ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ В ОБРАЗОВАНИИ

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ARE WE READY FOR THE NEW NORMAL IN E-BUSINESS EDUCATION? SENTIMENT ANALYSIS OF LEARNERS' OPINIONS ON MOOCS

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Abstract. *Introduction.* The new digital economy and its constantly evolving paradigm have completely transformed the model of doing business and the learning methods. MOOCs (massive-open-online-courses) and micro-credentials are the educations interfaces, have become an important teaching environment tool. Distance learning has become an indispensable alternative teaching method in updating and transferring classical education materials according to real-world settings, especially for learners in higher education.

Aim. The current research is aimed to address the society's readiness and attitude direction to the concept of MOOCs and distance learning, highlighting its emergence and inevitability for educational institutions of all types in order to make a fundamental change in their curricula, especially in e-business courses, which are the most demanded training courses on MOOCs platforms.

Methodology and research methods. In the study, the awareness and recognition of the online community on the MOOCs concept is examined. In this direction, Turkish people's perception and attitudes toward MOOCs have been addressed via sentiment analysis on Eksi Sozluk, the largest social communication and discussion platform in Turkey.

Results. According to the sentiment analysis results, it has been determined that 52% of respondents have positive judgments on distance education and MOOCs, 29% of responses are neutral and 18% are negative. In general, distance education and MOOCs are perceived as a useful new education model by the Turkish people.

Scientific novelty. This paper is the first sentiment analysis of learners' opinions on MOOCs and distance learning in Turkey. Considering the increasing awareness of MOOCs and

the need for e-business education, as the most demanded type of MOOCs, this is the first study investigating the priority of these two phenomena within the context of COVID-19.

Practical significance. It is thought that this study will contribute to the stakeholders in terms of showing how MOOCs and micro-credentials have a high potential to understanding trends in education especially in the new normal after the COVID-19 pandemic. The holistic education model of institutions has difficulty meeting the competitive nature and result-oriented approach of the e-business ecosystem. This market reality requires the institutions to offer more to-the-point and applied education solutions. In terms of e-business (e-commerce, digital marketing) education, the importance of MOOCs as a solution-focused on "how" rather than "what" has been comprehensively discussed in the paper.

Keywords: Massive Open Online Courses (MOOCs), e-business education, online marketing education, micro-credentials, sentiment analysis, distance learning.

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ГОТОВЫ ЛИ МЫ К МОДЕЛИ НОВОЙ НОРМАЛЬНОСТИ В ЭЛЕКТРОННОМ БИЗНЕС-ОБРАЗОВАНИИ? СЕНТИМЕНТ-АНАЛИЗ МНЕНИЯ ОБУЧАЮЩИХСЯ О МООК

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Аннотация. *Введение.* Новая цифровая экономика и ее постоянно развивающаяся парадигма полностью изменили модель ведения бизнеса и методы обучения. МООК (массовые открытые онлайн-курсы) и программы микроквалификаций – это образовательные интерфейсы, которые превратились в важный инструмент учебной среды. В высших учебных заведениях дистанционное обучение стало незаменимым альтернативным методом преподавания при обновлении и передаче классических учебных материалов в соответствии с реальными условиями.

Цель данного исследования – определить готовность и отношение общества к концепции МООК и дистанционного обучения, а также подчеркнуть неизбежность их использования в образовательных учреждениях любого уровня, для того чтобы внести фундаментальные изменения в учебные планы, особенно в программы курсов электронного бизнеса – наиболее востребованного направления образовательных курсов на платформах МООК.

Методология и методы исследования. В исследовании анализируется осведомленность общества о концепции МООК. Восприятие и отношение респондентов к МООК было

рассмотрено с помощью сентимент-анализа на платформе Eksi Sozluk (социальная коммуникационно-дискуссионная онлайн-площадка).

Результаты. Согласно результатам сентимент-анализа, 52 % опрошенных оценивают дистанционное обучение и МООК положительно, 29 % – нейтрально и 18 % – отрицательно. В общем, дистанционное образование и МООК воспринимаются респондентами как новая полезная модель образования.

Научная новизна. Авторы впервые провели сентимент-анализ мнений о МООК и дистанционном обучении среди пользователей этих платформ в Турции. Это первое исследование, в котором рассматривается приоритетность растущей осведомленности о МООК и необходимости в дистанционном бизнес-образовании как наиболее предпочтительном типе МООК в условиях пандемии COVID-19.

Практическая значимость. Предполагается, что данное исследование будет способствовать демонстрации заинтересованным участникам того, что МООК и программы микроквалификаций имеют высокий потенциал для осмысления тенденций изменения образования, особенно в условиях модели новой нормальности после пандемии COVID-19. Целостная образовательная модель учреждения образования сопряжена с трудностями в плане соответствия конкурентному характеру и ориентированному на результат подходу экосистемы электронного бизнеса. Рыночная реальность требует, чтобы учебные заведения предлагали более целенаправленные и прикладные образовательные решения для развития данной сферы обучения. Что касается курсов электронного бизнеса (электронная коммерция, цифровой маркетинг), то важность МООК как решения, ориентированного на то, как, а не что, подробно обсуждается в статье.

Ключевые слова: массовые открытые онлайн-курсы (МООК), обучение электронному бизнесу, обучение онлайн-маркетингу, программы микроквалификаций, сентимент-анализ, дистанционное обучение.

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Introduction

The use of machines has resulted in a reduction in manpower requirements but has also led to the need for increasingly skilled manpower to operate those very same machines. Thus, in the given scenario, employees would need to get equipped with multiple skills at a rapid pace to ensure their survival in an increasingly competitive modern-day digital environment. Given such market demands, over the past decade, the higher education system world over has presented various new facets in the process of adaptation. One of these is the development of the Massive Open Online Courses (MOOCs) as a means to assist learners in updating their skills economically, at any time, and irrespective of where they were located.

The proliferation of technology in the field of education has made it obligatory for learners and knowledge providers to have access to new and improved methods that allowed the transfer of information quickly and practically. These methods were required to help learners in developing and enhancing their skills for the future. Along with ease of accessibility, there also existed a need for these methods to be low-cost resources. Such an environment was made available to learners through free online courses with the breakthrough in MOOCs. MOOCs provide learners from around the world the flexibility of time and location, [1] and help them enrol and collaborate with other learners, creating a vigorous learning environment that fosters learning among peers and aids in inter-personal skill development [2, 3].

Technological advances in the 21st century have become part of many areas of human life, not just industry. These developments have led to a change in individuals, societies, and education. New learning environments and approaches have emerged as a reflection of these changes in the information society [4]. These developments have given new opportunities to meet people's lifelong learning needs, and web-based learning environments such as Massive Open Online Courses (MOOCs) have been introduced.

Badges as a form of micro-credentials have different types such as skill badges, knowledge badges, social or life skill badges, participation badges, identity badges, and certification badges [5, 6]. From another point of view, digital badges serve diverse functionalities such as alternative credentials, motivators, and instructional tools [6, 7].

Traditional modes of learning are fast becoming cumbersome and time-consuming for learners, while also being a drain on their financial resources [8]. However, the emergence of MOOCs and their growing popularity among students over the past few years has provided a viable alternative for learners in need of courses of a shorter duration than traditional ones, to augment their skill set [9, 10]. Yet, a lack of credibility continued to remain a matter of concern on MOOCs. Thus, as a means of dealing with these credibility issues, and fulfilling corporate requirements as well as those of higher education institutions regarding more credible MOOCs, micro-credentials began to be issued by MOOCs [6, 11, 12]. Micro-credentials, also known as digital badges, web badges, nano-degrees, mini-degrees, and micro-certifications, are a form of mini-degrees or certifications that are awarded to learners on the successful completion of a MOOC. They are issued based upon the previous knowledge of the learner. For instance, with Coursera, a student with a pre-determined minimum level of learning was permitted to enrol in a specific course, but a diploma would only be awarded to a student possessing a specific level of professional knowledge [6, 10, 12]. Systematic studies on micro-credentials [9, 10, 12]

carried out have contemplated ways and means by which these could be used with MOOCs to provide learners and companies with a platform that could be trusted. Micro-credentials provide a useful recognition of skills learned using MOOCs, and in recent years, corporate entities have begun recognising these certificates and mini-degrees as proof of an employee's or job applicant's expertise in that area.

Different MOOCs use various kinds of frameworks for issuing micro-credentials, for instance, The European Qualifications Framework (EQF) is a reference framework that is primarily followed by MOOCs operating from European countries and aims to make micro-qualifications more readable and understandable across different countries and systems. Digital Promise, the National Center for Research in Advanced Information and Digital Technologies, apart from offering micro-credentials of its own, make its platform available for other organisations to offer micro-credentials of their own as well. Bloomboard too is a platform that offers different types of micro-credentials.

Recent developments in MOOCs have involved the fostering of partnerships among international cooperatives such as Coursera, around 150 world-class universities and institutions (as of January 20, 2020), and edX. Educational institutions that have begun exploring MOOCs partnerships include the Massachusetts Institute of Technology, Cole Polytechnic Federale de Lausanne, and the Hong Kong University of Science and Technology. Platforms similarly involved include Udacity (www.udacity.com), P2P University, and FutureLearn (UK Open University's MOOC platform). As regards the 2011 Artificial Intelligence Online Course that was proposed by Stanford University, the MOOC enrolment touched 160,000 learners. Mounting interest in MOOCs has meant that they have gained popularity as topics of discussion in academic journals such as in the Time Higher Education Magazine that carried an article on how MOOCs were governed [8]. Likewise, one can find many blog posts about MOOCs online, including posts by course leaders, participants, and outsiders, all of whom view MOOCs from different perspectives (e.g., http://mooctalk.org, a mathematician who led MOOC at the end of 2012). Educational research papers on MOOCs began to be presented for review from 2008 (in the form of journal articles, conference proceedings, and professional journal articles) and formed the base for the increasing numbers of papers related to MOOCs that are published annually. This stimulation of interest within the academic community about MOOCs is comparable to the hype generated at the launch of other innovative technologies. A case in question is Twitter, which was launched as a micro-blogging tool in 2006, and the subsequent publication of literature on Twitter that witnessed rapid growth over the years, from just three papers in 2007 to hundreds of papers in 2011 [13].

Literature Review

The term MOOCs was used in describing the very first online course from the University of Manitoba, Canada, called “Connectivism and Connective Knowledge (CCK08)” [14]. Seimens [14] and Downes [15] headed the course that had more than 2000 learners from across the world. Over time, micro-credentials began to be offered to users along with MOOCs, making it possible for them to augment their skill set in their CVs with new skills [10]. Micro-credentials can be described as shorter forms of degrees, with the duration of a micro-credential course being longer than that of a single course but shorter than that of a traditional degree course [8, 9 ,12, 16–18]. In the US, the concept of MOOCs and micro-credentials has experienced growth not just at the level of higher education but also at the levels of secondary and higher secondary school education [19, 20].

In 2008, the University of Manitoba (Canada) commenced a course on “Connectivism and Connective Knowledge” [14, 21] that has been widely regarded as the basis on which MOOCs were founded. However, the concept of MOOCs did not come into being until 2011, when Stanford University (USA) began offering another course on “Artificial Intelligence”, which enroled over 120 thousand learners [3]. That was the beginning of the MOOCs era, which has been ceaselessly growing since then and has been setting new standards in education with the use of innovative educational technologies and learning practices.

A chronological framework has been established that helps in gaining a deeper understanding of how the concept of MOOCs came into existence and has developed over the years [22]. The study was also an indication of an increased interest by research scholars in the concept, and how conceptual frameworks were now being developed around MOOCs. The themes that the 2014 study focused on included the threats and opportunities extant in higher education, and the teaching methods adopted for a given curriculum. It also highlighted the attributes of the hardware and software utilised for MOOCs concerning the participant-creator experience.

Another study published in 2015 by Chiappe-Laverde, Hine, and Martínez-Silva [23] focused on the process of implementation of MOOCs. The researchers based the scope of their study on literature related to the MOOC-based learning paradigm that was published during the period 2007–2013. They were able to provide confirmation from their research that the swift growth in interest in MOOCs occurred due to external as well as institutional factors. The conclusion that they drew from their study was that financial viability was a significant factor to which the success of MOOCs, from the learners’ as well as the providers’ perspectives, could be ascribed.

Yet again, the research by Kovanovic, Joksimovic, Gaševic, Siemens and Hatala [24] in 2015 focused on MOOCs studies that had been published between 2008 and 2014 were indicative of the fact that MOOCs continued to remain a topic of public discourse. This study recognised that MOOC-related reports from providers had altered focus since 2014, which in turn had impacted the overall status of MOOCs in the global educational system. This scenario was a reflection of various issues related to the governments of different nations, and also of the deficiency in coverage of MOOCs by the mainstream media.

Besides the studies referenced above, there exist a few other articles on the topic of MOOCs and their evolution. A 2015 study by Rolfe [25], for example, analyses MOOCs from the perspective of their socio-ethical aspects, based on literature from 2014. The study deals with the gap that exists in the scientific literature on MOOCs concerning their practitioners and issues of academic success and user satisfaction, as well as the social, cultural, and moral perspectives of the issue. The study by Sangrà, González-Sanmamed, and Anderson [26] discusses the commonality of implications for educational strategy and higher education based on studies published in 2013–2014. Post 2012, studies by Veletsianos and Shepherdson [27, 28] brought to light the focus on interdisciplinarity in MOOCs, and the increased attention being paid to xMOOC research within the "interdisciplinary field, xMOOC educational model". They presented a general introduction to this pedagogical model and the high level of acceptance it enjoyed with xMOOCs. Both Brouns et al. and Rosewell and Jansen [29, 30] have provided a comprehensive definition and explanation for MOOCs. A more precise definition of the concept has however been provided by Palacios Hidalgo et al., who states: "A MOOC is not just a simple online course, it is an open, participatory, and distributed study program where the workforce is given lifelong and worldwide knowledge shared to create a network" [3]. A particular feature of MOOCs is that they are broadly conducted in a manner quite similar to that of a traditional class. This is why MOOCs have scheduled start and complete times/dates and evaluation methods. On the other hand, other studies [21, 31] indicated that the most significant feature of MOOCs was their free accessibility, allowing learners to determine participation as per their needs. Besides this convenience of MOOCs, the affinity among MOOCs, Open Educational Resource (OER), and Open Social Learning (OSL), the emerging phenomena of the past decade have been further examined [22, 25, 32]. The term OER is used to describe educational resources that can be reused for teaching and learning within an atmosphere devoid of costs.

Santos-Hermosa, Ferran-Ferrer, Abadal [33] have underscored the ease of access associated with MOOCs, particularly for time and location, and the ability to reuse teaching and learning resources. Additionally, features such as use and modification, about resources, also make MOOCs an extremely attractive option

for education. MOOCs resources also possess a key interoperability feature, which is the ability to associate with other technical elements and devices. Stability is another important feature of the learning resources of MOOCs, which ensures that changes or updates to the software cannot be made without proper authorisation. Yet another significant feature of MOOCs resources is metadata, which involves the uncomplicated indexing, storage, search, and retrieval of data for ease of usage. OSL, on the other hand, can be described as an active and self-organised learning method with the use of technology [34], which affords students an environment that aids them in connecting with other fellow learners, facilitators, and electronic/online resources [3]. The year 2013 saw more than one undergraduate student in the United States enroled for at least one online course and this figure for distance learners has been steadily increasing year on year [19]. Moreover, even with primary and secondary education, online learning is fast gaining popularity globally [35]. The research that began in 2007, was able to generate a qualitative result that evidenced an increase of 47% in the enrolment for online courses at the primary and secondary school levels [36]. Additionally, emerging technologies have led to a constant expansion of possibilities with online learning and distance education [31]. Consequently, this phenomenon has given rise to a wide array of terminologies such as distance learning, online learning, web-based learning, e-learning, cyberlearning, and computer-based learning, with very little consensus on the meaning and usage of each term [37]. In fact, some of these expressions are interchangeable [38], which is why authors "online learning environment" employed as an umbrella expression that referred to the overall learning space on the Internet [37]. MOOCs however, received much more attention from academicians, instructors, and practitioners alike, than any of the other concepts that were linked to the online learning environment [32]. MOOCs were able to rapidly increase enrolments from the year 2008, when the term 'MOOCs' was first used, to the year 2013, when enrolments stood at four and a half million learners. Data for the year 2016 indicates that students exceeding 23 million in the number used MOOCs to develop skills in different fields [39]. Regardless of the high enrolment rates, MOOCs do not enjoy a high passing out rate for learners. Various reasons have provided for the same, including seeking help from other learners rather than instructors, the paucity of time to complete the course, lack of prior knowledge and understanding of course content, and so on [31]. These reasons were indicative of the fact that there existed a need for practical support to SRL. The pursuit of knowledge with MOOCs is a more open and networked exercise when compared to other modes of online learning, where people who wish to learn (students) are connected with those who wish to impart and facilitate learning (experts). Social networking provides the necessary connectivity to the MOOCs community, and online learning resources are provided free of cost.

Generally, MOOCs are characterised by an absence of any major requirements from those who wish to enrol, including fees, formal recognition, predetermined learning levels for enrolment [24]. Participation is entirely voluntary and based on personal interests. The MOOC s platform is a blend of many different platforms and technologies, such as the micro-blogging site Twitter that MOOC learners use for discussion or to express their views on topics related to MOOCs. The very first MOOC from the University of Manitoba had 25 paid registrations (for credits) and nearly 2,200 free, non-credit registrations. This first MOOC employed the principles of connectivity, and its learning resources were not posted by a learning management system (LMS), unlike traditional online learning [14].

Taking into consideration all the studies discussed previously, it is easy to understand the difference between MOOCs and other online courses that are easily found on the Internet. With several online platforms offering online learning on various topics today, the position that MOOCs hold when it comes to support from universities and other international organisations is undeniable. Various factors could be credited with this high standing that MOOCs enjoy in the field of education, including the sustainable education provided by MOOCs that: 1. is constantly evolving, 2. offers an autonomy-based teaching-learning model, and 3. is free with extensive access to knowledge and information.

Donald Clark [40] has provided a detailed classification of MOOCs, listing out 8 types, as he states that all MOOCs have not been created equal (Clark Plan, 2013). A taxonomy of 8 types of MOOCs is the following:

– transferMOOC: with such MOOCs, existing courses are taken from university e-learning platforms and transferred onto a MOOC platform.

– madeMOOC: such MOOCs use videos innovatively, are focused on the quality of the student tasks, and encourage collaboration and peer-assessment, where students take part in assessments due to the high teacher-student ratio.

– synchMOOC: these MOOCs have fixed start and end dates and even fixed deadlines for submission of assignments.

– asynchMOOC: these MOOCs have no fixed dates or deadlines, or they could also have frequent start dates and loose deadlines.

– adaptiveMOOC: such MOOCs provide personalised learning experiences utilising adaptive algorithms.

– groupMOOC: such MOOCs aim to augment student retention and are designed for a small specific group of students.

– connectivistMOOC: such MOOCs were pioneered by George Siemens and Stephen Downes [15] and do not have pre-defined content. They encourage non-linear learning with contributions from all learners.

– miniMOOCs: miniMOOCs are of short durations and are characterised by intensive learning with lesser content.

Regardless of the above classification provided by Clark, research has proved that MOOCs are more commonly regarded as falling under four basic types: xMOOC, cMOOC, sMOOC, and tMOOC [3]. xMOOC follows the form of traditional online learning courses and MOOC platforms operated by universities. For example, the Coursera learning model can be classified as xMOOC and uses traditional learning methods with video presentations, short quizzes, and tests. cMOOCs focus on the connectivity among students, and stress on creativity, learning, autonomy, and social networking. The most crucial difference between xMOOCs and cMOOCs is that xMOOCs focus on knowledge duplication while cMOOCs focus on knowledge creation and dissemination [27].

Both xMOOCs and cMOOCs are similar in the sense that they both encourage students to acquire diverse skill sets and assist in the development of these skills. Basing their theory on the concept of xMOOCs and cMOOCs, Palacios Hidalgo et al. [3] attempted to revamp the basic principles governing 21st century education, and firmly stated the dissimilarities between these two MOOC variants while instituting the practice of the Four Pillars. Towards this end, the ECO Project 2014 began collating data on European universities and research centres that operated quality MOOCs, which differed in structure from the traditional US MOOCs. The ECO Project report, analysed significant trends observed in xMOOCs, while also proposing newer MOOC models. This paved the way for the emergence of sMOOCs (socio-MOOCs), with a curriculum that primarily focused on social issues. These were activated with the help of interactive networks and allowed users to participate and continue as active agents of the course while carving out their own paths from Connectivity to Engagement [3]. tMOOCs were aimed at providing students a professional education, with students being encouraged to apply what they had learned in their professional careers. Two other new MOOC types that have been identified, NOOCs and LMOOCs, are still at the developing stage. NOOCs (or nanoMOOCs) are extremely short duration MOOCs that engender an environment that is conducive for a participant to explore, learn, and assess a specific aspect of a skill, or an area of knowledge within the duration of 1 to 20 hours (INTEO 2016). The most significant characteristic of NOOCs is the premise of developing knowledge in an extremely short duration of time. However, unlike regular MOOCs of a longer duration, the outcomes of NOOCs have been evaluated by very few studies [41]. LMOOCs (or language MOOCs) on the other hand, are “web-based online courses dedicated to learn second languages with unrestricted access and unlimited participation” [3]. LMOOCs claim to be extremely useful in studying foreign languages since they are specifically focused on that goal.

Distance Learning in E-Business Education and its Advantages

E-business education requires a series of approaches from various disciplines, each of which includes independent subjects such as e-commerce, digital marketing, logistics, payment infrastructure, software infrastructure, and ERPs. E-business training and ERP technologies for e-commerce in universities and business schools can be considered as emerging domains [18]. It is almost impossible to teach e-business subjects comprehensively and in line with the real demands of the market. We even know that sometimes specific certificates and digital badges in specific fields such as e-commerce, s-commerce, data science, blockchain, digital marketing, Industry 4.0, and AI, from a reputable institution are considered more valid than classical university degrees. Universities, which identified this gap in business life, either started to organise open certificate and micro-credentials programmes within their organisation or started to work with paid or free MOOCs platforms.

Today, the possibilities offered through information and communication technologies (ICT) play an important role in the transition from teaching-based understanding to learning-based understanding. With these opportunities provided by ICTs, learning has become a lifelong process. To meet the lifelong learning needs of people in rapidly changing market and social conditions, both higher education and other educational institutions have started to share their content not only in classical learning environments (classroom environment) but through Massive Open Online Course (MOOC). The fact that the distance education system became feasible through these tools has provided many advantages to people's access to information. These advantages can be listed as follows:

– suitable for different learning speeds and learning styles,
– independent of time and place,
– to be able to make effective measurement and evaluation,
– to be economical,
– to be constantly accessible,
– ensuring equal opportunities in education, and
– to be able to reach wide target audiences.

Best practice standards are important guidelines for many institutions in the instructional design of quality online courses. Based on the best practices, some of the important rules in the instructional design of quality online courses can be summarised as follows [42]:

– focuses on real-world, problem solving,
– course structure,
– faculty must retain academic control,
– faculty must be prepared to meet the special requirements of teaching at a distance,

– learning objectives and learner activities,
– assessment and measurement,
– course technology,
– learner support, and
– accessibility and usability.

Massive Open Online Courses (MOOCs)

Although it is not known exactly when distance education started, it is estimated as the end of the 18th century and the beginning of the 19th century. The distance education system was initially seen as an alternative to the formal education system, but the rate of use increased with each passing day with the developing technologies. Especially in recent years, thousands of people can simultaneously enrol and follow the Public Open Online Courses (MOOCs or POOCs) from reputable universities such as Harvard, Stanford, MIT, London Business School, etc.

When we look at the literature, MOOCS are defined in various ways. The concepts specified in MOOCS can be explained as follows [4]:

Massive concept. This concept, which means large, very large is reaching the large number of trainees/students. These massive open online courses can be held with 50 students or thousands of students. Mass is a context-related situation rather than a large number of learners, and it draws attention to the global mega-class concept outside the physical campus boundaries, emphasising the diversity and size, from the diversity of learners to the number of vehicles used.

Open concept. The concept of openness means that this system is flexible and reaches large masses as global classes. Openness refers to the learning structure in which the boundaries between individuals who demand information and information sources disappear due to the opportunities provided by networks and the rapid dissemination of information.

Online concept. One of the most important elements of Massive Open Online Courses emerging as global big classes is undoubtedly the communication and interaction opportunities offered by the internet, the web and other ICTs. For this reason, Massive Open Online Courses mean that they are carried out online; using the opportunities offered by information and communication technologies over networks.

Course concept. It refers to the academic structuring of the learning content, the creation of the content of Mass Open Online Courses with an educational plan, and pedagogical approaches.

Massive Open Online Lessons are generally offered through universities, wherever anyone who wishes can access, register, and follow through the Internet [43]. The term Massive Open Online Course was introduced by David Corm-

ier in 2008 to describe a 12-week online course [44]. While 23 students took this course by registering on a paid and paid basis, 2300 students took it by registering for free. The MOOCs are often interacted between learners through video, blogs, forums, assignments, allowing learners to create and share things and evaluate each other [45].

In the past few years, the MOOC trend has been growing steadily: in 2018, about 20 million new students have registered for a MOOC, and 101 million are the total number of MOOC learners in the world (Fig. 1). The main MOOC providers, by registered users, are edX (MIT and Harvard), XuentangX (Chinese Tsinghua University), Coursera (founded by Stanford University), Udacity and Future Learn (Open University). Sixty per cent of courses in the USA have been developed by only fifteen universities, while in Europe, twenty-three universities count for 60% of MOOCs. This distribution shows how MOOC production is concentrated on several top players [46].

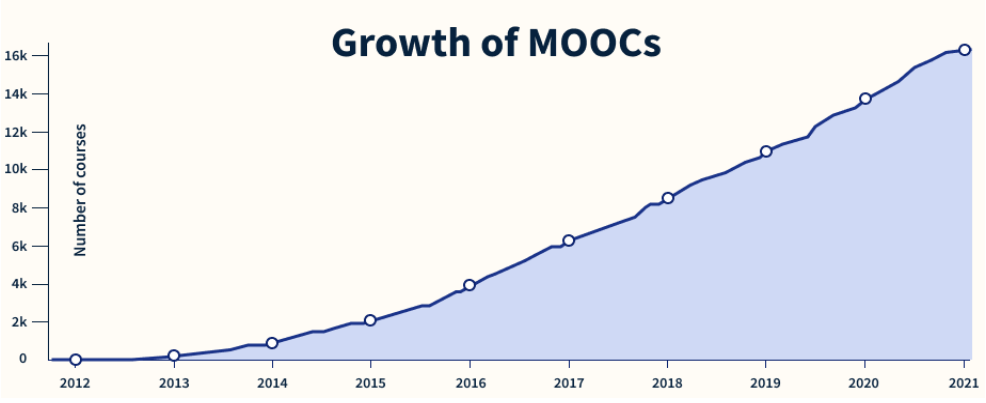

Fig. 1. Growth of MOOC production from 2012 to 2020 (excluding China) [47]

As can be seen in Fig. 1, MOOCs continued its steady growth in 2020. Especially with the impact of the pandemic, according to Class Central, 2020 has been a boom year for MOOCs. One in three students enrolled in any MOOCs platform did so in 2020. In 2020, 16,300 new MOOCs were created. Even though people turned to different course alternatives during the period of lockdown, career-oriented technology, and business courses were still the most popular fields [47].

Generally, trade education is provided in different degrees and at different levels by vocational high schools in secondary education, 2-year vocational schools in higher education, and 4-year colleges or faculties. Also, some of our universities have commercial education as postgraduate education. Apart from

these, there are also short-term vocational courses. However, since both costs and current developments cannot be followed, the education given in schools cannot meet the demands of the labour market.

It is thought that this important problem can be solved by e-learning (distance education). According to a study conducted by the U.S. Department of Education, it was revealed that on-line learning performed better than face-to-face learning. Formal education can be standardised through e-learning channels, education costs can be reduced, visual materials can be obtained easily and as a result, education and measurement can be given to large audiences in different regions as a standard.

Micro-Credentials

Professionals enhance their skills every day. Whether it is developing better feedback techniques or learning new ways to check for understanding in the classroom, professional growth is an ongoing experience. Sometimes it can be difficult to demonstrate mastery of these new skills to employers, which makes professional advancement more difficult. That is where micro-credentialing comes in. Micro-credentialing is the process of earning a micro-credential, which is like mini-degrees or certifications in a specific topic area. According to another definition, micro-credential is a certification of assessed learning that is additional, alternate, complementary to, or a component of a formal qualification. This might take the form of a digital certificate, which may be a document or image file, or other official evidence that someone has completed the necessary work.

The term “micro-credential” is relatively new and has been mentioned mainly when going through the literature. Micro-credential can work as an indicator of expertise in a narrow area most closely related to a single course rather than a full curriculum [48]. It is also a way to show professional certification or a more formal version of the license or less formal “badge” [49]. It is suggested that new, and less restrictive forms of certification “insurgent credentials” [50] that could break the traditional institutional attitude in the production and recognition of information in a sense [51].

They can either be broad, such as ‘Machine Learning’, or specific, like ‘Using Data to Differentiate Instruction for ELL Students’. To earn a micro-credential, you would need to complete a certain number of activities, assessments, or projects related to the topic. Once a person completed the requirements, he/she submits the work to earn the credential.

What are the Micro-credential Requirements?

Micro credential requirements vary significantly from credentials to credentials, because everyone can give them and there is no official requirement.

Possible ways to gain these credentials are to run a series of tests online, write an essay or create a presentation. Typically, micro-credentials are shorter than other identity options, such as university degrees or certificate programmes, but this is not always the case, as the requirements are determined by the credential provider. This means that the places where the learner decides to gain his/her micro-credentials are important because not all micro-credentials are created equal.

Micro-credentials can be used to show everyone that you have mastered a particular skill set. Therefore, micro-credentials are useful for those seeking employment or career development opportunities.

For example, teachers who want to gain potential professional development units, such as CEUs, can receive official credits from their school or district for micro-identity information. Other professionals in various fields, such as software engineering and marketing, can also use micro-credentials to demonstrate that they have acquired the necessary skills for the job. In both instances, micro-identity acts as proof that you have mastered relevant skills. Such evidence can be useful for job interviews or for advantages in negotiating professional progress with current employers.

Examples of micro-credentials

Like college degrees and certifications, micro-credential options are diverse. Here are a few examples of possible micro-credential topics:

• Teaching Creative Problem Solving: Develop the skills required for teaching others how to creatively solve complex problems individually and in groups.

• Android Development: Learn the skills necessary to begin building apps for the Android operating system. You will develop a basic app as part of the process.

• Making Strategic Decisions: Learn how to carry through with key business strategies through effective decision making, deliberation, and delegation.

Why are micro-credentials important?

Potential usage of micro-credentials is extensive:

• Micro-credentials offered under an existing undergraduate programme can motivate existing students to focus on fields they are interested in.

• In addition to an existing undergraduate programme, micro-credentials enable students to distinguish themselves in a competitive market by mastering the skills that complement their chosen field of study.

• For adult students, who want to start or return to university, micro-credentials can be used to divide a degree programme into smaller sections of the curriculum that accumulate to some extent.

• Micro-credentials can be great tools to support lifelong learning and professional development.

One of the most common ways to recognise micro-credentials is a digital badge that can connect potential employers to student work. Micro-credentials are competency-based, reflecting skills and competencies mastered; endorsed by the issuing [52].

Credible users, credible badges

By accumulating the public usage history of micro-credentials, we can begin to solve the difficult question of what makes a badge reliable. Traditionally, credentials are trusted only by corporate approval. New forms are starting to try community approval. The degree to which these efforts succeed is based on the success of allowing these micro-credentials to experience individuals in an epistemic community and can be effectively translated into new contexts. Also, we can begin mapping the flow of reliability [51].

Methodology

Within the scope of the study, the total number of pages and entries were it was addressed on the Eksi Sozluk platform that was made under the title of distance education, online course, and MOOCs. A total of 104 pages was created on the Eksi Suzluk website under the title of distance education, MOOCs, and online courses until the period when the study was conducted. Since there are 10 entries on each page, a total of 1040 entries were generated by individual and independent Eksi Sozluk writers regarding distance education, MOOCs, and online courses (Table 1). The first entry on page 1 was edited in 2003, and the last entry on the last page in 2020.

Table 1

Website providing distance learning, MOOCs and online courses in Eksi Dictionary Input Statistics (04.02.2003–19.12.2020)

Topic title	Total number of pages	Number of entries on each page	Total number of entries (population)
Website providing distance learning, MOOCs and online courses	104	10	1040

Source: eksisozluk.com

The number 1040 was accepted as the population of the study, and with the help of the Cochran formula, it was found that the minimum sample size to represent this population with 95% confidence level and 7% error should be 196 [53] (Fig. 2).

$$n_0 = \frac{t^2.(p.q)}{d^2} = \frac{(1{,}96)^2.(0{,}5).(0.5)}{(0{,}07)^2} = 196; \frac{196}{1040} < 0{,}7; n_0 = 196$$

N = Population Size (1040); n0 = Sample Size; d2 = Fault-Tolerance (±%7); t = Table value corresponding to 95% confidence level; p = Response rate (%50); q = Non-response rate (%50)

Fig. 2. Calculation of the Minimum Sample Size with Cochran's Formula

The minimum sample size determined to be at least 196 with the Cochran formula corresponds to approximately 20 pages from 10 comments on each page. The pages to be analysed in the study were determined using the systematic random sampling method, 24 pages were selected due to the search in three topics and at least a total of 234 comments on the specified pages were subjected to content analysis (Table 2).

Table 2

Analysed pages

Total pages (population)	**Selected pages**	**Analysed pages (sample)**
1.040	24	1, 5, 10, 15, 20, 25, 30 1, 5, 10, 15, 20, 25, 30, 35, 40, 45 50, 55, 60, 65, 70, 75, 80

While the content sentiment analysis, a total of 234 entries in 24 pages selected for analysis were copied and transferred to a word processor program as block data. After the transfer process, the entries were subjected to data cleaning and extraction process against expressions containing "insulting, vulgarity, slang or curse". After the data cleaning process, sentiment analysis was carried out and within this scope, the frequency and rate of use of words containing "positive, negative and neutral" meanings in the inputs were examined, and the inputs were grouped according to the "positive, negative and neutral" judgments they express. Inputs with positive judgment distance education, entries are written in response to Eksi Sozluk writers criticising MOOCs and distance educa-

tion, inputs containing affirmative statements about MOOCs; negative judgment inputs were interpreted as inputs written in response to Eksi Sozluk writers, who articulated positive opinions about distance education and MOOCs and that contained positive statements about distance education and MOOCs. On the other hand, inputs containing neutral judgment are considered as inputs that do not include an explicit statement in favour of distance education and MOOCs or against distance education and MOOCs.

Employing the inputs under the title of distance education and MOOCs in the Eksi Sozluk instead of applying a questionnaire in the research the question may arise concerning the validity and reliability of the study. Eksi Sozluk writer's demographic, social, cultural, and economic backgrounds reflecting a real Turkey profile. In other words, hosting Eksi Sozluk content represents the value of the population rather than the sample. The reliability of the method was also ensured by assessing whether the inputs contain a positive or negative statement rather than they are true or false. Besides, to increase the reliability of the study, the authors of the study conducted the judgment analysis of the interpretations independently from each other and then compared the results they obtained with the formula of Miles and Huberman [54]. The similarity rate of the analysis between the authors was found to be 90% in the comparison (Fig. 3). According to the Miles and Huberman [54] formula, the similarity ratio should be at least 70% for the reliability of the study. And this strengthens the reliability of the study.

$$\text{Reliability} = \frac{\text{Consensus}}{\text{Consensus} + \text{Disagreement}} = \frac{180}{180 + 20} = 0{,}90$$

Fig. 3. Reliability of the study according to Miles and Huberman Formula

Results

According to the sentiment analysis, the Eksi Sozluk authors used words containing positive meanings 220 times in their comments about distance education and MOOCs; they used words with negative meanings 20 times and words with neutral meanings 98 times in total (Table 3). Accordingly, when neutral expressions that are not for or against distance education and MOOCs are excluded, it is seen that words with positive meanings are used 11 times more than words with negative meanings in inputs.

Table 3

Positive, negative, and neutral words in entries

	Word/Sentences	Frequency (F)*
Positive meaning	Online (courses) / open to everyone	91
	Free / no charge	40
	Ability to take courses from MOOC and other universities	19
	Education platform	11
	Helpful / Beneficial	28
	Free	6
	Purchasing	25
Negative meaning	The course has no credits	4
	Unsuccessful	2
	Does not offer a holistic curriculum	1
	Be paid	6
	Efficient (not)	7
Neutral meaning	MOOC	15
	Formal Education	4
	Distance Learning	30
	Exam	14
	Evaluation	1
	Information technologies (IT)	2
	Mass open online courses	1
	Paid courses	2
	Price	29

* After the data extraction process, it was calculated over the 13.100 number obtained by word counting in the word processing program.

Again, within the scope of sentiment analysis, the entries were examined according to whether they have positive, negative, or neutral judgments and 120 of the entries about distance education and MOOCs were positive. It has been determined that 42 of them have negative and 68 have neutral judgments (Table 4). When neutral judgments are excluded, the authors appear to have positive rather than negative perceptions about distance education and MOOCs. This is in line with the findings from Table 4.

Table 4

Analysis of entries according to their judgment

	Analysed input	Eliminated input	Positive judgment input	Negative judgment input	Neutral judgment input
Number (N)	234	4	120	42	68
Ratio (%)	100	1	52	18	29

Since the inputs (entries) in Eksi Sozluk were published directly without any pre-evaluation (www.eksisozluk.com), grammatical and spelling errors were frequently encountered, and cursing and insulting containing words were encountered in some entries. Since the analysis focused only on content, grammatical and spelling errors were ignored, but words containing bad words, insults, and swearing were not taken into consideration. After the data extraction process, it was determined that the comments in the Eksi Sozluk are in one of the categories stated below:

a) Those who express the benefits and types of MOOCs.

b) Writers who consider that online courses are a way of having a good time at home.

c) Oppositional writers who criticise each other or respond to each other.

Some of the entries under these categories mentioned above and examples of the messages transmitted by these entries are given below:

a) The benefits and types of MOOCs:

"... moocs is translated into Turkish as 'mass open online courses'. I personally find it more convenient to say lecture rather than course. The concept of moocs was first introduced in 2008 by dave cormier working at prince edward island university. cormier used this concept for the lecture 'connectivism and connective knowledge', which is the first mooc given by the University of Manitoba in canada. 2200 students took this course online for free, and thus a new learning environment was created that hundreds of thousands of students from all over the world can benefit from.

moocs are divided into two.

• cmoocs is based on the principles of the connectivist pedagogy, the content should be re-organized in the process rather than pre-determined. It aims to help students solve problems or projects. In this respect, it supports cooperative learning.

• xmoocs is closer to the traditional classroom structure. There is a predetermined content. the teacher is an expert in the subject area and students' interaction with each other and with the teacher is limited.

Although there are many programs that offer such courses around the world today, it is seen that udacity, coursera and edx stand out more than others. In addition to these sites, which were established with the initiatives of professors at universities such as Stanford and MIT, the European Union also launched the openuped site where many different language options are offered for those who want to have knowledge at higher education level. There are also Turkish courses offered by Anadolu University. the topics are very interesting. those who wish can check here http://openuped.eu/courses

Thanks to moocs, you can take courses from lecturers at universities such as mit, harvard, stanford. a great benefactor of technology, I think anyone who wants to improve himself should benefit. strongly recommended". (Page 2).

b) Writers who consider that online courses are a way of having a good time at home:

"At first, this concept seemed to consist of free content that is easily available to everyone (other than getting official certification), but today it has become a pretty big market. some people could survive with the lessons they gave from places like udemy, linkedin learning. they probably don't fall under the definition of mooc anymore. Nevertheless, it is interesting that the ideas about let's do something for everyone to evolve in a completely different way and create a new market / economy.

09.02.2020 00:16 chackalef

(see treehouse)

(see edx)

(see: udacity)

(see coursera)

(see futurelearn)

(see: udemy)

(see youtube)

(see mit opencourseware)

(see: khan academy)

03.03.2020 20:13 yildizaykut

It is a perfect home time method to invest in the future in the current isolation days".

c) Oppositional writers who criticise each other or respond to each other:

"It is very possible to apply it in departments where no attendance is required, such as law faculties. You do not attend the school during the semester, you regularly take the lecture notes, you sit at the appropriate time and work regularly, then you go to the school at the exam time and enter your exam like a brave man (Distance education page 1)".

In summary, although the opinions of the Eksi Sozluk writers of about distance education and MOOCs vary, the general opinion among the Turkish people is that distance education and MOOCs are seen and evaluated as a useful new education model.

Discussion

Employment is an important issue in the globalising world and emerges as a serious social problem especially in developing countries. With the rapid change of technology and standards, the need for employment based on the physical workforce decreases day by day. In the contrast to that, especially emerging economies demand more skilled labour in the field of digital technologies. Conventional institutions may meet this demand to some extend. Not only the universities have to transform their curriculums and way of teaching, but also the degree approval government authorities have to recognise accredited MOOCs, especially in e-business. An important deficiency of academic and other types of commercial training institutions is finding qualified trainers to meet the quality standard in education. In this context, the definition of instructor and qualification criteria will also need to be reconsidered.

As a result, students cannot see what they have learned and lose their chance to practice accordingly. Under these circumstances, the recommended training method is synchronous e-learning. E-learning should be applied to trainers first. Thus, mistakes and wrong methods can be corrected with audio-visual materials. In this way, students have the opportunity to imagine and bring them into view, and they can go to the development direction by practising even in their narrowest circles. This synchronised training can be prepared by experienced trainers and programmers according to different professional degrees.

At the most basic level, micro-credentials verify that any certain skills and/or competencies have been achieved. They differ from traditional degrees and certificates, as they are often offered at shorter or more flexible time intervals and tend to focus narrower. Micro-credentials can be presented online, in the classroom, or with a hybrid of both.

Studies should be carried out on setting standards for the training and certification activities carried out by lifelong learning centres.

New tools that emerged with the development of technology brought new learning methods in today's world. With digital tools such as distance education and MOOCs, students can access online and from anywhere, without time constraints. Millions of participants from all over the world can benefit from these opportunities free of charge. In our era, where information is so precious,

people can access MOOCs regardless of the location in the world to improve their domain knowledge.

Besides, in a global world where digitalisation is rapidly increasing, it shows that digital tools such as distance education and MOOCs will be used more with the emergence of pandemics such as COVID-19.

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