MOOC Development - Why do IT and Business Courses Matter?

Sergei Kruchinin[*], and *Ekaterina* Bagrova

Industrial University of Tyumen, 629810 Noyabrsk, Russia

Abstract. MOOCs (massive open online courses) were initially developed in 2012. Since then, their design and structure have evolved. Different fields of MOOCs are developed with different dynamics. Customers find MOOCs in two primary ways. The first are courses found via search, a segment in which computer science and business courses dominate. The second are additional courses, recommended by the online platforms. The overall number of participants taking these courses is higher. There are three categories of courses within this group: humanities, business, and health & medicine. Therefore, future development of MOOCs are interconnected with these categories more then with the others.

1 Introduction

The total number of MOOCs available to Internet users is now close to 10,000, across various fields of knowledge. More than 700 universities around the world have joined the race to create their own MOOCs. The number of online course participants in 2017 was about 81 million. The total number of certificates issued as a result of successful completion of MOOCs has also been growing steadily since 2012 [1].

The most popular MOOC providers are the American platforms Coursera, edX and Udacity, as well as the British platform FutureLearn. National online platforms have appeared in many countries: XuetangX in China, MiriadaX in Latin America, France Université Numérique (FUN) in France, EduOpen in Italy, SWAYAM in India, and the national open education platform (Open Education) in Russia. In 2017, Chinese online provider XuetangX ranked third in the number of participants (9.3 million), ahead of FutureLearn (7.1 million).

2 Methods

The study combines several cases about MOOCs and some statistical data. The data covers MOOC development with some current statistics, matching MOOCs' supply and demand. Based on this matching, the study provides explanations why IT and business courses are so popular and which user categories are interested in them. Simultaneously, the study

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[*] Corresponding author: kruchinin.s.v@bk.ru

explains other users' preferences and their demands. As a result, the study provides some predictions about MOOCs' market development.

3 Results

3.1 MOOCs as a market

MOOCs have long been their own separate market. Moreover, this market is two-level. At the first level, MOOCs involve students [2]. At this stage, there is a standard sales funnel, which includes informing people on the Internet, turning them into site visitors, and then converting them into users [3].

At the same time, the platforms actively compete with each other. One of the ways to compete is to invite famous teachers to conduct exclusive courses or create the most relevant courses. The second way is to develop the platform, including fullness, interface, usability, and other characteristics. The biggest challenge for MOOC platforms is audience and user retention (Fig. 1).
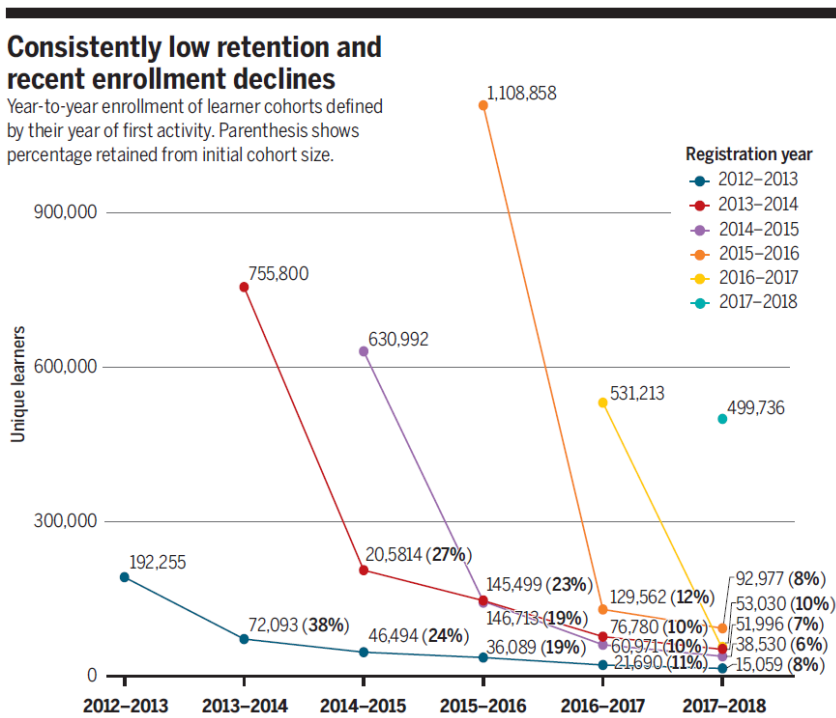
Fig.1. Involvement of the participants in the first, second and further years.

As you can see from the graph, users not only quickly lose interest in the platform. This process is accelerated for new cohorts of users depending on the year of their initial registration. Thus, the MOOCs' market at the platform level is a market where the user is involved only for a short period of time [4].

At the same time, the second level of this market is the activity of individual teachers and organizations to promote their course. Most of them receive either direct income through the platform, for example, for the purchase of a certificate, or indirect income. Indirect income includes the purchase of books by the course author or recommended by them. Note that these courses do not require the purchase of books and accompanying

materials, but they can be included in the list of additional or mandatory literature. In addition, engaged students tend to make these purchases.

As a result of the combined actions of the MOOC platform and the teacher, a contradiction is formed [5]. The platform aims to engage students in a variety of courses, while quality teaching gives them enough knowledge that reduces their interest in subsequent courses. At the same time, poor-quality courses also discourage students from further actions on the platform.

3.2 Demand for MOOCs

The demand for massive open online courses is based on two key factors. The first of them is the need for education, formed by the external environment, whether it is a classical education or a job. The second is curiosity and a desire to expand your own knowledge. In most cases, the first group is most motivated to pay for certificates, which is again due to external circumstances [6].

As a result, it is the first group of students that forms the demand for MOOCs' services, if we talk about their paid component. It is their interests that providers try to satisfy in the first place, which determines the significance of applied courses. This is especially true for IT and business. Because it is these skills that are most in demand by the labor market at the moment.

Note that many other courses are also popular and widely available [7]. However, it is much more important for students to understand the basics of applied entrepreneurship and programming than to take a course in philosophy. In fact, the demand for MOOCs is determined by the needs of the labor market, which affect it both directly and indirectly, through educational institutions.

At the same time, students who study MOOCs to expand their own horizons are more regular users of MOOCs [8]. That is why over time, all areas have developed, including the Humanities and social Sciences. In fact, these courses are never very popular, but they gather a stable audience, motivated by internal incentives, not external ones.

3.3 MOOC availability

As of 2012, 250 courses were hosted on online platforms, and by the end of 2017, the number of courses had increased by almost 38 times, to 9,400 MOOCs. From 2015 to 2016 the number of MOOCs increased by 2,650, and in 2017 there was another increase of 2,550 courses from 2016. The total number of students registered for MOOCs 2017 was 40 times the number of students in 2012. The largest increase in students also occurred in 2016 and 2017: 48 million people.

MOOC topicality in 2019, according to 'Class center' statistics, is presented in table 1.

Table 1. MOOC topicality at the year 2019, according 'Class Central' statistics.

Topicality	Number of courses
Business	1848
Social sciences	1282
Computer science	1097
Humanities	1044
Science	1031
Education & Teaching	952
Programming	889

Table 1. Continued

Health & Medicine	837
Engineering	782
Art & Design	603
Data science	463
Mathematics	349
Personal Development	311

It is important to highlight that social sciences and humanities courses have rapidly increased in number since the year 2017. In this year, the numbers of social sciences and humanities courses were about 1000 and 800, respectively.

3.8 Users' requests

For example, Class Central Analytics shows that, when searching for MOOCs, students most often type words that relate to the field of computer science in the search engine, such as "machine learning", "data analysis", "deep learning", "SQL language", and "Python". These keywords are popular during the whole period of existence of the aggregator. There are also quite frequent requests in the field of learning foreign languages (English, Spanish, French), mathematics (statistics), art (photography, design). On this basis, we believe it is possible to identify unfilled niches on international platforms. It is likely that the demand for online courses on these topics will not be as high as for computer science courses. The Top 200 Free Online courses of all time are presented in Table 2.

Table 2. Top 200 Free Online courses all the time.

Topicality	Number of courses
Humanities	33
Business	27
Health & Medicine	24
Science	21
Computer science	21
Social sciences	18
Personal Development	16
Programming	10
Mathematics	8
Engineering	8
Education & Teaching	7
Art & Design	7
Data science	6

4 Discussion and Conclusion

Overall, supply and demand on the MOOCs market meet each other. The most popular courses of all time are on humanities, then business, and, in third place, health and medicine [4]. However, their overall supply is still low, except the business courses. Computer

science courses are not so in demand in comparison to their supply. Thus, humanities and medicine are the fields of MOOCs that will develop in the nearest future [1].

It is an important issue regarding computer science and business courses. There are the most searched for courses [7]. People search for them for job promotion or for developing business opportunities, while humanities courses and health and medicine courses are found through subscription or in 'similar', or 'these courses may be of interest to you' [8]. Thus, there are different groups of customers for different course categories.

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