TRACKING, A NECESSITY TO IMPROVE ONLINE LEARNING.

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Abstract

At this moment, pandemic situation due to COVID-19 implies some changes, there is a considerable transformation for the digital system, not only work has moved to online when possible but also education had to move fast to online learning in the majority of developed countries. ASTRE project is focused in improving the quality of offered online learning opportunities for adults which is directly related with the requirements from the pandemic.

This paper is the preliminary result from ASTRE project, a project based on Online Learning for adults and its impact. The aim of this paper is to study different MOOC (Massive Open Online Courses) providers in order to analyse existing tracking systems. MOOC providers have been mapped at international level. A survey has been created and launched and in depth interviews have been conducted. Despite finding some universities with no tracking system, results show many organisations or universities with online learning, implement somehow a tracking system to monitor the students. What is really surprising, is the fact that, once the student is not enrolled in the organisation, there is not any further contact. Consequently, there is no information on the impact online learning had on the learner's personal and professional competences. A common response from every survey was the importance given to track the student.

Keywords: Monitor, MOOC, active learning, survey, egressed.

1   INTRODUCTION

Over the last few years, Europe witnessed a rapid and massive expansion of e-learning courses. An increasing number of adults are following e-learning courses and MOOCs, with different motivations. Research has shown that online learning attracts learners from medium and higher socioeconomic and education background [1], so a challenge is to open up e-learning and MOOCs to people not traditionally participating in lifelong learning.

E-learning refers to the learning process created by the use of digitally delivered content. However, the meaning of E-learning has changes over time. Different definition as have different emphasis. Some focus on the content, some on the communication and some on the technology. One of the early definitions comes from ASTD's (American Society for Training and Development) and covers a wide range of applications and processes, such us web-based learning, computer-based learning, virtual classrooms and digital collaborations. Other definitions focus more on the use of internet technologies, taking into account three fundamental criteria:

1. It is networked.
2. It is delivered to the end-user via a computer using standard internet technology.
3. It focuses on the broader view of learning [2].

Currently, one of the most popular approaches to E-learning are MOOCs. Massive Open Online Courses, or MOOCs, are massive, open, online courses that allow participants free access and unrestricted participation to any course of their choice. The use of MOOCs has seen widespread use around Europe and the world but they took off in 2012, when Professors Sebastian Thrun

and Peter Norvig of Stanford University offered the online course called "Introduction to Artificial Intelligence". This course had approximately 1,600,000 students participating from 190 countries. MOOCs are playing an important educational role in higher education [3], but further research is needed to assess the quality of these courses and adopt suitable teaching strategies to promote a more personalized and scaffold learning and provide some type of reliably and valid certification [4,5].

In a study performed by. G. Canole [6], it highlights the need to develop better indicators to understand the way in which students interact with the courses and their experience with them. IT also suggest the necessity of creating a classification for MOOCs, issue hotly debated by different authors, and in which a homogeneous differentiation is also proposed, and is considered necessary for correct classification. there is a need to subject the quality assessment of current MOOCs, to determine whether they are an effective tool for education and knowledge, or only serve as a marketing tool. In this area there is also some disagreement among the authors about which parameters are taken into account to determine the quality of a course.

The monitoring of learners has been emphasised in recent policy documents as a way to improve MOOCs effectiveness. 'New Skills Agenda for Europe' [7] emphasised the need for EU member states to have a 'better understanding of performance of graduates'. The Council´s Recommendation on tracking graduates (November 2017) emphasized the need to improve the availability of qualitative and quantitative information about what graduates from different education and training settings do after they complete their education and training. There are already many evaluations that assess the quality of the MOOC platforms and of the courses themselves.[8] However, the aim is mainly to identify the satisfaction with the courses and the platform." [9] It is certainly surprising the high dropout rates, for example 7.6% of the average 50,000 participants on Coursera conclude a MOOC (variance 0.67%-19.2%) [10].

The revolutionary effect produced by E-Learning and MOOCs platforms, even though it represents a relatively new field of study, has been already widely addressed and investigated. However, most studies have mainly focused on the theoretical and pedagogical implications of their creative destruction and on their capability to provide lifelong learning without economic, legal and technical constraints [11]. Empirical analyses are, on the other side, still scant and inconclusive. Existing literature, to date, have failed to fill the gap concerning both mapping the MOOCs providers and assessing their capability to effectively succeed in their learning objectives.

While some authors have defended the need to assess the quality of courses from different points of pedagogical view, such as planning, design, mentoring and monitoring followed or how to evaluate it, more current authors note the need to add an assessment from the point of view of the student, due to the wide variety of participants and their different characteristics and motivations [12].

Aiming at analyzing the context of the organization of massive open online courses (MOOC) in the countries involved in the ASTRE project (Spain, Italy, Greece, Germany and Cyprus) to identify main MOOC providers¨ and analyse their needs, the present papers shows the main results.

2 METHODOLOGY

The study methods that will be employed are desk research related with the afore mentioned countries in order to identify the main MOOC providers.

Simultaneously to the desk research a questionnaire is designed to identify the MOOC providers needs. This survey has been launched throughout the EUSurvey tool, and a link was given to get the answers during 20 days. Every partner, sent the link to their contacts or to the addresses obtained from the desk research. The target of the survey was to reach at least 200 providers and minimum 40 responses from at least 10 different countries.

Lately, 9 in depth interviews were taken to MOOCs providers.

Once the surveys and in depth interviews were finished, results were statistically analysed.

3 RESULTS

3.1 Study framework

The most important findings from the desk research can be found below.

The platform MiriadaX was born in Spain in late 2012, period were most of the platforms were of American dominance. This initiative aims to provide a space to provide MOOCs from Latin American universities in the network Universia [13]. A few months after its creation this platform already had 18 member universities and offering a total of 58 courses to users all around the world. Perhaps it is due to its relatively early appearance in the Spanish territory, the large presence of national universities and the large number of courses presented, one of the platforms with wider offer at this moment. Very similar is the case with Coursera since it also arises between 2011 and 2012, but in the United States and achieving greater participation of organizations and universities. Although Spain does not have much presence as others, at the international level it is the most powerful platform that currently exist, with more than 190 universities participating.

The offer of MOOCs in Cyprus currently is limited to one; "Introduction to Digital Currencies is the first free MOOC on Cryptocurrencies and Blockchain technology globally, and the first course of the MSc in Digital Currency". Even though the MOOCs providing sector in a premature stage/is not fully developed yet, the public and private universities in this country, for many years now offer a variety of e-learning courses both for bachelors, master's and doctoral degrees and use e-learning platforms for language learning and other disciplines promoting lifelong learning, adult education. In addition The Open University in Cyprus, since its establishment in 2002, aims to fill an important gap in the Cypriot higher education system, offering accredited distance learning degrees at all levels (undergraduate, master and doctoral).

It seems that MOOCs and e-learning in general, is a new reality for Greece, at the level of both non-formal and formal learning, and it needs to be investigated on many levels: organizational, technological and pedagogical. No matter how well the design and implementation of e-learning courses is made, other factors should be taken into consideration when the outcomes of these courses are assessed: from wider socio-economic structures, to organizational settings at middle and local level; from national-level legal frameworks to individual characteristics and personality traits [14].

In Italy, MOOCs are mainly provided by Universities. In Italy, the Conference of Italian Universities Rectors (CRUI) in 2017 published a document entitled "Project MOOCs Italy: National guidelines for the preparation of quality MOOCs provided by Italian Universities". The document aims to be a guide for all Italian Universities that intend to provide MOOCs, proposing several indicators to verify compliance with minimum standards required for these on-line courses.some of the most important platforms in Italy are EduOpen, PoK, EMMA, Federica, UNIBOOK

Simmilarly to what can be observed in Italy, there are several plaforms in German Sepaking Countries such as open HPI; open VHB; iMooX; Open CourseWorld; Udemy; Iversity; Khan Academy and Coursera.

The "typical" MOOC provisioning in Greece is still quite low in relation to other countries in European Union. From the three providers mentioned, only two are active. "**Mathesis**" is the first MOOC initiative in Greece since 2015 and is offering only higher' s education level courses specialized in various disciplines like physics, history, language, etc., taught by well-known academic teachers and researchers, aiming to a high quality learning experience for all. "**Coursity**", on the other hand is targeting to lifelong learning programs and certifications via partnerships with Lifelong Learning Centres of various Greek universities. "**meaeX**" MOOC initiative of the Hellenic Open University is still in a developmental/piloting phase.

Another initiative, in a research/piloting phase, is the MOOC platform of Primary Education Department, University of Aegean, which is currently offering a MOOC course called "School bullying" [15] in more than 1.000 Greek teachers, the successful completion of which leads to a professional development certification from the UAegean Lifelong Learning Centre.

3.2 Survey

There was a expectation of getting minimum 40 responses and the result was 59 correctly answered surveys from 28 countries all over the world (Cyprus, Germnay, Greece, Italy, Spain, Belgium, Bulgaria, Colombia, Estonia, Ethiopia, Finland, Ireland, Jordan, Lebanon, Libya, Lithuania, Malta, Mexico, Morocco, Nehterlands, Poland, Portugal, Reunion, Romania, UK, Slovenia, Turkey and Ukraine).

More than 50% of the surveyed had more than 6 years of experience in MOOCs offer, although when the analysis was focused on the European Countries the ratio was increased to higher than 60% of the answers. The MOOCs offer shows a wide variety of topics.

Regarding the duration of the MOOC, it can be clearly observed from table 1 that 45% of the courses are not longer than 4 weeks whereas around 18% are longer than 10 weeks. Around 45 % of the surveyed offered certificate of attendance or knowledge accreditation, depending on the course and only 6,67 % offered no answer.

Table 1: MOOC duration

Duration	%
0-2 weeks	20
2-4 weks	25
4-10 weeks	35
More than 10 weeks	18,33
No answer	1,67

Regarding the high level of dropout ratios, it was also confirmed by our survey as it can be observed in table 2. Despite the wide number of students abandoning the course without ending it, 70% of the surveyed controlled the students who were enrolled more than once and it was higher than 40%.

Table 2: MOOC duration

Completed	%
0-25 %	28,33
25-50 %	26,67
50-75 %	23,33
75-100 %	20
No answer	1,67

Table 3 shows the main reasons/ motivation for attending the MOOC. It is considerably higher among the rest (71,67 %) the professional development followed by the develop upskill or reskill and competences.

Table 3: reasons/ motivation for attending a MOOC

Reasons/Motivation	Ratio
1. Professional development	71.67%

2. Certification – enrichment of their CV	46.67%
3. Develop upskill or reskill and competences	45%
4. Develop their professional status and career path, receive certification of learning,	36.67%
5. Starting or changing profession or business	8.33%
6. Personal development	41.67%
7. Increase earnings	10%
8. Acquisition of Further Study/Education	35%
9. Acquizition of specialized knowledge	31.67%
10. Acquisition of specialized knowledge for research purposes	8.33%
11. Information - updating of scientific knowledge	23.33%
12. Personal reasons(Love for the particular subject)	28.33%
13. Develop digital skills	30%
14. Develop Creativity skills or just personal satisfaction	18.33%
No Answer	1.67%

Despite the importance given to the professional or upskill development 73,33% of the MOOC providers surveyed do not offer a career advice programme for MOOC learners. And only around 32% tracks the learners and only 26,67 % tracks the graduate´s professional development. There is no success of the tracking as only around 15 % of the tracking system gets a response higher than 50 % of the surveyed.

Table 4 shows how 65 % of the surveyed did not answered to the question focused on keeping data from the tracking, and only 23,33 % considers this information although only 15 % admits to analyse and use data for the extraction of new knowledge.

Table 4: Do you keep data from the tracking?

Keep data	%
yes	23,33
no	11,67
No answer	65

The access to the students differs in the methods, Figure 1 evidences the influence of digital technologies to get higher levels of response disregard the conventional ones such as paper questionnaire or interviews.
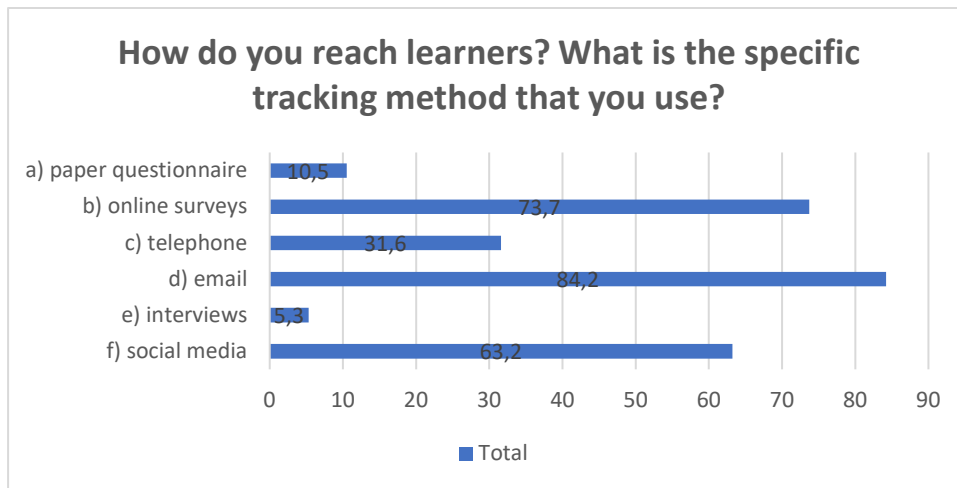
Figure 1. Tracking methodology used.

3.3   In depth Interviews

The ASTRE consortium conducted in-depth interviews with MOOC providers from the consortium countries. Nine interviews in total took place and the distribution can be seen in the table 5 below.

Table 5: In-depth Interviews Country distribution

Contry	Interviews
Grece	2
Italy	2
Spain	2
Germany	1
Cyprus	2

The interviews also revealed very similar conclusions to the ones from the survey. Almost all interviewees confirmed the lack of a detailed and well developed tracking system. For example, in the question "How does your institution use the results of graduate tracking?" the answer was that "The only initiative we made in graduate tracking was sending an email to all students in 2017 to ask them about positive experiences related with the MOOCs they took with us. We received many answers and we used some of them for blog posts in edx.org and upvx.es". Additionally, also noted the many obstacles to implement a tracking, with students from many different countries from all over the globe, and the practical difficulties for something like that.

Additionally, the interviews also reinforced the findings of the survey regarding the reasons that learners attend a MOOC. The main reason that learners attend a MOOC is to improve their career prospects either by finding employment, changing career and improve their CV. Therefore, a tracking system that tracks those characteristics should be of great value to all providers.

All MOOC providers approach learners in the same way as the survey revealed. The most popular way is online surveys, emails, but also phone calls in some cases. Thus adopting those methods will provide a safer contact method for the ASTRE tracking tool.

The interviews had the chance to focus also on the COVID-19 pandemic and explore if and how it has effected the MOOC provision. The interviewees mentioned that the interest in online and in MOOCs have been increased considerably. Another effect of the pandemic was the offering of the MOOCs for free by the providers, and that in turn has increased the attendance. Furthermore, all academic institutes were forced to make the transition from face to face teaching to online, often though without having the necessary resources in equipment and personnel.

4   CONCLUSIONS

Desk research evidences different level of development of MOOC implementation in European Countries. There is a high offer of courses from universities although it is remarkably the fact that some organisations are offering some MOOC courses as well. However, something in common is the MOOC duration which is not higher than 10 weeks.

It is important to notice that the motivation for studying a MOOC is the professional development followed by the develop upskill or reskill and competences. However, MOOC providers have not a career advice programme for MOOC learners, and what is more important, they do not test if this goal is achieved by the MOOC egresses.

Regarding the access to the egressed student, digital technologies show to be more useful to track or get answers from students.

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