

# Implementation of MOOC platforms into teaching English to IT specialists

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**Abstract.** The paper deals with the issue of application possibilities of MOOC platforms in IT specialist training. It is emphasized that this problem is urgent due to the coronavirus pandemic which caused reconsideration of educational approaches, means and tools. In the study the analysis of the most demanded massive open online course platforms in terms of IT specialist training is presented. Challenges of MOOCs for teaching and learning foreign languages are highlighted. Profession-related, soft skill mastering and English learning courses have been scrutinized in terms of their content and user-friendliness by teachers and students of two universities. Design, layout, topics, communities, documentation, and application availability have been evaluated and ranked. Three online English courses of similar purpose on Coursera, FutureLearn and Prometheus have been compared and ranked with the aim to advise the most efficient one to senior undergraduates striving to be employed in Ukraine and abroad in the multicultural IT environment.

## 1 Introduction

The coronavirus pandemic has drastically changed the way of living, education and entertainment all over the world [1–8]. Due to national lockdowns and imposition of quarantine educational establishments of different levels had to be closed at the beginning of 2020, so governments, local administrations, educators and students had to find appropriate ways and tools to continue and even to complete education. Numerous attempts to continue learning and teaching have been made: new educational online courses have been developed, existing online courses have been rearranged and updated, new practices of teaching and learning have been introduced, TV-programs on different subjects have been created and broadcast on national TV channels, various websites, pages in social networks for teacher and student support have been initiated.

Simultaneously, enrollments at massive open online courses boosted. The statistics [9] shows that registrations at Coursera and Udemy in March-April 2020 were correspondingly 640% and 400% higher than during the same period in 2019. These figures can be explained by presentation of free courses to university partners and consequent possible participation in courses by university students.

## 2 Analysis of MOOC implementation in higher education

Massive open online courses (MOOCs) [10–12] have had their history since the beginning of the 21st century which comprises quite opposite periods in their existence: from

the explosive early growth and declaration of 2012 as the “Year of the MOOC” [9] to almost passing into oblivion and even the “death” [13].

The term MOOC was coined by Dave Cormier in 2008. George Siemens who was an inspirer of MOOC introduction into education defined it as “an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes” [14]. According to Wikipedia [15] (last accessed 10 November 2020, the definition is regularly updated) “a massive open online course is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials, such as filmed lectures, readings, and problem sets, many MOOCs provide interactive courses with user forums or social media discussions to support community interactions among students, professors, and teaching assistants, as well as immediate feedback to quick quizzes and assignments”.

M. Perifanou [16] gives the following explanation of the acronym MOOC, stating that MOOC stands for Massive Open Online Courses, where the term “massive” refers to the large number of participants taking part in the course; the term “open” means a course without any charges or any definite conditions to join the course; the term “online” indicates that courses are available on the web with the free content.

According to the MOOC-BOOK, an open resource for business, higher education institutions and learners, in order to make use of MOOCs [17] these courses have made it possible to study at any suitable time, in any place, with lower costs or free, in a flexible mode. In addition, participants can interact with different people, join new groups of people with joint interests, generate new ideas, and originate innovative projects in different fields.

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dents' review because of the video player which playing rate can be customized (from 0.50 to 2.0) and side subtitles accompany the narrative voice. Quiz questions are displayed on the same page, so that the viewers could replay the video in case of their uncertainty. The video content quiz is not assessed whereas reading task quizzes are located on a different webpage because only four attempts to solve the test are allowed. The course has been adapted by Ukrainian compilers effectively, the course description is instructive, but the progress line is confusing and defective in the platform mobile version. On the whole, the English for Career Development course is of great assistance to attendants who need to advance in separate themes and who do not strive for the course completion and are not aimed at obtaining the certificate.

The analysis of the platforms in terms of their main and distinguishing features is presented in table 3.

The teachers of computer science at Bogdan Khmelnytsky Melitopol State Pedagogical University have selected 10 online courses in disciplines which are crucial for future IT specialists. In order to ensure the impartial analysis of the mentioned above MOOC platforms concerning user-friendliness, design and layout effectiveness, as well as content relevance for prospective IT experts, three courses in cybersecurity have been recommended to the undergraduates of both universities. The enrolled students have submitted their grading as course users and potential course developers or facilitators. According to their assessment the most progressive approach demonstrates the Coursera platform: it offers a complex of four courses (the total duration is five months), each course is aimed at training the specific skills. The analysed course is Introduction to Cybersecurity for Business. It contains numerous videos and self-study text blocks on the most frequently occurring security issues. The MOOC FutureLearn platform has been ranked second. The course explains security challenges, cyber security laws, and risk analysis and management strategies. The distinguishing feature of this course is training cyber security and cryptography terminology – the ability to describe and explain their own routine tasks, duties and work results as a cyber security expert to non-specialists is rated highly by Ukrainian IT undergraduates. The Prometheus platform has been ranked third, but the course users have appreciated the learning material provided by the Ukrainian Zillya! antivirus laboratory. They recommend this course to public at large and they stress its intelligibility for non-experts.

The summarized opinion reveals that all the cyber security courses contain foremost concepts and strategies in specific topics, but the course completion depends on a user's need to be awarded a certificate of achievement.

The third aspect of investigating learning via online courses was the voluntary enrolling in the soft skills courses, selected by the study group teachers. The participants have chosen the course according to their preference for one of the analysed by them MOOC platforms and for the most appealing type and way of thinking (creative thinking, logical and critical thinking, design thinking) which they would like to master or enhance. The students' evaluation does not contain comparison with other

two courses because of personal inclination and personality type.

## 5 Conclusions

Online platforms are highly demanded by undergraduates and teaching staff due to temporary challenges, need to correspond to job market globalization tendencies and individual lifelong learning concept appreciation. The courses presented on solid MOOC platforms are compiled by reputable educators, contain cutting-edge concepts aimed at forming and developing professionally and socially relevant skills. The online courses for specific purposes are of great assistance as a part of university syllabi. Specific topics within an online course are highly demanded for filling gaps in one's knowledge. Some courses have a linear content structure, but most online assets encourage studying the most demanded topics first, nevertheless, an individual pace is strictly limited which is a powerful incentive to complete tasks in time. In respect to psychological preferences most IT undergraduates are attracted to online learning platforms due to prior evaluation objectiveness and absence of competition with group-mates. Adaptive web design allows easy transition between desktop and mobile versions, the platforms demonstrate user-friendliness and intelligibility for entry-level participants. The intercultural aspect of the Coursera and FutureLearn platforms in the form of a forum or a community is another distinguishing feature highly appreciated by Ukrainian users. The Ukrainian Prometheus platform provides mostly adapted courses of the prominent foreign universities, which is beneficial for users who strive to improve their knowledge and skills. To sum up, MOOC platforms tend to become more demanded and in complex with university education promise to ensure delivering highly qualified graduates and job seekers for both Ukrainian and foreign employers.

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**Table 3.** Main and distinguishing features of the MOOC platforms (Prometheus, FutureLearn, Coursera)

Courses	Prometheus	FutureLearn	Coursera
Design	Adaptive design	Adaptive design	Adaptive design
	Information overload on the main page	Bright palette including neon colours	Appealing colour scheme
Layout	Strict grid	Negative space layout	Strict grid
	User-friendly navigation, intelligible menus and tabs	Tablet aspect ratio	Visual ergonomics
	Progress bars (defective display in the mobile version)	Simplified information display	Side menu compatible with wide-screen devices
Content	Texts	Texts	Texts
	Video spots	Video spots	Video spots
	Video materials	Video materials	Video materials
		Facebook live broadcast	Paid content upgrade
Communities	Separate block with written assignments with the possibility of commenting	Separate block with written assignments with the possibility of commenting	Separate block with written assignments with the possibility of commenting
Documentation	Free certificate	Two types of certificates: free certificate, paid certificate	Two types of certificates: free certificate, verified certificate
Applications	Android:Prometheus	Android -	Android: Coursera:
	AppStore -	AppStore -	Online courses
			AppStore: Coursera: Learn new skills

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