKADEMA, of Anadolu University, and their recommendations for improvement of these MOOCs. During this case study, data were collected by using an online questionnaire that included open-ended questions. A content analysis process was employed to reach the themes about noncompletion reasons. Three themes were drawn personal reasons, platform (program)-based reasons, and design-based reasons. Among personal reasons, the 'other responsibilities' was the most often cited reasons of noncompletion. Meanwhile, length of the courses (too long) among platform (program)-based reasons, and insufficient timely feedback from the instructors among the content design-based reasons were noted the most. In terms of recommendations for improvement, better announcements about start and end dates of the courses, quality of the videos, more user-friendly interface, and variety in course contents are listed as the major ones.

**Keywords:** Massive Open Online Courses, AKADEMA, Drop-out MOOC

### INTRODUCTION

Changes in information technologies have affected learning-teaching processes and have led the development of new learning environments and applications. New emerging technologies especially have contributed to the development of new learning environments by affecting the functioning of learning-teaching activities, and have made the provision, circulation, and sharing of education of the same standard and quality possible on a global scale. One of the formations brought about by these developments is Massive Open Online Courses (MOOC), which have emerged as new learning environments. Through the use of technologies in learning environments within MOOCs, it is possible to meet with experts in the field, bring together participants at national and international levels in interactive environments, and to share many varied instructional materials (de Freitas, Morgan, & Gibson, 2015). MOOCs provide environments that enable lifelong learners to access the current information they need for both their professional and personal development without restrictions. MOOCs emerge as "digital learning environments", which are independent from time and place, and which provide learners with learner-centered flexible learning opportunities by removing education and teaching from the traditional classroom environment. In other words, with the help of developing and changing communication technologies, the concept of "learning" has spread to all moments and locations in life and has been transformed into a continuous lifelong concept.

MOOC applications—which provide the opportunity for a large number of learners to learn online and which are based on the philosophy of openness—were first used by Dave Cormier to describe *Connectivism and Connective Knowledge – CCK*, a course that was developed by George Siemens and Stephen Downes in 2008 (Yuan & Powell, 2013, p. 5). Evaluated as an extension of online learning approaches, MOOCs are educational models that provide learners with online content to individuals who need to "learn" anytime and anywhere in both the public and private sector (Yuan et al., 2013). The MOOC concept is formed by combining the initials of MOOCs, reflects the structure, scope, and components of emerging online courses. For example, with the concept of 'Massive', courses are designed according to a structure that can reach a large group of learners, and the diversity of learner characteristics participating in these courses and the different perspectives arising in courses are emphasized (Siemens, 2013: 5). The concept of 'Open' means that learners are free to participate in classes; they are interact and control their learning processes without any learning prerequisites and in line with their learning needs (Downes, 2013). The concept of 'Online' expresses that courses are offered through web and internet technologies. The concept of 'Courses' states that the interaction elements, learning materials, counseling services, and educational activities required for a learning environment are presented in a pedagogical context for a certain

period. Since MOOC applications are generally designed for mass learning, environments such as social media channels, forums, or blogs are often used to facilitate interaction among learners, or between learners and instructors.

As a requirement of the information age, the fact that individuals today are willing to join universities and other institutions on a lifelong basis—independent of time and place—in order to meet their existing information gaps, has naturally increased the popularity and spread of MOOC applications (Conole, 2015). While the opportunities of “individuality”, “flexibility”, and “independence” offered by the MOOC environment may cause a change in the philosophy of education, they might also result in certain practice-based problems. One of the problems experienced in practice is the attendance problem in educational activities because, although the MOOC practices provide learners with temporal and spatial flexibility and facilitate continuous education, it is observed that there are differences between learners’ registration and completion rates. In some studies learner completion rates, or the reasons for drop-out, are questioned, and especially when compared with traditional face-to-face education, MOOC drop-out rates are quite high (Clow, 2013; Conole, 2015) and MOOC completion rates rarely exceed 10% (Daniel, 2012; Sandeen, 2013). The reasons leading this result are listed as lack of course accreditations (Bergelson, 2014), lack of resources for providing learning and social support (Clow, 2013; Booth et al., 2014), insufficient and ineffective feedback due to large class sizes (Solomon, 2013), low motivation caused by being free (Onah et al., 2013), lack of admission criteria (Chen, 2014), lack of a sense of belonging to a community, and enough time to attend and technology skills (Onah et al., 2013). When the reasons for drop-outs are examined, it is observed that these reasons are related to the pedagogical structure of MOOCs, as well as to a lack of authority imposed on learners (Bozna, 2016; Koutropoulos et al., 2012). Comparatively, the reason behind learners’ attendance in MOOC applications is considered as another factor affecting dropout or completion rates. For example, while some learners try to complete the MOOC application for certification, others may prefer to complete the courses merely to ensure continuity of their personal development and to use materials prepared for their general interests (Liyanagunawardena et al., 2015).

One of the applications of MOOC practice in Turkey is the learning platform AKADEMA, which serves as a massive open course in Anadolu University. The aim of the AKADEMA application platform, which launched with seven courses in 2015, is to provide environments and materials that present learning opportunities to people of all ages, from all social strata, and by providing them with a structured learning experience to support the lifelong learning processes. As of 2019, AKADEMA continues to serve with a total of 107 courses in four different categories. The courses given within AKADEMA include xMOOC practices, which are described as “traditional” and adopt behavioral pedagogical approach; in other words, open online courses on the AKADEMA platform serve as course apps that are developed free and that are open to anyone who wants to learn. The content of AKADEMA courses—which serve as xMOOC applications—include short lesson videos, other lesson materials prepared by the instructor, discussion forums, and learner assignments for performing evaluations. Within the scope of this study, the reasons as to why the students who participated in the AKADEMA platform to obtain new information later dropped the courses were examined and their suggestions to continue the courses were also questioned.

## **METHODOLOGY**

A case study method was employed in this study. It was conducted with 325 volunteer AKADEMA participants in March 2018. Participants were asked to answer the two open-ended questions: first, whether and why they had dropped their courses; second, how they would suggest the courses could be run more effectively. After having data collected, a content analysis was carried out to answer the research questions.

Content analysis is the gathering of similar data within a framework of certain concepts and themes, and the interpretation and organization of these data in a way that helps the reader understand these concepts and themes (Yıldırım & Şimşek, 2006). In other words, content analysis can be defined as a systematic, repeatable technique in which some words of a text, such as books, book chapters, articles, theses, letters, historical documents, newspaper headlines and writings are summarized into smaller content categories through coding based on certain rules (Sert et al., 2012). Content analysis can be used in both qualitative and quantitative research; the steps followed during the research process and the way the data are collected reveals whether a study is more suited to a quantitative or qualitative method. This study used a quantitative research method as it was conducted by considering the number (frequency) of certain concepts and themes that were determined in those answers given by the learners to the questions.

In this study the participant responses to the first open-ended questions were arranged and recorded in a Microsoft Word page. The data were independently coded by two researchers, and themes and sub-themes created in line with common opinions. As part of the coding phase, researchers selected and then coded the meaningful parts of the answers into words or sentences so that common themes could be extracted from their answers. Accordingly,

qualitative data obtained from participant responses were summarized into plain language, and themes for each sub-problem were created. In qualitative studies, it is important for experts to listen to the data-collection recordings and read the transcripts in order to ensure the reliability of the data collated using the interview method (Patton, 2001). Therefore, in the current study two experts performed the same procedure separately to ensure reliability of the study data. The data were then coded by the two researchers and the two sets of coded data were compared. At the end of this comparison, although there were different forms of expression in the two sets of coding, it was observed no semantic difference was observed, and the coherence level of the two sets of coded data were similar.

### FINDINGS AND DISCUSSION

In the study, learners were asked to voice their suggestions as to why they dropped out the MOOC, and should be done to run these courses more effectively. The results of the analysis of these coded data are given in separate tables below.

**Table 1. Reasons for Dropping out MOOC**

<b>Personal Reasons</b>	
Obligation to prioritize to other jobs (family, school, work, etc.)	80
Lack of time	56
I was not thinking about completing anyway, I just signed up because I was curious	19
Lack of necessary technology skills	12
<b>Program-related Reasons</b>	
Long course duration	15
Difficult course activities	13
Lack of necessary support from course instructor	12
Others	26

On examination of Table 1, which shows the reasons for dropping out the MOOC, it can be seen that these reasons are gathered under two headings: personal reasons and program-related reasons. Concerning personal reasons, the most common reason given is that learners were working, attending an educational institution, or having to spend time with their family (n=80). They also mentioned lack of time as the reason for dropping out (n=56). According to the table, another reason is that some participants (n=19) signed up for the course just because they were curious and did not think whether they would actually complete the course. Finally, it is seen that 12 students dropped the courses because they did not think they had the technological competence to complete it. Considering the program-related reasons, it was found that the participants thought that the duration of the courses were too long (n=15), that course activities were difficult (n=13), or that they did not receive sufficient support from the course instructor (n=12). In addition to these reasons, learners also showed other reasons as to why they had dropped out the courses. Other reasons are presented in Table 2.

**Table 2. Other Reasons for Dropping out MOOC**

<b>Personal Reasons</b>	
Lack of technological equipment	5
Lack of time	5
Lack of self-discipline	3
Insufficient technology skills	2
Personal information is required	1
<b>Content-related Reasons</b>	
Lack of feedback from instructors	2
Excessive number of courses	1
Low visual quality of course videos	1
Absence of knowledge on learning outcome	1
Excessive number of assignments	1
<b>Interface Design-related Reasons</b>	
Complex structure of the system	3
Technological problems in the program	1

When Table 2 is examined, it is seen that the opinions of the learners about dropping out the MOOC are grouped under three titles: personal reasons, content-related reasons, and interface design-related reasons. Personal reasons voiced by learners are as follows: lack of technological equipment (n=5), lack of time (n=5), lack of self-discipline

(n=3), lack of technology skills (n=2), and being unwilling to share personal data (n=1). Regarding the reasons arising from content design, learners pointed to a lack of feedback from the course instructors (n=2), the excessive number of courses (n=1), low visual-quality of the course videos (n=1), absence of knowledge on learning outcomes (n=1), and excessive number of assignments given in the courses (n=1). Among the reasons stemming from the interface design, three of the learners found the structure of the system complex, and one learner dropped out the course because the program had technical problems.

The learners were asked about their suggestions to continue the courses and their answers are presented in Table 3.

**Table 3. Suggestions for Massive Open Online Courses**

<b>Managerial Suggestions</b>	
Courses should be diversified	13
Learners should be informed about the start and end dates of the courses	9
Learners should be certified upon completing the program	3
AKADEMA should be promoted more	3
Learners should be offered flexibility about starting and ending classes	2
Course notifications should also be given with the help of the mobile application	2
Course durations should be extended	1
AKADEMA courses can be opened for more than one semester during the year	1
<b>Suggestions for Content Design</b>	
Videos should be used more effectively	11
Learners should be given feedback on time	7
Learner–instructor interaction should be provided	6
Lectures should be more detailed and interesting	5
<b>Suggestions for Interface Design</b>	
The use of interface should be simpler and easier	6

Table 3 contains presents learners’ suggestions for not dropping out the AKADEMA courses and how the courses could be more effective. On examination of their responses, learners’ answers were grouped under three titles: managerial suggestions, suggestions regarding content design, and suggestions regarding interface design. On examination of participants’ managerial suggestions, the first three suggestions expressed by the learners are that the courses should be diversified (n=13), the learners should be informed about the start and end dates of the courses (n=9), the course certificate should be given at the end of the program (n=3), and AKADEMA should be promoted more (n=3). The suggestions for content design showed that learners asked for course videos to be used more effectively (n=11). Participant responses also emphasized that feedback should be given to learners (n=7), with learners asking for increased learner–instructor interaction in particular (n=6). Finally, learners emphasized that the lectures should be more detailed and interesting (n=5).

## RESULTS AND SUGGESTIONS

While MOOCs provide learners with massive-education learning opportunities regardless of temporal and spatial constraints, they increase the dropout rates due to certain issues common to MOOC platforms. The aim of the study is to reveal possible reasons stated by the students who started but dropped out AKADEMA courses, and to identify necessary suggestions for them continuing the course. Within the framework of this general purpose, students were asked about the reasons for dropping the courses, and then their suggestions as to what should be done to encourage them to continue the course and make the courses more effective and productive. Suggestions voiced by learners were grouped under two headings: personal reasons and reasons stemming from the course structures. Concerning personal reasons, participants stated that they had to give priority to other works, that they had insufficient time, that they attended merely out of curiosity, and that they did not have the ability to use the necessary technology at the required level. These findings are in line with those studies on the open and distance learners’ dropping the courses and the fact that open and distance learners have to devote time to work, family, and social responsibilities, which can cause problems in regard to dedication of time. It is stated in the related literature that more than half of the reasons for learners dropping out—especially among learners undertaking open and distance learning—are due to the personal characteristics of the learners themselves (Lee & Choi, 2011). Similar to the findings of this study, another study emphasized that learners experienced problems managing their time in regard to a different MOOC application (Perrt et al., 2008; Horzum, 2016; Aybek, 2017). In the study conducted by the University of Minnesota on students leaving education who were enrolled in online learning environments, it was stated that the learners experienced difficulties managing time because they had to devote

time to their families and jobs (UNM, 2011). In Willging and Johnsons' (2009) study, it was stated that obligations to work resulted in learners dropping out of earners online courses because they could not carry out their work and education calendars concurrently. Similarly, in the study by Onah et al. (2013), lack of time was listed among the reasons for students dropping out of MOOC courses. Accordingly, it can be seen that the results of the present study are similar to the results reported in similar studies in the literature.

Among those reasons for dropping out reported by the students in the current study, it was found that learners enrolled the courses merely out of curiosity, and that they did not intend to attend classes. This finding is similar to those of studies in the literature. These studies in the literature report that showed learners participating in MOOC applications did not really want to complete their courses (Onah et al., 2013; Kolowick, 2013; Vries, 2013), that they enrolled for the predicted benefit (Xu, 2015), that they entered the system only to meet short-term requirements, and that they left the online course after reaching their desired goals (Xing et al., 2016). In many studies, it is also seen that learners' curiosity regarding their participation in MOOCs comprises one their primary reasons to enroll in the course (Jacobs, 2013; Kirschner, 2012; Martin, 2012; Feng et al., 2019; Young, 2013; Zutshi et al, 2013). In this regard, the findings of the current study accord with findings revealing that the learners dropped out MOOC courses after registering merely out of curiosity.

Learners also expressed insufficient technology skills as a reason for dropping out the courses. Learning activities are carried out through the use of technology in MOOCs, which bring together many individuals through web-based online lessons. Accordingly, it is imperative that participants are able to use technology at a certain level; otherwise they will experience problems in following lessons and participating in course activities. In studies from the literature, it is stated that insufficient digital skills is a reason for learners dropping out of MOOCs (Kolowick, 2013; Onah et al., 2013; Vries, 2013).

Additionally, the reasons listed for learners' dropping courses due to content design, include overly long course duration, difficult course activities, and lack of support from the instructor. Other studies in the literature (Kolowick, 2013; Onah et al., 2013; Vries, 2013) report insufficient and poor quality technical support, and difficulty of the courses themselves as among those reasons for learners dropping out of MOOCs. In the personal interviews held with AKADEMA management, the researchers learned that, from the second half of 2020 onward, lessons will be offered that have been designed so learners can receive their education at their preferred learning speed; furthermore existing courses are to be revised in accordance with this design. In addition, the management stated that they paid attention to having at least 25 hours of workload in order to earn at least 1 ECTS for the learners. They also stated that the learners have to perform sufficient activities for this workload.

In this study, the learners were asked to state those reasons why they had dropped out the AKADEMA courses other than the options given in the data collection form. Other reasons voiced by learners are grouped under three headings: personal reasons, content design-related reasons, and interface design-related reasons. Considering those personal reasons expressed by the participants, lack of technology, time barrier, lack of self-control of the participants, the lack of technology skills were the most frequently mentioned reasons. By its nature, the AKADEMA system conducts the learning process through technology, and in this regard it can be said that it is naturally difficult for those who experience problems accessing technology to receive education through AKADEMA. Another personal reason is participants' lack of self-control skills. It can be said that learners' psychological characteristics determine their attitudes towards the learning process, as well as those elements involved in this process; the fact that learners have self-control skills is one of the psychological characteristics that are effective in the learning process. It is important that learners possess self-control skills, especially in those online learning environments in which learners have more control, independence, and responsibility concerning their own learning (Kuo et al., 2014; You & Kang, 2014). Accordingly, it is imperative that learners take responsibility in their learning process, are able to motivate themselves, and are able to conduct learning planning within MOOC environments as online learning applications (Kuo et al., 2014). Therefore, it can be stated that learners' self-control skills are also an important requirement for MOOCs.

Regarding reasons stemming from content design, the learners reported a lack of feedback from teachers, excessive number of courses, low visual-quality of lesson videos, absence of knowledge concerning learning outcomes, and excessive number of assignments. Certain other studies from the literature, such as Yuan et al. (2013) and Ivankova and Stick (2007) show that feedback given by tutors to be an important part of the open and distance learning process, and that this decreases the possibility of learners dropping out of courses. Comparatively, it is stated that the inadequacy of the instructors to provide feedback to a massive student group is one of the problematic factors related to these courses (Solomon, 2013). In the study conducted by Aybek (2017), learners reported the insufficiency of feedback as a negative experiences concerning MOOC; learners found such feedback to be necessary on the grounds it facilitates learning throughout the learning process and that it increases the quality of



education. It can be stated that feedback provided by tutorials is particularly important in distance-learning environments requiring learners to engage in self-study to improve clarity, and research in the literature states that instructor feedback helps the learners actively participate in the lesson processes and focus their attention on lesson subjects (Dong & Goh, 2015). In addition, it can be said that one of the most important factors for providing a feeling of community among learners in online learning environments is the feedback provided by instructors (Marquois-Ogez & Bothorel, 2006; Feng et al., 2019). Accordingly, it can be stated that providing feedback in the MOOCs, which use a distance-learning model, is very important for motivating learners, increasing their attendance helping to foster a sense of community. Furthermore, it is important for learning to be controlled through feedback—regardless of whether student-teacher interaction is healthy (Brinko, 1990)—because it is a fact that the students reinforce their learning through feedback and that feedback positively affects information permanence. Horzum (2016) also reports a similar finding in his study, which investigates the reasons for leaving MOOCs, and identified the insufficient feedback as being among the reasons for dropping out the courses.

Another problem for learners in the study concerning content design was the low quality of course videos. It can be said that videos diversify ways of sharing information for learners in MOOC environments. Studies from the literature show that videos have positive benefits in terms of learning, concentration, and active-learning experience (Gökmen et al., 2016; Delen et al., 2014; Dong & Goh, 2015; Vural, 2013; Wachtler et al., 2016). Studies show that the use of quality video increases motivation in the learning process but that, conversely, they also create a reason for dropout (Bezerra & Silva, 2017; Clow, 2013; Wilkowski et al., 2014). Aybek (2017) found that the experiences of the learners were negative in those MOOCs with a general text-based content, where visuals and video were unused. In his study, Horzum (2016) finds that learners indicated boring lecture videos as one of the reasons for dropping out of MOOCs. Accordingly, it can be stated that that these studies in the literature support the findings of the present study. The number of lessons and the inability of learners to know learning outcomes were among the other problems expressed by the learners.

Under the title of interface design-related reasons, the participants stated that the structure of the system is complex, and that the program has technical problems. An important condition for learners to follow the program with interest is to design the interface so that it facilitates learning. Supporting this finding, Aybek (2017) found in his study that the learners stated that interface problems was one of their negative experiences concerning MOOCs. It is important for users that the MOOC interface is simple, easy, and user-friendly. Learners should be able to easily navigate the page, move forward, and return. In addition, the technical problems of the program voiced by the learners may be caused by problems related to the infrastructure of the program.

Finally, learners were asked to report their suggestions as to how the AKADEMA courses could be made more effective. Suggestions from the participants are categorized under three headings: managerial suggestions, suggestions for content design, and suggestions for interface design. Within the category of managerial suggestions, the most suggestions from learners came in regard to the diversification of courses. Additionally, learners stated that regular warnings should be given by the system as to the course end and start dates. Another suggestion expressed by the learners was the requirement of giving certificates to those who completed their courses. Today, those who successfully complete their AKADEMA training are given a course completion certificate, signed by the Rector of Anadolu University. The condition that must be met for a learner to be considered 'successful' in those courses supervised by the guides is that they must have commented those tasks expected of them from the course start and end dates. Course Completion Documents are delivered electronically to the learners (in .pdf or .jpeg format), but are not provided as a printed document. According to Young (2013), one of the reasons for enrolling in MOOCs is the desire to get a certificate at the end of the course, and studies from the literature highlight that a certificate on completion of a course might decrease dropout rates among learners (Waard, 2011; Zhou, 2016). Therefore, it can be thought that creating the conditions of giving certificates to those who complete the AKADEMA courses will make these courses more attractive. In addition to these suggestions, learners suggested that AKADEMA should be promoted more and that courses should be open for more than a single semester throughout the year. Another suggestion from the participants is that course notifications should be transmitted using mobile applications; the advantage of mobile environments that offer flexible learning environments to learners by removing spatial and temporal limitations could be used to MOOC applications. According to the suggestions provided by learners, mobile technologies can be used with particular efficacy by leaders to provide learners with information about the start and end dates of course lessons. Furthermore, they might also be used to send notifications to learners about the course schedule.

Some of the suggestions voiced by the learners were also categorized under the title of 'suggestions for content design'. Accordingly, learners mentioned that videos should be used more effectively, and emphasized that they should be given timely feedback. These two issues have been previously discussed in the current study. In addition to the above suggestions, they stated that learner-teacher interactions should be provided.

In order for the learners to benefit from the MOOCs—where participation is massive and whereby learners and instructors participate in learning processes at different times and environments—interaction must be maintained, increased, and managed throughout the course itself. Studies show that effective structuring of instructor–learner interaction process remains an important indicator of the success of open and distance learning experiences (Artsın, 2019; Aybek, 2017; Aydın, 2016; Bozkurt, 2015; Hone & El-Said, 2016; Feng et. al., 2019). In the aforementioned studies, it is stated that the increase in learner–instructor communication positively affects learning; comparatively, lack of interaction negatively affects both dropout rates and student satisfaction. For this reason, it becomes evident that the instructors, who are among the most important components of this system, should possess certain competencies. Beyond being a content provider, instructors should also play the role of guiding and counseling learners, facilitate, nurture, and encourage quality communication and interaction (Kassandrinou et al., 2014). Instructors should pay attention to interaction to increase the quality, effectiveness, and efficiency of learning in the courses they conduct using distance-learning technologies (Huss et al., 2015). Another point emphasized by the participants is that the lectures should be more detailed and interesting.

As a final suggestion concerning interface design, participants of the current study stated that the interface should be simpler and easier to use. In related literature, it is also stated that online learning environments should have an effective interface design and should be easy to use; furthermore, they should include a user-friendly and aesthetic design incorporating effective navigation and search features, customizable content, and consistent interface and interface components (Bozkaya & Bozkurt, 2013). Accordingly, it can be said that the suggestions and expectations of the learners from the current study concerning interface design are in line with findings of studies in the literature.

As a conclusion, it is believed that the findings of the present study on MOOCs, which are the most up-to-date form of distance-education processes have reached, will help institutions offering open and distance courses, as well as and MOOC designers in Turkey to create more effective, efficient and attractive learning environments. It is hoped that this study will assist researchers and practitioners conducting in-depth studies on learners' views of the MOOC learning environment, and in shaping the environments, systems and processes based on the learners' needs. It is also believed that this study may be used as a ground for further research on those reasons as to why learners drop out of MOOCs.

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