Virve Pekkarinen, Mikael Uusi-Mäkelä, Suvi Valsta & Tomi Tolonen

Retention in MOOC courses – what can we learn?

Abstract

MOOCs (massive open online courses) typically have low retention rates compared to classroom teaching. In this article, we discuss the retention of MOOCs via a case example from Laurea University of Applied Sciences. We reviewed a set of ongoing MOOC courses at Laurea to identify potential factors influencing the retention rate. We found that MOOCs with higher retention are often courses with a smaller number of ECTS credits, have cohesive guiding throughout the course, and their versatile activities offer students flexible and adaptive learning opportunities. We also found that voluntary interaction between students through discussion activities seems to support higher retention. We argue that there is no single right way to make MOOCs. Instead, MOOCs must be tailored according to the content and target group by utilizing the features of the virtual learning environment in a pedagogically meaningful way.

Keywords: MOOC, online course, retention

Retention in MOOC courses – what can we learn?

Even though MOOCs (massive open online courses) have become a common part of higher education course offerings, they typically have very high dropout rates and low retention rates, when compared to traditional classroom teaching. In this article, first we discuss the retention of MOOCs in general and second, via a case example from Laurea University of Applied Sciences (Laurea UAS). We carried out an analysis of ongoing MOOC courses at Laurea UAS against different aspects that have been identified to have an impact on the retention rate in previous studies. At the end of the article, we also discuss aspects to consider when aiming for higher retention rates on MOOC courses.

INTRODUCTION

MOOCs are a type of online courses that usually enable continuous and flexible learning opportunities for a large number of participants at the same time. MOOCs are available in virtual learning environments and internet access is required from the participants. Different kinds of digital materials and resources, such as videos, texts, pictures, and podcasts, and interactive tools are utilized in MOOCs. (Bates 2015, 171–172; Pekkarinen & Tolonen 2022; Pomerol, Epelboin & Thoury 2015, 6–8; Porter 2015, 4.)

There are different variations of MOOCs, e.g., extended MOOC (xMOOC), connectivist MOOC (cMOOC), and gamified MOOC (gMOOC). xMOOCs enable time and place-independent, flexible, and scalable individual study opportunities for students. These are also automatically assessed. CMOOCs, on the other hand, focus on enabling collaboration, joint knowledge creation, interaction, and open knowledge sharing. (Bates 2015, 174–177; Pekkarinen & Tolonen 2022; Pomerol et al. 2015, 10–16; Porter 2015, 6–7.) gMOOCs can have features from both the xMOOC and cMOOC. They are playful and motivating courses that utilize different game elements as well as mechanics and conventions familiar from games. These game elements are pedagogically meaningfully integrated with the MOOC's contents with the aim of increasing student motivation, interest and commitment and creating a better user experience (Antonaci et al. 2017; Aparicio, Oliveira, Bacao & Painho 2019, 49).

As MOOCs become more common, the focus should be turned into their quality as well. Traditionally, a course's completion rate has been considered as the indicator of the success of an academic course. Despite the popularity and growing enrollment rates of MOOCs and other online courses, they have been found to have very high dropout rates and low retention rates, when compared to traditional classroom teaching. This means that a significant number of students do not complete online courses they have started. (Bawa 2016.) The reasons behind MOOCs' low completion rates are not simple. The reasons can be many, and they can range from technical

issues to content or pedagogical issues, and from teacher-related issues to student-related issues. (Bawa 2016; Willems et al. 2014.) In the following, we will discuss retention in online courses and MOOCs in more detail.

RETENTION IN ONLINE COURSES AND MOOCS

There is no single reason for low retention in online courses and MOOCs. Previous research has shown that low retention rate can be related to, for example, the course setting or the virtual learning environment features, teachers' pedagogical choices or the lack of understanding of how students learn online, students' low motivation or lack of skills and ability to study online, or students' personal life situations. (Bawa 2016; Willems et al. 2014.) Furthermore, Pinheiro & Branco (2021) add to the reasons, that sometimes students enroll on courses out of mere curiosity with no intention of completing the MOOC. It might also be that the students do not have enough time to complete the course, the difficulty level of the course is too high, the course does not match their expectations or that the participants do not consider the whole course interesting and instead are only interested in some parts of the course.

Therefore, it can be argued that retention rate is not always an indication of quality. Indeed, Sharif and Guilland (2015) criticize this approach and state that "MOOCs should not be measured by completion rates as such, but with what students perceive as value out of the MOOCs and their experiences." However, while acknowledging the limitations, retention is a valid metric for making comparisons between different MOOCs and their features, especially in the context of a single organization.

In addition to recognizing reasons for low retention rates, some solutions for dealing with them have also been presented in the literature. Bawa (2016) has written a literature review regarding retention in online courses, in which she also discusses the solutions that have been found to contribute to retention. According to the review, one way to deal with low retention rates is to enforce orientation in online courses. In the orientation part of the course, students can be introduced to the course assignments, assessment, and guidelines.

Based on previous research, it has also been found that social factors play a significant role in student retention and enhancing social culture and interaction in an online course can support students to continue their learning and to complete the course. In addition, online courses including collaborative activities have been found to create a more amenable online learning experience and thus promote retention. Furthermore, the teachers planning and designing online courses are not always familiar with the characteristics of virtual learning environments leading to unsatisfactory pedagogical solutions. It has been found that faculty training is important in increasing retention rates. (Bawa 2016.)

HOW DO MOOCS FARE AT LAUREA? ANALYSIS OF RETENTION IN LAUREA'S MOOCS

Laurea University of Applied Sciences (Laurea UAS) is a multi-disciplinary university that specializes in business management, social services and health care, and hospitality management. Laurea began to invest in creating MOOC courses in 2019, just before the start of the COVID-19 pandemic, and the pandemic furthermore accelerated the demand for time-place independent and flexible learning opportunities for both degree

students and those in the job market hoping to update their skills. At the moment, a majority of Laurea's MOOC courses can be classified as xMOOCs.

In this analysis, we limit our scope to the courses with more than 70 participants that ran and were completed in 2021. This brings the number of analyzed courses to 16. The data utilized in the analysis was obtained from PowerBI which in turn collects its data from Laurea's student information system. While we do not utilize statistical methods in this analysis, we wanted to exclude courses with a very limited audience or still in a limited piloting phase, that is, courses that were not yet established MOOCs at Laurea. This also made it easier to distinguish between interactive online teaching and massive open online courses. The time period was limited in order to examine a complete cohort where there were no students still aiming to complete their studies of the selected courses.

The number of participants ranged from 72 to 892. In total, 4507 students participated in the courses. For the analysis, participants were divided into degree students (74%) and open university students (26%) to account for different motivations of course completion. Degree students also included students from other universities of applied sciences completing cross-institutional studies.

The courses were analyzed based on factors that were identified to affect retention in the literature. This included workload (in ECTS, or European credit transfer system), number of activities, the level of orientation and guidance, the level of studies (bachelor vs. master) and virtual learning environment (Canvas, Moodle & Viope). The activities were further subcategorized into assignments, quizzes, pages with text content, external links, videos, discussions (synchronous and asynchronous) and interactive elements such as H5P.

Table 1 illustrates the retention rates, workload, number of activities, and number of activities per ECTS credits of the courses in the data set. The completion rate for the courses ranged from 65% to 29%. However, looking solely at open university students broadened the range to 82% to 14%. Course 10 was only offered to degree students and hence its retention rate amongst open university students was not available. The overall number of credits or activities per course, and the number of activities on course per ECTS credit do not seem to predict the course's retention rate, which led us to delve further into the types of activities offered on the courses.

To accomplish this, discussion activities on the courses were also classified and compared to their retention rate in addition to retention and workload related data points. Table 2 shows the selected courses ordered based on their overall retention rate, as Table 1, first listing the total of number of discussion activities on the course, and second, how the discussion activity prompts were divided between interactive and participatory prompts.

Here, an interactive prompt is defined as a discussion prompt that requires students to both submit their own answer and then reply to other students' submissions. Participatory prompt, on the other hand, only requires students to participate in a discussion with their submission and does not require interaction with others. For participatory prompts, we also investigated whether students had acted according to the instructed prompt or if they organically commented on others' submissions even if it was not required in the discussion prompt. These two characterizations of the discussions are represented, respectively, by blue ('according to instructions') and green highlights ('exceeding instructions') in Table 2.

	Retention % (All)	Retention % (Open University)	Workload (ECTS)	Number of activities	Activities/ ECTS
Course 1	65	47	1	46	46
Course 2	62	73	1	16	16
Course 3	59	50	5	30	6
Course 4	56	16	2	93	47
Course 5	55	43	1	23	23
Course 6	54	25	2	62	31
Course 7	52	53	1	12	12
Course 8	52	51	5	36	7
Course 9	51	18	1	54	54
Course 10	50	N/A	1	25	25
Course 11	50	42	5	95	19
Course 12	45	82	2	34	17
Course 13	41	47	3	67	22
Course 14	40	59	1,5	39	26
Course 15	40	14	5	72	14
Course 16	33	75	1	30	30

Table 1. Course retention rates compared with course features.

Course nr.	Discussion activities, n	Discussion: interaction	Discussion: participation	Retention % (ALL)
Course 1	0			65
Course 2	1		1	62
Course 3	0			59
Course 4	3		3	56
Course 5	5	1	4	55
Course 6	4		1 3	54
Course 7	1		1	52
Course 8	6	1	5	52
Course 9	2		2	51
Course 10	0			50
Course 11	11	7	4	50
Course 12	0			45
Course 13	0			41
Course 14	0			40
Course 15	9		9	40
Course 16	3		3	33

Table 2. Discussion activities and their analysis in MOOCs.

While the results show no clear causality that having a discussion activity straightforwardly increases retention rate for a course, courses with high retention rate seem to employ discussion activities slightly more consistently than their low retention rate counterparts, with the exception of course 15. The level of interactivity did not predict retention rates and instead varied across the courses.

DISCUSSION

The results of the review of the chosen MOOCs at Laurea did not indicate one specific factor that would explain the high or low retention rates when considering against the identified factors in the previous research literature. However, some factors that may influence the retention rate were identified. Our analysis revealed that the MOOCs offered via Open University of Applied Sciences (Open UAS) with 1 ECTS had higher retention rates than other MOOCs offered via Open UAS. When considering MOOCs offered to all student groups there was more variation in the retention rate in relation to the number of study credits (1, 2, and 5 ECTS). The trend was, however, like MOOCs offered through the Open UAS, i.e., MOOCs with fewer credits had higher retention.

Another factor that seemed to have a positive impact on retention rates was the cohesion of the guidelines throughout the MOOC. Cohesion of the guidelines means that, with the guidelines, the MOOC participant knows what is expected of them and they can anticipate what will happen next, they can reflect on what they have learned, and connect previous topics to the topic at hand. Bawa (2016) has identified the same idea in her research. Providing an orientation section at the beginning of an online or MOOC course and ensuring consistency of guidelines throughout the course is a potentially easy and effective way to increase course retention and quality.

Having versatile activities included in the MOOC offers a flexible and adaptive learning opportunity for the students and can also support student retention. However, merely the number of activities does not seem to explain the high or low retention rate, but it is more about how the activities are used to support student learning. When designing MOOCs, the starting point should not be a tool or an activity, but pedagogical solutions and student learning.

In the xMOOCs that form the majority of MOOCs at Laurea currently, there is usually no synchronous interaction e.g., synchronous discussion forums included. However, enabling asynchronous discussion forums in MOOCs seems to encourage social interaction and shared knowledge creation among students. Instead, having no possibility to interact and discuss with other students seems to relate to lower retention rates. It might be that engagement increases when the students have already given something of oneself via participation to a discussion, thus increasing the social attachment to studies.

Whether the reciprocity in asynchronous discussions is forced, may also influence the retention rate, i.e. whether the teachers have instructed the students to reply to each other's discussion posts or whether it is voluntary. When reciprocity in discussions is not forced, voluntary interaction beyond the guidelines may occur, but forced interaction may even have a negative effect on the retention rate. Bawa (2016) has presented similar results in her study, recognizing the significant role of social factors in student retention and enhancing social

culture and interaction. Using online tools to engage students in well-structured interaction can positively influence student retention.

CONCLUSIONS AND PRACTICAL IMPLICATIONS

There is no single right way to make MOOCs. Instead, MOOCs must be tailored according to the content and target group by utilizing the features of the virtual learning environment in a pedagogically meaningful way. However, we identified in this study factors that can influence on the retention rate of MOOC courses. Cohesion of the guidelines, that is, clearly written and continuous guidelines, seem to support higher retention. This finding can be taken into consideration while creating MOOCs and in searching and testing new digital tools for MOOCs. For example, digital tools based on artificial intelligence (AI) might be useful in giving instructions and guiding the students forward in the MOOCs, and, in a certain way, to compensate for the teacher's missing presence online.

In our case study, we also discovered that the type or number of activities alone does not make a high-quality MOOC with high student retention. However, when used in a pedagogically meaningful way, versatile activities can provide adaptive and flexible learning opportunities for students, and thus support a higher retention rate. One example that we found, was that the opportunity to interact with other students, even if only asynchronously, seem to support higher retention, when it is made possible to do so voluntarily. On the other hand, forced interaction may even weaken retention.

Our analysis did not focus on teacher's pedagogical competency (concept defined e.g., Pekkarinen & Hirsto 2017; Pekkarinen, Hirsto & Nevgi 2020) and skills, and thus, our results do not indicate directly that there is a need for improvement in the teachers. However, as it has been recognized in previous studies (e.g., Bawa 2016), teacher training in building MOOCs enhances teachers' competency to create high-quality and pedagogically meaningful online courses and MOOCs.

At Laurea, we have developed a new training concept for enhancing teacher's competency in creating MOOCs and online courses. In developing the training concept, we have utilized experiences gained from an international educational development project, in which a similar training concept was developed and tested with good experiences (Pekkarinen & Laakkonen 2022). The training at Laurea started in January 2023 with thirteen participants developing a total of nine MOOCs or online courses. Peer learning has a central role in the training in supporting participants in creating and sharing knowledge. The idea of peer learning is to learn from one another and familiarize oneself with motivating materials and examples of high-quality MOOCs and online courses during the training. This can lead to the transfer of positive learning experiences to new MOOCs and online courses that are developed by the participants of the training. We have taken into consideration the factors that increase the retention rate identified in this article and in previous literature in designing and implementing the training.

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Authors:

Virve Pekkarinen, Development manager, Laurea University of Applied Sciences

Mikael Uusi-Mäkelä, Development manager, Laurea University of Applied Sciences

Suvi Valsta, Specialist, Digital Learning Solutions, Laurea University of Applied Sciences

Tomi Tolonen, Expert of Digital Pedagogy, Laurea University of Applied Sciences