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Abstract

MOOCs, although not a new educational phenomenon, have not seen much development in the Greek educational landscape. In May 2023, University of the Aegean, through its Lifelong Learning Center has launched its own OpenEdx platform for providing MOOCs to the public. Eleven courses were developed and offered in the pilot phase of the program and almost 3.000 participants were enrolled. Outcomes of the evaluation study on the participants showed that there was a high completion rate and high satisfaction levels and main reasons for participation were work and professional development, Moreover, it was found that the main obstacles they faced regarding their participation were related to work and family obligations.

Keywords: MOOCs, participation barriers, quality

1. Introduction

In 2023, University of the Aegean (UAegean) Lifelong Learning Center (LLC) initiated a pilot project for the provision of Massive Open Online Courses (MOOCs) to the public. The implementation and adoption of MOOCs have been a persistent objective, based on the observed scarcity of this type of lifelong learning initiatives. Currently, MOOCs are barely integrated within the Greek education system (Kappas & Tsolis, 2018; Protopsaltis et al., 2021;), highlighting a stark deficiency that UAegean LLC endeavors to address, as MOOCs are not only expected to enhance adult learning but also to extend educational opportunities to a broader audience.

The OpenEdX platform, used for the hosting and delivery of the e-courses, was developed internally, the syllabus and the subject matter content of the courses was developed by teaching and research staff in various scientific disciplines, while the instructional design and authoring of digital educational resources was held by a dedicated e-learning team. The platform

(https://mooc.aegean.gr) currently hosts eleven courses on various disciplines, with a duration of four weeks each and, accounting for up to 40 hours of self-study. All the courses were designed as self-paced xMOOCs, bearing a similar course structure, consisting of four sections (one section per week). Each course had a brief description, associated learning goals, study multimedia material (documents, presentations, videos, infographics, and virtual reality applications), various learning activities, and a final assessment (e-test).

During the few days that the courses were open for enrolment, and up to the start of their implementation, 2.997 people were enrolled in all the courses. Each participant, to successfully complete the course, had to follow all the training materials and succeed in obtaining a pass mark of more than 60% on the final assessment, and acquire a digital certification from the LLC.

In this context, being the first MOOCs to be offered by the University of the Aegean in an organized lifelong learning program, an evaluation survey was designed and conducted to gather and analyze data from the participants. Each participant, before completing the course was prompt, on a voluntary basis, to complete an anonymous evaluation questionnaire.

Preliminary results from the analysis of this evaluation questionnaire are presented in this study, aiming to highlight various aspects concerning participation in this type of distance education initiatives.

2. Theoretical Background

2.1. MOOCs and Lifelong Learning

Throughout their lives, the average adult learns through self-education, daily experience, and personal interest. According to Coombs & Ahmed (1974), educational activities can be categorized into three types:

- Formal education, referring to the hierarchically structured and chronologically graded educational system, which includes all levels of education (primary to tertiary) as well as specialized programs and institutions in vocational and technical education.
- Non-formal education, which encompasses organized educational activities outside the formal educational system. It has specific educational objectives, targets specific learners, and can lead to the attainment of recognized certification at the national level.

- Informal education, which relates to the acquisition of knowledge and the development of skills, attitudes, and values through daily experiences and interaction with the environment. Learning that occurs informally is not certified, unlike the first two categories, as it is not based on a curriculum, learning objectives, and time constraints and lacks instructional support (Jeffs & Smith, 1990).

The integration of these three types essentially constitutes the 'lifelong learning continuum.' It encompasses all educational and learning activities, regardless of the educational level or context, content, and characteristics of learners (age, educational level, etc.). It is a contemporary realization of Socrates statement "*I am growing old and learning*" and it is a lifelong learning process that begins from birth and continues throughout one's life (Tsamadias, 2011).

The new environment we live in, shaped by new technologies and the global economy, radically changes our daily lives. The World Economic Forum predicted that the Fourth Industrial Revolution would change the way we live, work, and communicate. It will bring disruptive innovations and new systems that will affect one another and transform the job landscape, accelerating unemployment more quickly than the pace of creating new job opportunities through technological advancements (Schwab, 2016). The education system should adapt to the rapid changes in the job market through lifelong learning, the quality of which must be reevaluated, and MOOCs (Massive Open Online Courses) can provide an answer to this challenge (Kang et al., 2018).

MOOCs were developed with the aim of democratizing education by offering tertiary education to anyone interested. They differ from formal education in that they are offered for free to big audiences, without any restrictions or prerequisites, even if the content may suggest the need for specific knowledge and skills to understand it. As such, they can contribute to the achievement of Goal 4 of the Sustainable Development Agenda, which aims to ensure inclusive education and promote lifelong learning opportunities for all (Resolution, 2015).

MOOCs popularity among learners has increases significantly during the last decade and as Perifanou & Economides (2022) found in their research, the number of registered users in September 2022 exceeds globally 300 million users, while in 2002 users did not exceed 2 million (China excluded).

Zafras, Kostas & Sofos (2020) in their literature review found that learners in MOOCs are primarily men, of high educational level, holding a degree

(almost one third of them a master's, or a PhD degree) and most of them working, while Crues et al. (2018), in their research found that the primary reasons why people enroll in MOOCs are both course specific (e.g. the subject of the course, the professors etc.) and general, like the interest in learning, or the interest in participating to a MOOC.

Liu et al. (2020), add that there are also professional development and job-related reasons driving the participants interest to enroll to MOOCs.

The widespread adoption of MOOCs and the growing number of learners participating in MOOCs have drawn a lot of research effort on the quality aspect of this educational mode as well as on the results achieved in terms of learning outcomes but also regarding the views of the participants.

2.2. MOOCs Quality and User Participation

MOOCs have some pedagogical differences, but also share some common characteristics. Their learning material is delivered through short videos, slides, or other digital files (Hoy, 2014). These are posted on online platforms where individuals can search, enroll in different courses, or even create their own. To assess learners, assignments are given, which are graded by graduates, instructors, or other participants, and sometimes small quizzes with multiple-choice questions are automatically graded by computers. After the successful completion of the program, participants receive an informal digital certificate for free, or an official one upon payment and participation in exams (Karnouskos & Holmlund, 2014).

The quality of MOOCs has been questioned at times due to a high dropout rate, often resulting in completion rates of below 10% (Evans, 2016). On the other hand, research has shown that those who take MOOCs may benefit more than in face-to-face classes within a classroom (Colvin et al., 2014). This makes the design of high-quality and effective MOOCs crucial.

The evaluation of MOOCs quality is not one-dimensional, as it depends on the needs, interests, and motivations of the creators and participants. The existence of various design variations for MOOCs and the participation of learners with different characteristics make it challenging to select generally accepted quality criteria. Nevertheless, the pedagogical dimension of courses appears to be closely related to MOOCs quality (Stracke & Trisolini, 2021). Other factors such as the educational environment, learner's characteristics, educational material, and learner support also have been found to play a significant role.

For instance, in their research, Tao et al. (2019) explored the characteristics of MOOCs that contribute to their acceptance by learners. They used the Technology Acceptance Model (TAM) to investigate the dimensions of the usability of the educational environment, the quality of educational material, and the internal motivations of learners that contribute to their participation in the program, concluding that all three dimensions play a significant role in learners' acceptance of the courses.

In a more recent study, Yang & Lee (2021) investigated the participation and performance of 586 learners in a MOOC program. They found that the quality of the material, the educational environment, and the services provided by course instructors positively affected learner satisfaction and acceptance of the program, leading to increased participation and performance.

In a systematic literature review of 103 studies, Stracke & Trisolini (2021) categorized the quality factors of MOOCs into a four-dimensional framework: *organizational, technical, social, and pedagogical*. The pedagogical dimension was further composed of seven sub-dimensions (instructional design, learner's perspective, theoretical framework, learning processes, MOOC classifications, context, evaluation). Most of these studies identified the pedagogical dimension as the most important factor in MOOCs quality, particularly the instructional design of the courses, while several others also mentioned the learners, the learning environment, and the pedagogical tools used.

In Greece, Giasiranis (2020) conducted research with the participation of 1.309 learners in a MOOC program on 'School Violence and Bullying.' The findings of the study showed that the program's instructional design, learner motivation, and learner characteristics significantly contributed to both their participation in the program and their performance.

Previous research on the satisfaction of the participants in MOOCs has shown that several factors such as the alignment to users' expectations, providing rich and engaging content, providing an enhanced flow experience (Lu, Wang & Lu, 2019), the course delivery, content, assessment, and user support (Kumar & Kumar 2020).

Finally previous research has shown that participants in MOOCs frequently face challenges affecting their participation like time constraints, different learning platforms with different ease of use levels, different digital tools that they must use, lack of direct interaction, personal and work obligations, disappointment of expectations, technical difficulties, academic unreadiness

for the subject etc. (Bozkurt & Aydin, 2015; Shapiro et al, 2017; Gütl et al, 2014)

3. Evaluation Study

3.1. Methodology

The survey addressed active participants of the training programs; it was conducted by using an internally developed questionnaire that was administered to the participants through the platform of the programs. Participation was on a voluntary basis, it was anonymous, while the participation or not to the survey had no effect on the progress of the participants to the successful completion of the training program they followed. More specifically, participants were asked to complete the online questionnaire before completing the program and obtaining their certificate and they had the choice of skipping it and proceeding directly to the final evaluation quiz. Also, the gathered data were combined with usage data obtained through the OpenEdX platform, to complete and extend the data gathered through the questionnaire. Data were analyzed using descriptive statistics as the primary focus was to gain a first understanding of the views of the participants.

3.2. Evaluation Axis

The main goals of the evaluation were, among others:

- To establish a profile of the participants to the MOOCs.
- To identify the main reasons for choosing to participate.
- To identify the rate of completion of the programs.
- To identify the main perceived benefits from their participation.
- To identify the level of satisfaction regarding specific aspects of the courses.
- To identify perceived challenges and barriers regarding their participation.

For addressing the above questions both data from the responses and data from the platform were utilized.

3.3. Evaluation Instrument and Sample

The online survey questionnaire was developed through Limesurvey tool, which is used by the LCC for the evaluation of all its training programs. The questionnaire that was developed included three sections:

1. Demographic data of the participants
2. Level of readiness for online learning of the participants
3. Satisfaction of the participants from the program that they were following, the perceived benefits by the participation to the programs, the challenges/obstacles faced for their participation, and their preferences regarding the way of study.

There were in total 2.997 participants registered to the courses. There were 76 participants that were un-enrolled before starting the programs, resulting in 2.921 participants that followed the programs. The survey questionnaire was completed by 728 participants in total, and during the initial screening it was found that 162 questionnaires were partially completed, and it was decided to be excluded from the survey. Thus, the final sample of the survey was 566 questionnaires, a response rate of 19,38%.

4. Findings

4.1. Participant's profile

Regarding the participant's profile it was found that they consisted primarily of women (76,1%), with an average age of 40,8 years (S.D.=10,02), working (80,4%). Of those participants, that were working, the majority stated that they are employees (76,9%) in the public sector (63,8%) while far less (13.1%) were employees in the private sector. About one fourth (23,1%) stated that they are self-employed or businessmen/businesswomen. Finally, regarding their educational level, the vast majority (87.1%) stated that they own a university degree or a master's degree.

Those findings are in line with previous research (Zafras, Kostas & Sofos, 2020) where it was also found that MOOCs participants are mainly people owning tertiary education degrees, while they do differ as in that research it was found the MOOC participants are mostly male. While, in other cases participants of the MOOC were in their majority women (Bozkurt & Aydin, 2015).

4.2. Reasons for Participation

It was found that the main reason for participation, reported by nearly all the participants (92,8%), was their interest on the subject of the program, followed by the fact that the programs were conducted fully online (53,0%) and the good reputation of the LLC of the University of the Aegean (40,3%).

An important factor for choosing to participate was also the scientific team that was offering the program, as it was mentioned by 16,4% of the respondents.

Finally, an interesting finding was that only 1,94% of the participants reported the lack of participation cost as an important factor for participation.

In that context, the findings seem to be in line with previous research identifying internal motivation of learners as an important factor for choosing to participate in a MOOC, like in the research of Bozkurt & Aydın (2015).

4.3. Course Completion Rate

Completion rate of the courses was calculated by considering the certificates that were issued by the LLC for each course. In total 1250 certificates were issued, leading to a calculated rate of completion of 42,794%.

The distribution was not equal for all the courses, ranging from 34,46% in the one entitled “New Technologies in Special Education” to 60,82% for the one entitled “Quality Assurance in Food Industry”.

Nevertheless, those completion rates are higher than the ones mentioned in the literature, where there has been reported that completion rates are even below 10% of the enrolled students (Evans, 2016).

Further research, on that finding would have to be conducted, to identify the reasons for that deviation while, in the context of this preliminary evaluation possible reasons could be either short duration of the courses, support from the LLS, or the design of the courses themselves.

4.4. Perceived Benefits

To identify the perceived benefits from the participation to the MOOCs questions measured in a five-point Likert scale were used, asking participants to provide their answers in pre-set items and mention any other possible domains that they think that their participation would be beneficial.

Answers were grouped in two categories positive and negative views. The results are presented in the table below (Table 1).

Table 1: Perceived benefits

Perceived benefit	Responses	
	Not at all/ a little	Much/ Very much
	N (%)	N (%)
Helped/will help to acquire more knowledge on the subject	10 (1,8%)	510 (90,1%)
Helped/will help to enrich my CV	21 (3,9%)	493 (87,1%)
Helped/will help to improve learning by myself	14 (2,5%)	490 (86,6%)
Helped/will help to acquire knowledge useful for my work	30 (5,3%)	488 (86,2%)
Helped/will help to my professional life	30 (5,3%)	479 (84,6%)
Helped/will help with my social life	111 (19,9%)	322 (56,8%)
Helped/will help with my personal life	117 (20,6%)	311 (55%)
Helped/will help with my family life	145 (25,6%)	269 (47,5%)

The responses clearly indicate that participants perceive their involvement as beneficial in various facets of their personal and professional lives. However, consistent with prior research on MOOCs, the emphasis is primarily on professional development, work-related benefits, and the acquisition of subject-specific knowledge.

An interesting finding is that the participants evaluate that their participation to the MOOCs will help to improve their own ways of learning, a finding that would need further investigation as to the way that this could be achieved.

4.5. Participant's Satisfaction

To identify the perceived satisfaction from the participation to the MOOCs a, question measured in a five-point Likert scale type was also used, asking participants to provide their answers in pre-set items and complete any more comments they thought relevant. Their answers are presented in the table below (Table 2).

From the responses of the participants it is evident that there is a high level of satisfaction in all of the researched items as more than 90% percent of the participants state that they are satisfied very much or much from the clarity of the goals of the programs, from the online platform, from their learning experience in total, from the ease of use of the learning materials, from the alignment of the program to the needs of the participants and from the alignment of the program's goal to their personal needs.

Furthermore, 86,6% state that they are satisfied with the variety of types of learning activities used and 79,2% with the variety of the evaluation methods used.

Table 2: Satisfaction level

Factor	Responses	
	Not at all/ a little	Much/ Very much
	N (%)	N (%)
Satisfaction from the alignment of the goals to the personal needs	9 (1,6%)	512 (91,1%)
Satisfaction from the clarity of the goals of the program	2 (0,4%)	532 (94,0%)
Satisfaction from the variety of types of learning activities	18 (3,2%)	490 (86,6%)
Satisfaction from the ease of use of the learning materials	11 (1,9%)	523 (92,4%)
Satisfaction from the variety of methods of evaluation	33 (5,8%)	428 (79,2%)
Satisfaction from the online platform of the programs	2 (0,4%)	529 (93,5%)
Satisfaction from the learning experience in total	3 (0,5%)	527 (93.1%)
Satisfaction from the program alignment to the needs of the participants	8 (1,4%)	517 (91,2%)

Their responses, regarding the evaluation methods were expected in a certain degree as, during the design of the courses, it was decided that the evaluation methods would be the same for all the developed programs, consisting primarily of automatically graded quizzes.

4.6. Challenges and Barriers for Participation

As with the previous research questions, through the survey we tried to identify factors that the participants perceive as barriers or challenges regarding their participation in the programs.

A relevant set of questions measured in a five-point Likert scale type was also used containing also pre-set items and the possibility to provide more answers.

Participant's answers are presented in the table below (Table 3)

Table 3: Perceived challenges and barriers

Challenge/barrier	Responses	
	Not at all/ a little	Much/ Very much
	N (%)	N (%)
Amount of time required to complete the study of the educational content	310 (54,77%)	121 (21,38%)
Requirements for the completion of the program	340 (60,07%)	113 (19,97%)
Requirements for carrying out the different learning activities	378 (66,78%)	71 (12,54%)
Family obligations	257 (45,41%)	178 (31,45%)
Professional/work obligations	222 (39,22%)	214 (37,81%)
Feeling of not being able to complete the program	425 (75,09%)	79 (13,96%)
Feeling of loneliness in the digital platform	450 (79,51%)	65 (11,48%)

From the responses of the participants, it can be deducted that, although none of the researched challenges/barriers seemed to significantly hinder the participation to the MOOCs, the factors that gathered the most responses were the professional obligations and the family obligations of the participants.

This finding is in line with previous research (Bozkurt & Aydin, 2015; Shapiro et al, 2017; Gütl et al, 2014), although some important factors identified in previous studies, like time constraints and requirements for the completion of the programs seem not to constitute significant barriers for the participants in the case of the MOOCs offered by the University of the Aegean.

This difference may be attributed to the relatively short duration of the programs that did not exceed four weeks and the level of support provided by the personnel of the LLC during the realization of the courses.

5. Conclusions

Taking into account the findings of the research conducted in the context of the MOOCs offered by the University of the Aegean it can be concluded that there was a high level of satisfaction from the participants regarding all the process of the realization of the courses, both from a technical and

pedagogical perspective and that the participants think that their participation could be beneficial for them, both on a personal and professional level.

Primary reasons for choosing to participate are related to professional development and knowledge enrichment issues, in line with previous research on the matter and main barriers for their participation are related to their personal and work life and not to technical or digital literacy factors, a finding partially in line with previous research, as well.

These conclusions although, require further investigation as there are many factors that must be considered, such as the short duration of the programs, the fact that participants had the opportunity without any cost to obtain a certificate from the university and the fact that for the design and development of the courses specialized teams of subject matter experts and content authors from the university were involved. This involvement might have had an impact on the outcome and the perceived quality of the programs by the participants, but at the same time poses a wider question about the sustainability of MOOCs offered by public higher education institutions in Greece.

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