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OUTLINING PARTICIPATION IN THE FIRST MOOC OF THE UNIVERSITY OF THE AEGEAN: A CASE STUDY

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Abstract:
Twelve years after the advent of MOOCs, the University of the Aegean (Greece) implemented its first MOOC on "Violence and bullying in schools", in which about 2,000 people showed interest in attending. Eventually, 1309 people started it and 1050 (80.21%) completed it successfully, achieving high performance. The present work, which is part of the doctoral research of the first researcher, outlines the participation of the learners in the program and the obstacles they encountered during it while identifying the reasons for its high completion rate with high performance. The results showed that mainly the quality of the instructional material, the instructional design of the program, and its organization, as well as the timely support provided to learners, contributed significantly to the successful completion of the program achieving high performance. These findings can be considered by future MOOC program designers, in order to design and implement programs that meet the requirements and facilitate the participation of those who attend.

Keywords: MOOCs, distance education, self-regulation, SRL, instructional design

Περίληψη:
Δώδεκα χρόνια μετά την εμφάνιση των MOOCs, το Πανεπιστήμιο Αιγαίου υλοποίησε το πρώτο του MOOC με θέμα την Ενδοσχολική βία και τον εκφοβισμό, στο οποίο εκδήλωσαν ενδιαφέρον για να το παρακολουθήσουν περίπου 2000 άτομα. Τελικά, το ξεκίνησαν 1309 άτομα και το ολοκλήρωσαν επιτυχώς 1050 (80,21%), πετυχαίνοντας υψηλές επιδόσεις. Η παρούσα εργασία, που αποτελεί τμήμα της διδακτορικής έρευνας του πρώτου ερευνητή, σκιαγραφεί τη συμμετοχή των

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εκπαιδευομένων στο πρόγραμμα και τα εμπόδια που αντιμετώπισαν κατά τη διάρκειά του, ενώ εντοπίζει τους λόγους του υψηλού ποσοστού ολοκλήρωσης του με υψηλές επιδόσεις. Τα αποτελέσματα έδειξαν ότι κυρίως η ποιότητα του εκπαιδευτικού υλικού, ο εκπαιδευτικός σχεδιασμός του προγράμματος και η οργάνωσή του, καθώς και η έγκαιρη υποστήριξη που παρεχόταν στους εκπαιδευόμενους, συνέβαλαν σημαντικά στην επίτευξη των συγκεκριμένων αποτελεσμάτων. Τα ευρήματα αυτά, μπορούν να ληφθούν υπόψη από τους σχεδιαστές μελλοντικών προγραμμάτων MOOCs, ώστε να σχεδιάζουν και να υλοποιούν προγράμματα που θα ικανοποιούν τις απαιτήσεις και θα διευκολύνουν τη συμμετοχή, όσων τα παρακολουθούν.

Λέξεις-Κλειδιά: MOOCs, εξ αποστάσεως εκπαίδευση, αυτορρύθμιση, SRL, εκπαιδευτικός σχεδιασμός

1. Introduction

MOOCs are online courses offered for free over the Internet. MOOC is considered the "Connectivism and Connective Knowledge" course developed by Siemens and Downes (Yuan & Powell, 2013). Today, MOOCs are developed primarily by well-known tertiary institutions and are attended by hundreds to thousands of people around the world. Those who enroll in one of the programs hosted on online platforms, do not pay tuition fees nor some criteria are required to attend them even if their creator suggests the possession of specific knowledge and skills in order their content to be understood. Their learning material is offered through small videos, slides, or other digital files (Hoy, 2014). For the evaluation of the learners, assignments are assigned that are graded by graduates, teachers or other learners, and/or small quizzes of closed questions that are automatically graded by computers are used. Upon successful completion of the program, an informal electronic certificate or an official one is provided free of charge upon payment and participation in examinations (Karnouskos & Holmlund, 2014).

Despite the ease of access and the training opportunities they offer, a very small percentage manage to complete them. Globally, completion rates range from 5-15% (Jordan, 2013). The obstacles that the learners face during the courses and lead to their abandonment are **lack of time** (Fini, 2009; Kop, Fournier, & Mak, 2011; Belanger & Thornton, 2013; Cross, 2013; Grainger, 2013; Zutshi, O'Hare, & Rodafinos, 2013; Beaven, Codreanu, & Creuzé, 2014; Cassidy, Breakwell, & Bailey, 2014; Gütl, Rizzardini, Chang, & Morales, 2014; Nawrot & Doucet, 2014; Schulze, 2014; Kizilcec & Halawa, 2015; Skrypnyk, de Vries, & Hennis, 2015; Zheng, Rosson, Shih, & Carroll, 2015; Veletsianos, Reich, & Pasquini, 2016; Kizilcec & Cohen, 2017; Shapiro, et al., 2017) and **the delay in their schedule due to other obligations** (Nawrot & Doucet, 2014; Kizilcec & Halawa, 2015), **the absence of a cognitive background that would allow the understanding of new information** (Belanger & Thornton, 2013; Gütl, et al., 2014; Park, Jung, & Reeves, 2015; Shapiro, et al., 2017), **the quality and difficulty of learning material and**

assessments (Belanger & Thornton, 2013; Gütl, et al., 2014; Nawrot & Doucet, 2014; Schulze, 2014; Park, et al., 2015; Skrypnyk, et al., 2015; Whitehill, Williams, Lopez, Coleman, & Reich, 2015; Zheng, et al., 2015; Huang & Hew, 2016; Veletsianos, et al., 2016), **the course design** (Gütl, et al., 2014; Nawrot & Doucet, 2014; Park, et al., 2015), the **awareness of the absence of formal recognition of their knowledge** (Schulze, 2014; Gamage, Fernando, & Perera, 2015), the **absence but also the quality of feedback/assistance** either from other learners or from teaching and support staff (Gütl, et al., 2014; Schulze, 2014; García, Tenorio, & Ramírez, 2015; Tomkin & Charlevoix, 2014; Park, et al., 2015), the **lack of communication with teaching staff** (Kop, et al., 2011; Gütl, et al., 2014), **lack of motivation from third parties** (Gütl, et al., 2014), the **absence of a sense of community** (Gütl, et al., 2014; Nawrot & Doucet, 2014; Zheng, et al., 2015) and **the difficulty of collaborating** (Zutshi, et al., 2013; Koutsodimou & Tzimogiannis, 2016). However, some learners may leave the program, not because they faced any of the above difficulties and obstacles, but because **they achieved the goal for which they participated**, before the completion of the program (Nawrot & Doucet, 2014; Schulze, 2014; Kizilcec & Halawa, 2015; Whitehill, et al., 2015) or why they realized that **the program did not meet their needs** (Schulze, 2014; Whitehill, et al., 2015).

In the present work, the participation in the first MOOC program of the University of the Aegean on "Violence and bullying in schools", lasting eight (8) weeks, which was implemented in the framework of the first researcher's doctoral research and hosted on an OpenEdx platform on our University server.

1.1 Instructional design

In the modern concept of teaching, all its parts (instructor, students, learning material, learning environment) have a critical role and any change in one of them can affect the rest, but also the final learning outcome. That is, they function as a system and a way to improve the learning outcome is through instructional design (Dick, Carey, & Carey, 2015).

In online learning environments, where lessons are conducted via the Internet, instructional design is considered necessary, as it systematizes the development process of these programs and contributes to achieving the learning goals that have been set (Sofos, Kostas, & Paraschou, 2015) ensuring that the educational material created is effective and suitable for the educational needs of the trainees.

One of the instructional design models we relied on to develop our own program is Dick, Carey, & Carey's "Systems Approach Model". The model is completed in ten different steps that can be followed linearly, cyclically, or in parallel (Dick, et al., 2015) and are as follows:

1. identification of instructional goals. Instructional goals are more generally articulated in relation to performance goals. Therefore, an educational goal may equate to a set of performance goals (Oosterhof, 2010) achieved through the achievement of the performance goals associated with (Sofos, et al., 2015)

2. conducting an instructional analysis, during which the educational goals of the previous step are analyzed and the steps for their achievement are determined, as well as the skills, knowledge, and attitudes that the learners must possess in order to achieve them to the maximum extent
3. analysis of the learners and the context, during which the learning characteristics of the learners and the educational context in which they will learn and apply their new knowledge/skills are clarified
4. setting performance objectives, that is, what learners will be able to do, as well as the ways in which it will be demonstrated that they can do it
5. development of assessment instruments, which will examine the degree of achievement of the performance objectives of the previous stage
6. development of the instructional strategy that will lead to the achievement of the performance objectives. The instructional strategy may include pre-learning activities to mobilize learners and increase their interest, activities of presenting new learning material, activities of active participation in the learning process, practice and reflection, and activities of evaluating new knowledge and applying it in real conditions
7. development and/or selection of the instructional material based on which the instructional strategy of the previous stage will be implemented
8. development and construction of formative evaluation that will identify potential problems in instructional planning and possibilities for further improvement
9. review of the instructional intervention, based on the results of the formative evaluation, which will allow its improvement
10. developing and conducting a summative evaluation, which as a step does not belong to the design process, however, it is necessary to draw conclusions about the success or not of the teaching

1.3 Instructional design and organization of the program MOOC

Following the instructional design of Dick, et al. (2015) we implemented a MOOC program of eight (8) weekly modules on "Violence and Bullying in schools", which was addressed to current teachers and education staff, students of pedagogical schools, but also to anyone interested.

The instructional design of each weekly unit of the program included:

1. instructional goals for what the learners were expected to achieve by attending each module.
2. short introductory video (up to 2 minutes) that summarized the highlights of the previous week and informed about the topic and goals of the week that was starting.
3. motivational activities that motivated the learners to submit their previous views, knowledge, attitudes, experiences and to develop a dialogue between them.
4. the main instructional material with short videos of up to 6 minutes with built-in slides that highlighted the main points that were heard or presented other

explanatory elements (graphs, sketches, etc.). Videos with facts, testimonies, simulations, and analogies were also used as examples to explain the concepts presented in the main instructional material.

5. a multiple-choice quiz of 5-10 questions of knowledge, understanding, application, evaluation, analysis, and composition of data, after each video. Each response provided feedback justifying the correctness or error of each response.
6. one or more optional activities that led to the recall of the knowledge presented and their application to address incidents of violence and bullying in schools (case studies).
7. a final assignment of 300-500 words at the end of each weekly unit that included open-ended questions aimed at analyzing, synthesizing, and applying knowledge to resolve incidents of violence and bullying in schools. The assignments were evaluated by the other learners (peer review).
8. additional educational material to deepen the knowledge presented.

During the program, there was ongoing support and assistance to the learners either through the discussion forum or through the program e-mail support. At the end of each week, the learners received an e-mail informing them of issues that concerned them, urging them to continue the program, summarizing the knowledge of the completed section, and informing them about the topic of the next section.

In the end, it was planned to provide an official certificate of successful completion of the program to those who successfully completed it (performance> = 70%, participation in all quizzes).

The program was hosted on an OpenEdx platform that we installed on a server of the University of the Aegean.

1.4 The course

1.4.1 The period before the beginning of the program

The announcement of the program and the invitation for enrollment was made through the website of the University of the Aegean, but also through an informative e-mail sent to all the Directorates of Primary and Secondary education, as well as to the secretariats of the Pedagogical departments of the universities.

The registration period lasted approximately two (2) weeks (15/1/2020 - 31/1/2020). In total, 1952 people registered on the platform of the program[ii]. From the people who registered, their account was activated by 1863 people who were informed in various ways to answer the initial questionnaires (two) of the survey for their registration to be considered valid. Of the 1863 individuals, some did not respond at all (N = 176, f = 9.0%), some answered only one of the two questionnaires (N = 87, f = 4.5%), while some others, although both questionnaires answered, they never started the program (N = 291, f = 14.9%). As a result, they were excluded from the rest of the process. Of the people who did not continue, only 15 had difficulty with their registration process or completing the

[ii] [ii] https://oedx-n3.rhodes.aegean.gr/

questionnaires and despite the support provided to them, they eventually failed to understand the process they had to follow and left the program.

1.4.2 The period during the program

When the course started, some learners never showed up, either because they thought the course platform was different from the questionnaire completion platform, or because they were waiting for some notice that the course had started, despite an informational e-mail being sent three days before the start of the course, or finally, for various personal reasons. Typical are the e-mails sent in support of the program "*Good evening; I will not take part in this seminar. Thank you very much*" or "*I would like to inform you that I will not be able to attend this program for personal reasons. For this reason, I did not consent to complete the survey questionnaires. Sorry. Good luck to your work*". The majority, however, did not inform about the reasons why they decided not to participate.

Of the 932 learners of the control group and the 931 learners of the experimental group who were automatically distributed to the research groups by the OpenEdx platform upon activation of their account, the program was finally started by 659 (35.4%) and 650 (34.9%) learners from the control and the experimental group, respectively. A total of 273 people (14.7%) from the control group and 281 (15.1%) from the experimental group left without participating in any of the activities of the program.

By the 4th week (middle of the program), another 119 (f = 18.1%) and 118 people (f = 18.2%) from the control group and the experimental group, respectively, left the program. Most stopped mainly in the first week (N = 154, f = 59.5%), as in many other studies (Ho, et al., 2014; Perna, et al., 2014; Morris, Hotchkiss, & Swinnerton, 2015; Davis, Chen, Jivet, Hauff, & Houben, 2016), due to lack of interest and motivation to continue or simply because they participated in the program out of curiosity (Grainger, 2013; Perna, et al., 2014). At the end of the 4th week, 91.5% (N = 237) of those who left the program after it started (N = 259) or 18.1% of those who started it, had left (N = 1309). Drop out until the 2nd to 3rd module of the program has been identified in many other studies (Cassidy, et al., 2014; Gütl, Rizzardini, Chang, & Morales, 2014; Santos, Klerkx, Duval, Gago, & Rodríguez, 2014; Greene, Oswald, & Pomerantz, 2015; Jordan, 2015; Skrypnyk, et al., 2015; Evans, Baker, & Dee, 2016; Hone & El Said, 2016; Maldonado, et al., 2016; Tseng, Tsao, Yu, Chan, & Lai, 2016; Tawfik, et al., 2017).

Then the situation stabilized, as there is a very small rate of drop out. During the second half of the program, another 12 learners left the control group (f = 1.8%), while another 10 learners left the experimental group (f = 1.5%).

The reasons for leaving the program are personal, "*I inform you that I lost my father and I will not be able to watch the program*" or "*Unfortunately, I can no longer attend the course due to the extraordinary circumstances (mean the COVID-19 pandemic). You can delete my account*", due to health problems, "*I want to quit the program because I do not have time due to serious health issues*" or due to lack of time *"… I am a primary school teacher. I started the seminar with a lot of appetites because I liked the topic. However, handling the material of the 1st week, I found it very stressful and demanding. At this time, I cannot respond adequately, for this*

reason, I will stop here.". Sometimes communication with them helped them to continue the program, other times, no.

Finally, 1050 learners successfully completed the program, 528 from the control group, and 522 from the experimental group. To calculate the completion rates, a different way is followed by each researcher (Grainger, 2013). One of them is to consider the initial number of people enrolled in the program, resulting in small completion rates. Another one, which we also adopted, is to consider the number of people who completed the program in relation to those who participated in, at least, one activity of the program. Based on this calculation, 80.1% (N = 528) from the control group and 80.3% (N = 522) from the experimental group successfully completed the program, while in total, the program was completed by 80.2 % (N = 1050) of those who started it. This percentage is very high in relation to the percentage of people who complete MOOCs according to the literature, which ranges from 5-15% (Jordan, 2013).

Regarding the participation of the learners in the program, there is a significant increase of those connected to the platform during the weekend as well as in the research of Ferdig, Pytash, Merchant and Nigh (2014), culminating on Monday, the day of activation of each weekly unit. The reasons for the large number of visitors on Monday are either the anxiety about the content of the new section or from anticipation ("*Two months full of knowledge! I learned so much that if I apply up to half, I will have greatly improved my daily school life. This seminar was free and the most exciting, substantial, and interesting which I have done so far both in its presentation and in its quality. Every Monday I was looking forward to opening every week!*"). During the week, the participation decreases gradually, with a turning point approximately in the middle of the week. This pattern of participation has been highlighted in other studies too (Breslow, et al., 2013; Anderson, Huttenlocher, Kleinberg, & Leskovec, 2014). In general, greater participation is observed in the first weeks of courses (Wong, Pursel, Divinsky, & Jansen, 2015).

The submission of the final weekly assignment is done on time, except maybe in the 1st week during which they were not yet familiar with the program and its requirements. Mainly, they submit the works on the first Sunday, and less on the 2nd, when they have the right to submit them. The problems that arose, mainly, in the beginning, were due to the submission process, to some questions that needed clarification, and to the peer review process, which some accepted as a process of self-improvement, while others expressed their objections, sometimes strongly and sometimes less intensely. However, the problem was largely created by some participants who did not take the time to properly evaluate the work of their colleagues based on the criteria set (rubric), creating them negative emotions. Many, in fact, would have stopped participating if their work had not been re-evaluated by the researcher, at their request.

Participation in non-graded activities is much lower than participation in quizzes and final assignments. They are more involved in motivational activities and less in optional activities. Perhaps the name "optional" also played a role in this, as in the research of Evans, et al., (2016) in which videos containing the word "optional" in their title were rarely watched in relation to the rest. About half of the people involved in these

activities made mostly one post per topic. However, there were also posts with many more answers, an indication that dialogue was created between them. In general, however, everyone creates their own post, instead of responding to another, creating parallel monologues, as was pointed out in the final comments "*If I have to say something 'negative' it would be that in the discussion and in the optional activities I would prefer to write in a continuous stream and not by adding everyone's post, because it was a bit tedious to open and close it and usually did not start a dialogue with "I agree" that we all wrote, at least once, in the beginning*".

The videos with the built-in explanatory slides they contained had a positive acceptance ("*Colleagues presented the topics nicely by filling them in with slides, there was an alternation of videos, slides, etc. and this was more interesting*."), as well as the quizzes as a means of self-assessment, although some points were pointed out in the formulation of the questions that were difficult and would like to change, the motivational activities ("*The motivational activities, the tests and the final weekly assignments gave us the opportunity to make mistakes, to reflect, but above all to experience our knowledge.*"), the optional activities as a means of motivating dialogue, sharing experiences, practices and knowledge ("*I liked that there were the optional activities because it was an opportunity to express and interact with colleagues.*"), and the final weekly assignments, although they were described as demanding but useful ("*The quizzes helped me to consolidate everything I had studied. The final weekly assignments were very useful as I put into practice everything I was learning.*").

Participation in the forum is very small and takes place mainly from Friday to Monday (turning point: Thursday), as in the research of Ferdig, et al., (2014). Some learners stayed only on the home page, ignoring the existence of the other topics that were posted. Many questions raised had already been answered in the forum, but many learners had not identified them. Also, few took the time to see if the problem they were facing had already been discussed. Few learners took the lead in the forum, helping other colleagues. Maybe the time one had to dedicate, played a catalytic role here as well.

Their emotions alternate during the lessons. Some people feel happy and satisfied either because they achieved their goal or because they were evaluated with a high grade. Emotions change when they are pressured by the schedule or when they receive scores below their expectations.

Grouping the participants according to the way they participate in the program, the following categories are identified:

- the Eager, who enrolled in the program but never participated in it
- The Silent ones who attended the program but their presence during the program does not become apparent either by an e-mail or by a post in the forum
- the Active who participated in all activities
- and the Fugitives who left the program after starting it

The Amnueypornsakul, Bhat and Chinprutthiwong (2014) and Jivet (2016) surveys identified similar categories of participants. In our research, however, no people were found who attended the program without participating, at least in its mandatory activities, as obtaining the certificate of successful completion was a strong incentive to

try to achieve the 70% performance limit. Those who realized that they could not achieve this usually left the program. Another reason that this category of participants did not exist is that the design of the program did not allow it, as in order for a learner to unlock the modules of the program he had to participate, at least, in the research that was conducted in parallel.

1.4.3 The period after the end of the program

The performance of the learners is high. Only 48 people did not reach the 70% threshold to receive the certificate of successful completion of the program. In contrast, the majority achieved a performance of over 80%, with no statistically significant differences between the research groups. There were no statistically significant differences even between the final performance of those who achieved the 70% limit.

Those who successfully completed the program are possessed by positive emotions, enthusiasm, and joy, because they acquired the knowledge they expected, but also because they were completely satisfied with the overall organization and implementation of the program. In fact, some people think of continuing to be educated on the same subject ("*Thanks to this structured program I learned how to recognize, prevent, and deal with such phenomena. At the same time, I developed an appetite and desire to further educate myself on this issue as well as and others related to contemporary school reality* "), confirming the findings of other research (Belanger & Thornton, 2013; Tomkin & Charlevoix, 2014; Koutsodimou & Tzimogiannis, 2016).

2. Discussion

Regarding the participation of the learners in the program, what Clow (2013) likened to a funnel to represent the continuous decrease of the trainees is observed. Nevertheless, a very large percentage of people completed the program. This result, but also the high performance, is due not only to one factor but to a combination of factors such as, the good design of the program (Khalil & Ebner, 2013; De Barba, Kennedy, & Ainley, 2016), its average duration (Jordan, 2014; Jordan, 2015), the short duration of videos (Kim, et al., 2014; Thille, et al., 2014; Guo, Kim, & Rubin, 2014; Hone & El Said, 2016) and their type (with explanatory slides) (Kim, et al., 2014; Guo, et al., 2014), the type of evaluations they included (peer evaluation) (Jordan, 2015), the satisfaction of the learners from the program and the educational material (Whitmer, Schiorring, & James, 2014; Alraimi, Zo, & Ciganek, 2015; Hew, 2016; Hone & El Said, 2016), their motivations and goals (Belanger & Thornton, 2013; Cisel, 2014; Fournier, Kop, & Durand, 2014; Schulze, 2014; Xiong, et al., 2015; Huang & Hew, 2016) and their degree of achievement (Wilkowski, Deutsch, & Russell, 2014), their learning background (Breslow, et al., 2013; Cassidy, et al., 2014; Guo & Reinecke, 2014; Goldberg, et al., 2015; Greene, et al. , 2015; Kennedy, Coffrin, De Barba, & Corrin, 2015; Kizilcec & Halawa, 2015; Morris, et al., 2015; Cunningham, Bitter, Barber, & Douglas 2017), their interest and knowledge they already had about the subject (Engle, Mankoff, & Carbrey, 2015; Hood, Littlejohn, & Milligan, 2015; Kizilcec & Halawa, 2015;

Egloffstein & Ifenthaler, 2017), their participation in peer reviews (Stein & Allione, 2014; Cisel, 2014; Allione & Stein, 2016), the ongoing support provided to them (Kop, et al., 2011; Belanger & Thornton, 2013; Castano-Munoz, Kalz, Kreijns, & Punie, 2016; Hadi & Rawson, 2016; Hew, 2016 ; Hone & El Said, 2016), their (timely) feedback (Fournier, et al., 2014; Ramesh, Goldwasser, Huang, Daume & Getoor, 2014; Wilkowski, et al., 2014; Davis, et al., 2017), the connection of theory and practice through the case studies they were asked to deal with (Hew, 2016), the hints and feedback provided in the quizzes and the final weekly assignments (Koedinger, Kim, Jia, McLaughlin, & Bier, 2015), the program's evaluation policy (Li, Kidziński, Jermann, & Dillenbourg, 2015), the moderate workload required by the program other than the first two weeks when the program was more demanding (Cassidy, et al., 2014), even their interest in obtaining the official certificate of completion (Haug, Wodzicki, Cress, & Moskaliuk, 2014; Castano-Munoz, et al., 2016; Greene, et al., 2015; Pursel, et al., 2016).

These factors and especially their interest in the program, the quality of the instructional material, the instructional design of the program, and its organization, contributed significantly to the successful completion of the program achieving high performance. These factors, in combination with the ongoing support and assistance to learners of the problems and difficulties encountered during the programs, should be taken into account by future program designers, in order to implement programs that meet the requirements of the learners, facilitating them to complete them.

Conflict of Interest

The authors can assure, confidently express that no conflicts of interest possibly linked with this research, and there has been no financial aid received for this study, authorship and publication that could have influenced the study's outcome. The authors affirm that this research is original and has not been published in the past or elsewhere.

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