Retention of University Teachers and Doctoral Students in UNIPS Pedagogical Online Courses

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Abstract. Online education provides learning opportunities to a global audience. Most popular MOOC platforms have millions of users and MOOC designers are already competing with each other on how to spark and retain the interest of students. However, currently in popular MOOCs, roughly 90% of enrolled students yield their participation and previous research has identified that the dropouts occur mostly in the very early stages of the courses. This study explores student retention and engagement in pedagogical online courses aimed for university staff members and doctoral students, with quantitative data (N=404) collected between the years 2016-2019. In addition, this study looks at differences in dropout rates between students of different age, gender, teaching position and department. Based on the conducted statistical analysis, age, gender, teaching position or department have no significant correlation with dropout rates. The majority of participants who drop out from the courses do so in the beginning without completing a single task. University teachers and doctoral students behave in online courses similarly as other students, and the results of the current study fits well with predictions from previous studies. However, this study found two anomalies: (1) A relatively low dropout rate (38,1%) and (2) Over 22% of students yielding their participation return to the courses (n=31) after which over 50% of them complete the courses. The results highlight the importance of the beginning of online courses for reducing the overall dropout rates and suggest that students yielding their participation are likely to complete the courses the second time, if they enroll again.

Keywords: Staff development, Online learning, University pedagogy, Student Retention, Engagement

1 Introduction

The impact and possibilities online courses have provided for education are substantial [16]. MOOCs (Massive open online courses) and open educational

materials allow low-income students an opportunity to learn [47,66], they provide flexible and continuous learning opportunities for busy people [13,70] and once created, their maintenance costs are relatively low compared to traditional contact teaching [55]. Also the geographical reach of these courses far exceeds that of traditional contact teaching, and students from all around the world have access to high level, high quality educational material [20]. Online learning comes in multiple forms: SPOCS (Small private online courses), MOOCS and open educational materials to name the most popular [52]. These are being utilized as fully distance education, but also in blended and flipped learning [48]. Even though online learning was first popularized by universities and used in higher education, it is now making its way into K-12 education [46] and employee/staff training [15,55]. Despite the promising results online courses have had over the years, they have been criticized for the lack of social presence [4, 31] and high dropout rates [36,48].

Employee training MOOCs and other online courses are proposed to help in offering lifelong learning and continuous learning opportunities for currently employed citizens. For example, with the rapid development in AI technology, several millions of jobs are expected to become automated in the upcoming years resulting in a massive disruption of the labour market [9]. This kind of a development would be catastrophic to many households and personal finance of those to be unemployed, however, governments are already taking drastic action to prevent this kind of a personal catastrophe for the millions of workers by offering them free lifelong learning opportunities already. As it can be expected that many workers will find it difficult to move on and learn new skills for new professions, the quality of these lifelong learning and continuous learning online courses needs to be rigorously addressed and developed. Having employees attend MOOCs while working has also found to have a beneficial impact on innovation in the industry [28, 58].

The current study extends upon the analysis of Laato et al, [36] who showed quantitatively that (1) The majority of learners in university pedagogical online courses who yield participation do so in the very beginning and that (2) simple tasks introduced to the beginning of online courses had a positive impact on the retention rates. To support and extend upon the findings, this study looks at the retention rates of university pedagogical online courses from a longer period of time (2016-2019) and with a larger amount of participants (N=404). In addition, more quantitative data is collected and analyzed, including age, gender, position and faculty of participants. Finally, when students yield their participation and do dropouts, returning to study later are observed.

2 Background

Generally online courses are reported to have significantly higher dropout rates in comparison to contact teaching [26,38,49] with MOOCs regularly having a dropout rate of over 80% [54] or even over 90% [19]. SPOCs have generally better retention rates, but there is much variance in SPOC withdrawal depending on how they are organized [27, 36]. The low retention rates in MOOCs have not improved between 2012-2018 despite efforts by MOOC designers [61]. However, learners have different motivations to enroll in online courses and their individual goal might not be to complete the course in the first place [17,68]. Besides completion, learners might be motivated to enroll in order to access the course material or to inspire themselves to study [68, 45]. Despite the varying motivations for enrolling in online courses, increasing student retention and engagement in online courses is ubiquitously seen as a beneficial improvement which scholars and MOOC designers aim for [25].

In addition to the two forms of online courses, SPOCs and MOOCs [77], online educational material can be available online without any course structure around it, and in those cases, it can be self-studied or utilized in, for example, flipped learning [35, 48]. The term SPOC refers to courses organised privately to a small proportion of students, which can, for example, be a part of curricula studies. MOOCs, on the other hand are, as the name implies, massive and popular open online platforms such as Coursera, Udemy and EdX each have tens of millions of visitors in a year [8] with the most popular courses reaching tens of thousands of students annually [26]. Usually the level of automation in MOOCs is very high or they are completely automated, limiting the types of exercises that are given, as all assignments need to have automatic grading [42]. However, more personalized learning experiences and better feedback for learners have been associated with higher engagement [60]. This issue has been addressed by, for example, the use of artificial intelligence [24] and peer -review in assignments to reduce the load of the course facilitator. However, these solutions are problematic as online course participants have been found to have mixed opinions on the usefulness of peer feedback [44] and even though automated grading systems for essays have advanced recently, they still have many issues to solve [71,64].

There are several concerns circulating MOOCS, one of which is that they are changing the academic world by replacing contact teaching and “traditional courses” with online alternatives, hence costing many academics their jobs as lecturers [74]. However, practical evidence shows that universities are in fact not replacing existing courses with MOOCs, but on the other hand using MOOCs to supplement existing education, for example, by utilizing flipped learning or other flexible ways to organise teaching [14,63]. Using MOOCs in this fashion, ie. only taking advantages of the MOOC video materials but then completing exercises and taking exams locally, will

inevitably have an impact on MOOC retention rates. But is the impact positive or negative will depend on how the learning is organised. In case completing the MOOC is supported locally with additional instructions and teamwork, it most likely will have a positive impact, but in case the materials are only utilized with no intention of completing the MOOC, the impact will be negative [39].

2.1 Employee Training and Staff Development Online Education

Employee training courses have special requirements compared to courses offered to full time students. Firstly, participants are expected to be busy with their regular jobs, and hence, pacing of the course needs to be adjusted to that, and in addition, there should not be excessive requirements to participate in synchronous activities which require presence at a certain hour. Secondly, participants are expected to be less extrinsically motivated, as they do not receive any study credits from the course, and are more likely to study to develop themselves instead of studying to get credit points or a diploma. And thirdly, where students studying for a degree can be expected to roughly belong to the same life situation and age group, participants in professional development courses can be expected to have a significantly wider age distribution, and also larger differences in their initial knowledge and skills, also with regard to their experience with online learning environments. Even though the most popular degree MOOC learners have is Bachelors' and the second most popular degree is a basic school diploma, the highest degree of those students who actually finish the MOOC and earn a certificate is Masters' followed by Bachelors' [18]. As higher degrees positively correlate with student retention in MOOCs, employee training courses offered to university lecturers and doctoral students can be expected to have higher retention rates than the observed average of 5-10% [36, 48,65]

The university workforce are in a key position with regards to the upcoming disruption of the labour market due to automation [1], as they are responsible for providing higher education. University teachers are in charge of cultivating future minds, and many institutions are pushing their teachers to study pedagogical courses to ensure their skills are up to date. University pedagogical courses are delivered both through dedicated platforms such as UNIPS [35] as well as via popular MOOC platforms such as Coursera and Udemy. Completing such courses is seen as beneficial by employers, however, the information of online training opportunities does not always reach their target demographic [59]. In addition, when participants become aware of professional online courses, they might not be able to attend due to financial or scheduling difficulties. To make things easier for the students, professional development MOOC designers should address the three requirements in their design: (1) asynchronous learning opportunities and flexible schedule (2) relevant study materials aimed for intrinsically motivated students and (3) students' varying skills and knowledge. [36]

2.2 Increasing Engagement and Retention

Retention in online courses, especially MOOCs has been widely studied [29]. Scholars discuss the phenomenon using at least the following terms: retention [2,22,76] participation [75], withdrawal [57] and dropout rates [34,40,62]. Also studies on continuance to use MOOCs often deal with student retention [3, 78]. Regardless of the type of course, or the target audience, the very beginning of online courses is when the majority of dropouts occur [17,25,36, 51, 73]. After students pass the mid-point of MOOCs, they are already likely to complete the whole course [22]. Therefore a lot of care and consideration needs to be put in the very early stages of the courses when considering improving student retention [36] Students can also have various blends of both extrinsic and intrinsic motivators to enroll in online courses [3], resulting in existing biases in initial intention to complete the courses after enrollment [21].

Engagement and retention in MOOCs are often mentioned together in research papers [10, 22,76] even though the two terms are not synonyms. Usually engagement is seen as the beneficial improvement that scholars aim for, and retention rates are an indicator of that. However, as established with previous examples of flipped learning [74] and students' motivation to enroll in MOOCs [68], the two are not always directly linked. Still, many of the proposed strategies to increase student retention also positively affect student engagement and vice versa, for example, increased social presence [76], reduced cognitive load [73] and perceived effectiveness [22] have all proven to have a beneficial impact on both. Therefore, even though it is important to make the distinction between engagement and retention in online courses, the two share a connection and changes in one will most likely also have affected the other [10].

Increasing retention in the early stages of MOOCs. A popular given reason for the initial dropout spike on MOOCs is cognitive overload [23, 73, 53]. Cognitive load theory is based on humans having limited working memory and limited capability for simultaneous cognitive processes [56]. Presenting too much information for online learners at once may overload their working memory and trigger an instinct to take a step back, which in practice often means conceding their course participation [5, 32, 75]. In MOOCs, different video types, for example, can impose varying degrees of cognitive load on students, with voice-over type videos on average generating the highest level of cognitive load [5]. Other sources of cognitive load include the visual layout of the MOOC platform and especially the instructional design [72]. All together, at least nine ways to reduce cognitive load in online learning have been identified: (1) Off-loading visual load to auditory channel (2) Segment learning content into smaller packets (3) Provide pretraining on terminology or other course related content (4) Remove material which is not necessary for the course (5) Provide

cues or tips how to process the presented educational material (6) Reduce the need to visually scan for information by associating words with related graphics etc. (7) Avoid repetition /redundancy (8) In educational videos, present narration and animation simultaneously (9) Take into account individual needs, for example, learners with low spatial learning capacity [41].

Besides reducing cognitive load, other strategies for improving student retention in the early stages of MOOCs have been suggested. For example, Nazir et al. [51] propose the following strategies to reduce the amount of dropouts in the beginning of MOOCs: buddying, feedback and briefing. Having social support helps students become more engaged in learning, and has a positive effect on retention [81] Immediate feedback, the ability to give it and receive answers, is also very important in the birth of engagement [67]. Additionally what will always affect student engagement and retention in the beginning is how students perceive the course and what their first impressions are [80]. Also more general strategies for increasing engagement have been suggested: gamification, interactive digital content, quizzes, immediate feedback, personalized difficulty, providing deeper learning materials when requested and real world challenges and testing [10].

To summarize, factors influencing students retention in the early stages of MOOCs are highly complex, with cognitive load factors being major contributors to the currently high dropout rates [73]. Reducing cognitive load and focusing on instructional design can already significantly improve the early dropout rates, but additional focus should be put on giving students as good a first impression as possible [72,75,79].

Increasing general engagement in MOOCs. Another issue with MOOC retention is that the majority of students who complete MOOCs do not return to study after their first year [61], which suggests issues with long term engagement as well even if students manage to successfully complete the courses. Therefore strategies for general engagement are also needed, and they have been suggested widely in literature as well. For example, overall indicators and predictors that students are more likely to complete a MOOC are found to be:

- Interaction with a facilitator or an organised [22]
- Students having prior experience on education [17]
- Students having a predetermined intention to complete the MOOC [17]
- More personalized learning [69]
- Reduced cognitive load and focus on instructional design [75,79]
- Interaction with peers and other social elements [7].

Online learning platforms are complex systems and the degrees to which all the above mentioned strategies influence engagement will vary between platforms and courses.

Learning analytics can be utilized to pinpoint parts of online courses which cause students to struggle, and those key moments can then be targeted by designers [7, 30].

2.3 The UNIPS Open Learning Environment

The UNIPS learning environment is the case learning platform in the current study. In Finland, all the educational institutions, except universities, require that their teachers have a formal teacher qualification, which can only be obtained via completing official pedagogical studies. Nowadays also all Finnish universities offer some pedagogical training for their teachers and the popularity of university pedagogical training has grown rapidly in the country [50]. However, the pedagogical training is most often voluntary and thus, reaches mainly those teachers who are already motivated to develop their teaching and themselves as teachers. Of course educating this group is important, but perhaps even more important could be to provide some pedagogical support for those teachers who do not participate in university pedagogical courses. The UNIPS learning environment, which is an online learning platform offering university pedagogical courses for employees and doctoral students of Finnish universities [35], was developed to solve the two major problems that have limited the possibilities to participate in university pedagogical training: 1) the traditional studies have been mostly in Finnish and 2) the traditional courses have been available only for university employees and doctoral students with teaching duties. [36]. In addition, the courses have been arranged as contact teaching requiring physical attendance and commitment to schedules which can be challenging for full-time employees. According to Laato et al. [37] UNIPS learning solution has managed to solve these problems and their results show that UNIPS modules has increased the diversity of participants who attend university pedagogical training.

During the time of their operation from late 2015 onwards, UNIPS modules have become popular, especially among doctoral students. UNIPS has enabled participation of all the doctoral students regardless if they have teaching duties or not. In addition, they offer the option to study university pedagogy asynchronously online in English, while previously the only available university pedagogical courses were organised synchronously in Finnish. UNIPS currently has nine modules, each worth one European Credit Transfer System (ECTS) credit. A view of the nine modules is shown in Fig 1. The module on the top left, *Becoming a Teacher*, is the module from which data was primary collected in the current study.

Fig. 1. A Screenshot from the unips.fi platform, showing nine available modules.

Background of UNIPS open Learning Environment. UNIPS open learning environment (University Pedagogical Support) is currently being developed in collaboration with eight Finnish Universities (University of Turku, Aalto University, Hanken School of Economics, University of Jyväskylä, Lappeenranta University of Technology, University of Oulu, Tampere University and University of Eastern Finland). The idea was based on a previous learning solution called UTUPS (University of Turku Pedagogical Support), that was developed in University of Turku during the years 2015-2016. UTUPS included three small online courses, called "modules" about university pedagogical topics. All three modules have been continued in UNIPS and they were named as *Becoming a teacher*, *Lecturing and expertise* and *How to plan my teaching*. As a result of national collaboration, altogether 9 modules (see figure 1) have been developed and more modules will be published in UNIPS during the year 2019.

Studying in UNIPS - How modules work in practice? Most of the modules consist of two main parts: an *Individual task period* when participants study the materials of the modules independently and a *Group work period* where participants engage in collaboration with each other to deepen their understanding of the contents of the modules together. Currently UNIPS does not contain many of the elements typical to a learning management system (LMS), and hence, the LMS Moodle [11]. is being

used to support the UNIPS courses. The workflow of the module analyzed in this study, *Becoming a Teacher*, follows the pattern displayed in Figure 2.

Fig 2. Steps of the modules

The *enrollment* for the modules is usually open three times per year, with currently up to 140 students accepted at once for studies at a single university. Currently all the modules require assessment from the teacher of the module, and the lack of automation is the reason the courses are not fully online and available all the time. Participants are selected in order of enrollments and the selected participants are asked to *register on Moodle* as seen in Figure 2. Next step is the *Individual study phase* and during that time, participants are studying the materials of the modules individually and write a reflective essay on the topic of the module based on the materials and their own experiences and thoughts. The materials consist of short educational videos, scientific articles and small activating tasks about the topics of the module. After completing the individual task students are asked to submit it on Moodle for evaluation. All participants who have submitted their individual task on Moodle are able to continue to the *Group work period*. Participants are divided into small groups and they are reading and commenting on each others´ reflective essays that have been written during the individual task period. After studying the modules students receive individual feedback on their tasks in Moodle and they are also asked to give feedback on the modules. This is voluntary and anonymous and in that way does not affect the amount of dropouts. In addition to the five phases depicted on Fig 2, two more phases were added to the module(s) in autumn 2017: a pre-task and a final task. Investigating how the additional phases affect student engagement and retention is one of the main research questions of the current study.

2.4 Research Questions

This study explores student retention and engagement in the UNIPS online module *Becoming a Teacher* in years 2016-2019. Based on findings and predictions from previous studies, the following research questions were formulated:

(Q1) *When do participants drop out during the UNIPS online modules?*
The hypothesis based on previous studies is that most participants who yield participation do so in the beginning of the courses, and not, for example, before the

most demanding task.

(Q2) *Do any of the following correlate with students' likelihood of passing the courses: (i) age and gender (ii) faculty (iii) position at the university?*
The hypothesis for this based on previous studies is that none of these would have a significant effect on the retention rates.

(Q3) *Are there students who yield their participation, but later return when the courses are organised again, and complete the modules? How common is such behavior?*
Only a few participants were expected to return to the courses after yielding participation.

(Q4) *Does including pre-tasks to the beginning of online courses increase students retention?*
Based on the findings of [36] and others [12], this was predicted to reduce the cognitive load [73], engage students [5] and thus, increase retention.

3 Research Design

3.1 Method

Quantitative data and statistical analyses were utilized in answering the research questions laid out. First, students' drop out was obtained by observing five phases of UNIPS module completion to see which are the phases were students yield their participation. The hypothesis based on previous studies was that the majority of students would dropout in the beginning and the amount of dropouts would decrease close to 0% as the end of the course approached. The data on when students dropout was visualized in a diagram in order to see the dropout curve over the duration of UNIPS modules. Second, with regards to statistical differences in dropout rates between students of different age, position at the university and faculty, a chi-square test [43] was performed on the collected data. Thirdly, the amount of students who yielded their participation, but then returned to study again later, was calculated. Based on predictions from previous studies [61], the amount of returning students was not expected to be high. Finally, dropout rates in the module Becoming a Teacher before the implementation of a pre-test/first task and dropout rates in the module after the implementation of a pre-test/first task were recorded and compared with each other.

3.2 Data collection and Limitations

Data was collected from participants (*N*=404) taking UNIPS module *Becoming a teacher* between years 2016-2019. The participants were both university staff members, i.e. teachers and other employees (*n*=90) and doctoral students (*n*=314). The participants were both male (*n*=173) and female (*n*=231) and the age of the participants varied between 21 and 65. All the participants did not reply to the questions concerning gender and age and in addition, gender and age were not asked at the first time the module was organized. For that reason the age of 30,3 % and the gender of 27,2 % of the participants is not included in analysis. Most of the participants (335) were from the University of Turku because the UNIPS learning environment was originally developed and piloted there. Later, seven other Finnish universities came along, and in the year 2019, there were participants (*n*=69) also from the seven partner universities.

The data is quantitative and consists of participants' age, position at university, faculty, and whether they dropped out, and at what point, or completed the module. Students were asked for their permission to use the data they generate for research, and all students who declined permission were excluded from the dataset. The total number of individual students in the current study is 404, however, as the data in the current study is real data collected during the span of three and a half years, and due to some information being voluntary and some information not being collected at all courses, the amount of participants in each individual statistic vary. For example, data from when students yield their participation was not available from the first modules organised in autumn 2018.

4 Results

4.1. When do the participants drop out?

There are three critical phases, when the dropouts have noticed to happen: 1) Registration on Moodle after module enrollment, 2) Submitting the individual task and 3) Participating on teamwork. To find out which of these are the most critical phases we analysed the dropouts of students who enrolled to the module *Becoming a teacher* in years 2016-2019. In total, 154 of the participants who enrolled to study (*N*=404) did not complete the module. Thus, the dropout rate of the module was 38,1 %. When looking at the critical phases for dropouts, the analysis revealed that over half of the dropouts (62,1 %) happen immediately after enrollment, because 87 participants who enrolled did not register on Moodle. The second critical step seems to be the individual study phase, since 37 % of the dropouts happened when 57 of the participants who registered on Moodle did not submit the individual task. The rest of the dropouts (6,5 %) happened at the group work phase, since 10 of the participants who submitted their individual task did not participate in group work and thus, did not

complete the module. The percentage value of dropouts at different phases of the module are presented in Figure 3.

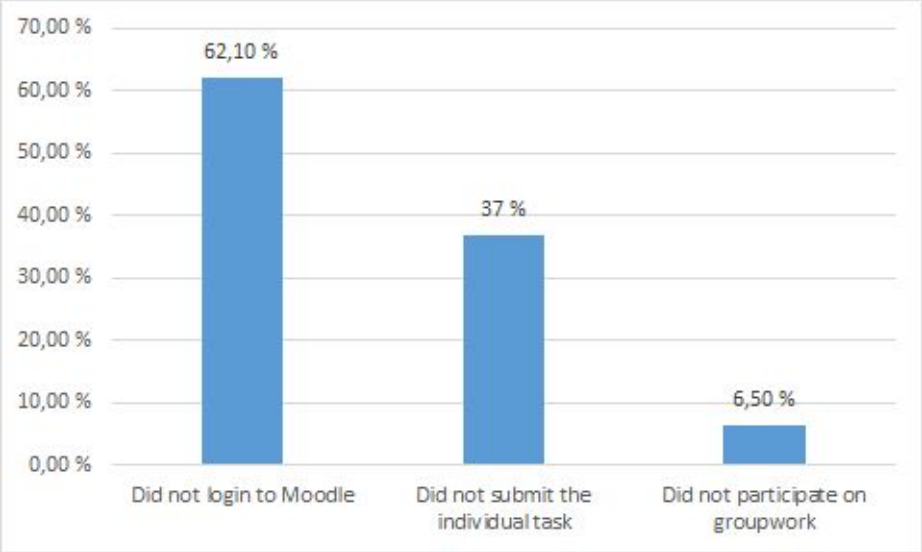

Fig 3. The percentage value of dropouts at different phases of the module Becoming a teacher in years 2016-2019

4.2 Does age, gender, position or department or faculty correlate with retention?

Age, gender and likelihood of passing the module. As presented in Figure 4, the age of participants taking the module Becoming a teacher varied between 21-65. All the participants did not reply to the question concerning age and in addition, age was not asked at the first times the modules were organized. For that reason the age of 30,3 % of the participants (n = 123) could not be reported here and was left out of the analysis. Thus the percentage values presented in Figure 4 are calculated from the 281 participants whose age was known.

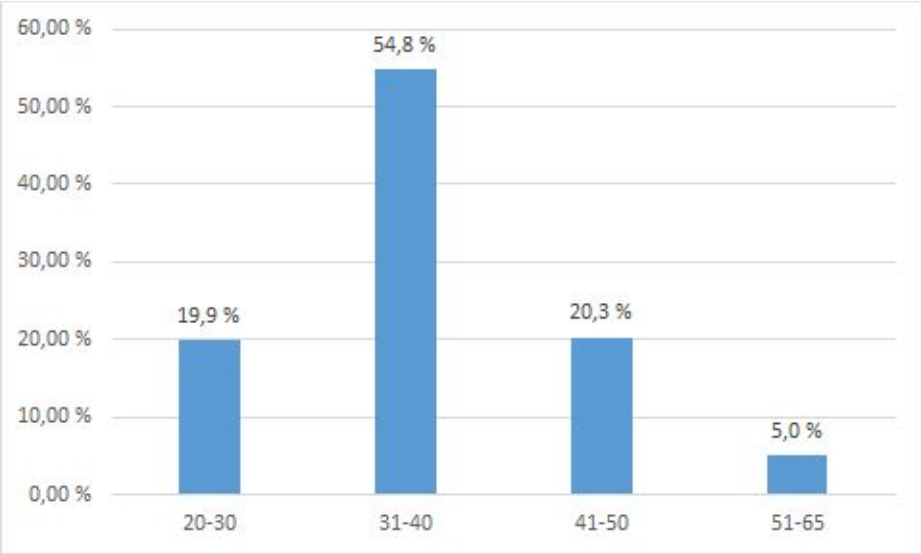

Fig 4. Age distribution of participants taking the module *Becoming a teacher* in years 2016-2019.

As Figure 4 shows, over half of the participants were 30-40 years old. One fifth of the participants were under 30 and about one fifth between 40 and 50. The age of the rest of the participants was over 50 years. When looking at participants' likelihood of passing the module, there were no statistically significant differences between the age groups (χ^2 (3) = 5,42; p = 0,14). The result was the same when looking at gender and likelihood of passing the module, and no statistically significant difference was found (χ^2 (2) = 5,95; p = 0,51).

Faculty likelihood of passing the modules. As presented in Figure 5, most of all the enrolled participants (N=404) in years 2016-2019 were from Medicine (26,2 % of the enrolled participants) and a lot of participants came also from the faculties of Science and Engineering (21,5 % of the enrolled participants) and Humanities (17,1 % of the enrolled participants). Under ten percent of the enrolled participants came from the faculties of Economics (8,4 %), Social Sciences (7,9 %), Education (5,9 %) and Law (2,7 %). In addition, some participants (10,1 %) were from several smaller units which were not considered in the Figure.

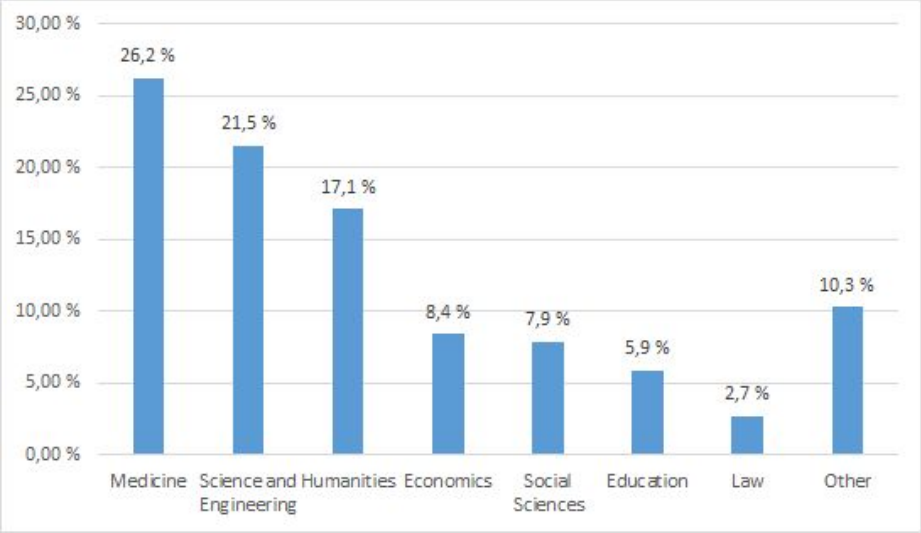

Fig 5. Enrolled participants (N=404) by faculties (percentage values of all the enrolled participants) in years 2016-2019.

To investigate whether participants faculty has an impact on dropout rates we compared the dropout rates by faculties. The dropout rates by participants from different faculties are presented in Figure 6. The percentages here means for example, that 45,5 % of the enrolled participants who were from the faculty of law did not complete the module and 55,5 % of the participants did. Participants from smaller units (10,1 % of all the participants) were not considered in the figure.

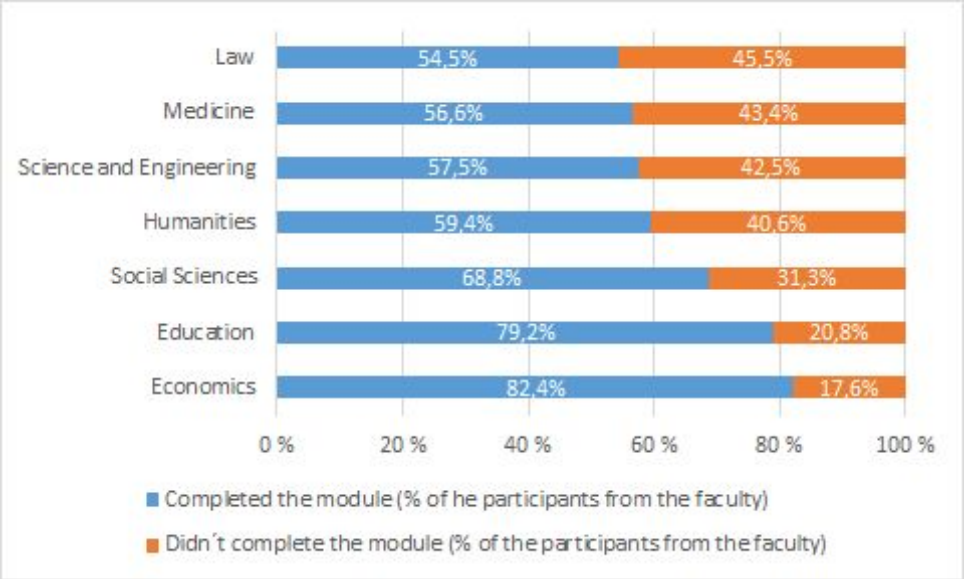

Fig 6. Participants who completed/did not complete the module (% of the enrolled participants) by faculties during years 2016-2019.

As Figure 6 shows, the dropout rate was the highest at the Faculty of Law (45,5 % of the participants from the faculty). The rate was almost as high in the faculties of Medicine, Science and Engineering and Humanities which also most of the participants came from (see figure 6). The dropout rate was the lowest at the faculties of Social Sciences, Education and Economics. The amount of participants who came from these faculties was also relatively small. Anyway, according to Chi square test the differences between faculties were no statistically significant (χ^2 (9) = 14,15; p = 0,12).

Position at the university and likelihood of passing the modules. Most of the UNIPS participants (77,7 %) in years 2016-2019 were doctoral students (n=314). About one fifth (22,3 %) were university employees i.e. teachers or other staff members but not doctoral students (n=90). Some of the doctoral students (n=126) did have teaching duties and about half of all participants were doctoral students without teaching duties (see figure 7).

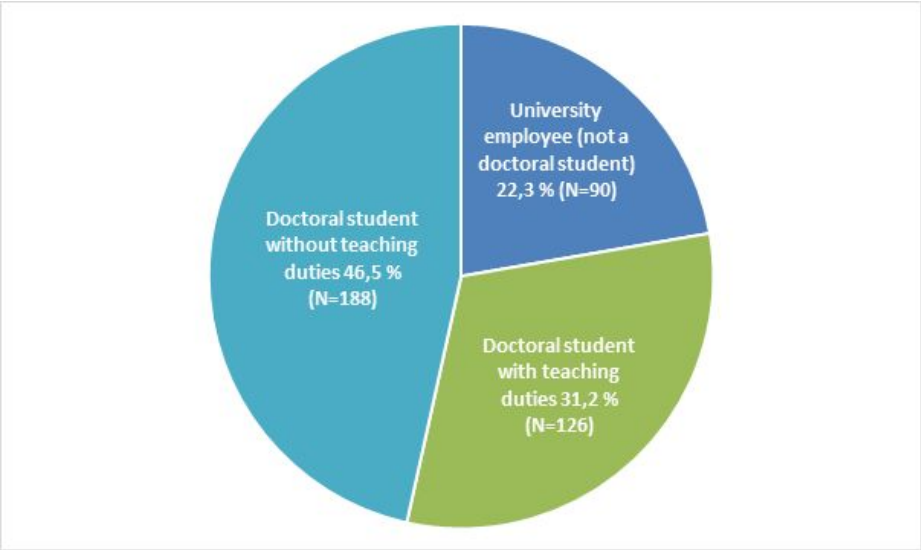

Fig 7. UNIPS participants´ (N=404) position at University in years 2016-2019.

The dropout rates were calculated to be able to compare if there are differences between the participants with different status at university. Like presented in Figure 8 the dropout rate of doctoral students was higher than university employees who are not doctoral students, but according to chi square test the differences between the groups were not statistically significant (χ^2 (2) = 2,27; p = 0,32).

4.3. Do students who dropout later enroll to the courses again?

As presented in Table 1, over half of the participants completed the module when participating for the first time. About one fifth of those who did not pass the module when participating for the first time (n=140) enrolled again (n=31) and 54,8 % of them (n=17) then completed the module. Only one participant enrolled for the third time and completed the module then.

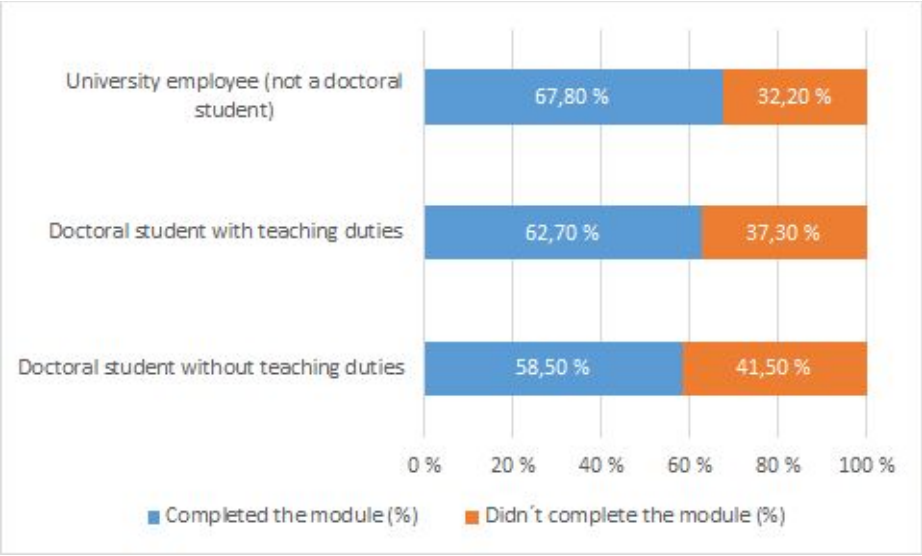

Fig 8. Dropout rates by participants´ position at the university in years 2016-2019.

Table 1. Number of enrollments to the module

	Completed the module	**Didn´t complete the module**	**Total**
First time enrollment	232	140	372
Second time enrollment	17	14	31
Third time enrollment	1	0	1
	250	154	404

4.4 The influence of a pretest on student retention

Before Autumn 2017, UNIPS modules began straight away with the individual task period lasting two weeks. However, from Autumn 2017 onwards a pretest task was introduced at the beginning of all UNIPS modules. The purpose of the task was primarily to activate participants´ thinking and preconceptions of the topic and to increase possibilities to develop the modules by collecting research data. Surprisingly

the first task seemed to also have a positive impact on retention rates. As presented in Table 2, the dropout rate was higher before the pretest was added to the requirements of passing the module. However, the difference between the groups was not statistically significant (χ^2 (1) = 2,23; p =0,14).

Table 2. Dropout rates before and after the pretest task was added to the requirements of passing the module

	Completed the module	**Didn´t complete the module**	**Total**
Participated to the module before pretest was included	117 (58,2 %)	84 (41,8 %)	201
Participated to the module after pretest was included	133 (65,5 %)	70 (34,5 %)	203
	250	154	404

5 Discussion

5.1 Key findings

The overall dropout rate in the UNIPS module Becoming a Teacher (38,1 %) was observed to be low compared to the typical dropout rates in MOOCs [26, 38, 49, 19] which have dropout rates as high as 95%. This, however, is closer to that of typical SPOCs (Kaplan and Haenlein, 2016) and as UNIPS modules were organised at specific dates to a limited amount of students, they resemble SPOCs more than MOOCs in that sense, even if the courses were offered to participants from many universities. The UNIPS modules were organised at certain times for a limited amount of participants and in that way differ from MOOCs. The courses also had from the very beginning onwards interaction with the course facilitator or teacher, and later on with other participants. This may have contributed to students obtaining a sense of social presence and sense of belonging which are important for motivation and engagement [22, 51, 81].

The majority of students withdrawing from the module did so in the beginning, and the dropout curve greatly resembled that of previous studies on MOOC retention [25, 17, 36, 51, 73]. Most of the participants (62,3 %) who did not complete the module

did not log in to Moodle and thus, did not even get the instructions for the module, and were therefore not able to start studying. It would be important to consider how to motivate this group to take the next step. Also, many of those who logged in to Moodle did not finish the modules. Overall 37 % of participants who dropped out did not submit their individual task. Surprisingly the most demanding individual task, the essay, was not the most common moment to drop out, but rather it was the very beginning. This finding further proves the point that online course designers should put heavy focus on making as good a first impression as possible. The findings also indicate that participants start studying - or actually doing something - they will stay on the course. However, even though the addition of pre-task and post-task did reduce the dropout rate on UNIPS courses, a careful statistical analysis showed that the change was not substantial enough to reach the 95% confidence interval (p=0.14) for the module *Becoming a Teacher*. However, with all three modules taken into account, the change was significant [36].

Based on the chi-square analysis, participants´ age, faculty or position at the university were not connected to participants´ likelihood of passing the Becoming a Teacher module during the years 2016-2019. Small differences between the groups could be observed but these were not statistically significant. This finding is important as there is not much research done on online course retention where participants are university lecturers and doctoral students. The participants differ from the vast majority of online courses which are open for everyone in that they have completed on average a lot more formal courses. On the other hand, the UNIPS participants were on average 10-15 years older than the regular MOOC participant. The findings show that the general observed phenomenon that, with regards to retention the first impression matters the most, is also true for university staff and doctoral students.

5.2 Implications for Online Course Designers

Based on the results of the study, the following guidelines for online course designers can be formulated:

- Most participants who drop out do not complete even a single task on the online course. Designers should focus on reducing students' cognitive load in the beginning to a bare minimum. One possible solution would be to ask students' to complete some kind of a task related to the course contents in order to allow them to enroll in the courses.
- The age or position in life do not correlate with retention, therefore personalized content should be introduced in the form of human interaction instead of, for example, supporting the debunked learning styles [33].

- Over 22% of students who drop out return later to the courses again, and on the second time over 50% of them complete the course. How to better serve this group of students?

5.3 Limitations and Future Work

Data for the current study (*N*=404) was collected from a single country, and most students were from a single university despite being from seven different faculties. Due to limitations of the collected data, only some of the phenomenon and features identified in previous studies could be measured and tested in the current setting with university teachers and doctoral students as participants. Another limitation is the UNIPS platform, as it differs from popular MOOC platforms in several ways and the findings might therefore not directly translate to the domain of fully automated online courses.

Despite the shortcomings, this study provided data about how university lecturers and doctoral students study pedagogy online and suggested that the position in life or age does not correlate with the likelihood of completing online courses. Future work will include testing new methods of making a good first impression for students, and the addition of simple but relevant tasks, which aim to reduce the cognitive load students experience in the beginning.

6 Conclusions

This study focused on student retention in university pedagogical courses by using the UNIPS module Becoming a Teacher from the years 2016-2019 (*N*=404) as a case study. The majority of students who yielded their participation did so in the very beginning of the module and the more tasks a student completed the more likely they were to complete the module. The result echoes findings from other popular MOOCs and reducing the cognitive load of students and introducing minor tasks in the beginning have been suggested throughout literature as remedies for the initial dropout spike. With the best practices in mind when designing the UNIPS solution, the overall dropout rate of 38,1% was significantly lower than in many popular MOOCs, however it is still substantially high compared to contact teaching. Based on the findings designers should focus on how to make a good first impression on students in the beginning of the module and try to get them engaged with the course by introducing small, simple and easy introductory tasks at first, thus reducing students' cognitive load.

The age, position at university or department or faculty of the students did not significantly correlate with retention. This finding shows that even with a very diverse group of students, the same pedagogical principles apply. This finding draws parallels to the debunked learning styles myth [33] by suggesting that a well designed online

course should work equally well regardless of participants age or position in life. When looking at students who drop out, but later return to study, 22,1% returned later to the module again and that time over half completed the module. Perhaps online course designers should also in the future focus on how to bring dropouts back to complete their course.

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