A FRAMEWORK FOR ENHANCING HIGHER EDUCATION IN THE KURDISTAN REGION OF IRAQ THROUGH A DEDICATED DIGITAL EDUCATION MOOC

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ABSTRACT

Technology-enhanced learning is utilized to support teaching and learning processes by using technology. ICT has enabled Open Online Learning to become a phenomenon and a prominent feature of higher education in developed countries because it can deliver a wide range of high-quality courses to a massive number of students and increase the collaborative learning experience among learners. It is possible to suggest that the range of pedagogical practices based on open online learning. MOOCs are presently shifting the educational landscape from classical scenarios to digital scenarios where open educational resources are being shared among universities and institutions. In this paper, a framework based on open online learning for serving higher education institutions in the Kurdistan Region of Iraq is proposed. The proposed framework aims to serve teachers and students by providing adapted high-quality contents and scaffolding teaching and learning processes, in a cultural-aware context, in order to improve the existing higher education system.

***KEYWORDS*:** Higher Education System, Technology-Enhanced Learning, Open Online Learning, MOOCs, Kurdistan Region-Iraq.
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INTRODUCTION

In the last decades, the higher education system of several developed countries has been supported by Information and Communication Technology (ICT) in various fields and disciplines, especially in Science and Engineering areas. On the other hand, some countries still have not updated their education system through technology adoption. This means that the teaching and learning process in these countries has not changed in the way of sharing knowledge among learners. They still impart their knowledge among students by teaching them face-to-face, especially in the higher education sectors.

Currently, the education system in Iraq is still following traditional teaching methods or styles (Ali & Shiratuddin, 2018). These methods involve several challenges to teachers and students in general as regard to accessing resources, interacting with devices, collaborative work, timing issue, finding suitable materials, etc. (Mahmud, 2013).

Overall, learning in the 21st century has been progressing by including several instructional cutting-edge technologies (e.g. Online Labs and Open Online Learning). This has led to helping learners to develop their skills. In addition, Technology-Enhanced Learning (TEL) has grown in scale which has substantial influences on learning environments by offering a number of available tools to utilize in teaching processes (Bullock & de Jong, 2013). Therefore, TEL has aided in enhancing the learning experience, encourage collaborative work, and increased interaction between learners (Plymouth, 2015). Moreover, Open Online learning environments (i.e. Open Online Courses) have allowed students from different institutions and settings to access a wide range of high-quality courses via the Internet.

Recently, the phenomenon of Massive Open Online Courses (MOOCs) has been presented as a solution for changing traditional pedagogical

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approaches to online learning in Higher Education Institutions (Bullock & de Jong, 2013). They have improved the teaching and learning approach, and developed students' learning experience and skills in an animated area of interest by offering a number of open educational resources that are mostly free to the largest possible number of students (Kim, 2015). Furthermore, for meeting the learners' needs and supporting the teaching environment in higher education sectors, this trend has emphasized the idea of accessing the courses in an open and scalable way (Sallam, 2017).

Consequently, for helping the learners to better understand course contents, a framework based on an MOOC accounting for cultural and language aspects is proposed. This MOOC can fill the gap in the online learning domain, especially for students who speak different languages (not Native English), for example Kurdish-speaking students. Therefore, this paper proposes a framework for supporting an open online learning platform, adapted to the Kurdistan Region of Iraq, capable of serving specific student culture and language needs. Moreover, the proposed framework aims to serve Kurdish students with a MOOC platform supported by tutors who speak Kurdish, Arabic and English languages. This platform can deliver high-quality educational courses at scale, scaffold the teaching and learning processes, and enhance the collaboration and interaction among teachers and students in the Kurdistan region of Iraq. The main questions addressed by this work are:

- Are MOOCs worth the effort in higher education systems?
- How can a dedicated MOOC platform improve the pedagogic practices of the higher education system in the Kurdistan Region of Iraq?
- Who should be allowed to enter, observe, and participate in the proposed MOOC platform?

The rest of this paper is structured as follows. Section II presents an overview of the higher education system of Iraq and describes key challenges presently faced by Iraqi students. Then, TEL is explained in section III. Section IV discusses Open Online Learning and the revolution of MOOCs. Section V proposes a dedicated MOOC platform for the Kurdistan Region of Iraq and section VI describes a scenario for the envisaged framework. Finally, the conclusion and future work are provided in section VII.

THE HIGHER EDUCATION SYSTEM IN IRAQ

Nowadays, education is considered a key factor in resolving a country's social, economic, and political issues. Over the last decades, it has been possible to state that the higher education system in several countries, especially in Middle East and particularly in Iraq, has fallen behind and become outdated. That is, it still remains crippled because of the destruction of critical infrastructure that came from the years of crippling economic sanctions and a series of devastating wars (Mahmud, 2013; Faylee, 2013). Therefore, to overcome the major problems that the higher education systems are facing today and to develop these systems, it can be helpful to enrich them with new innovative technologies or teaching methods. In addition, it is important to say that for reshaping higher education system in several developing countries there must be a focus on supporting and empowering human resources (e.g. Researchers, Academic Staff, Research Center Group), rather than depending only from Natural resources (Mahmud, 2013; Salah, Alves, & Guerreiro, 2014). This can help developing economic achievements as well (Mahmud, 2013).

Historically, Iraq was one of the most developing countries regarding its education system in the 1960s and 1970s (Harb, 2008). Since the end of the 20th century , the education system has not grown up well or has not elevated due to several problems that are related to political, social, and economic issues (Faylee, 2013). These issues have had a significant impact on all sectors in Iraq, especially in the higher education system. The reduction of higher education in Iraq separated its education system from an ongoing growth witnessed in the world's academic landscape (Faylee, 2013). Moreover, several facts that have impacted the education system in Iraqi are the result of conflicts, continuous war, and destruction of most Iraqi universities' buildings. Therefore, these facts have led to the emergence of other challenges for both teachers and students and for the higher education system in general. For instance, traditional teaching methods and outdated curriculum, low quality of the education system, lack of education experts, textbooks, collaborative and cooperative work

with universities and researchers abroad, etc. (Mahmud, 2013; Faylee, 2013). All of these challenges resulted in extreme difficulties for students to follow their studies and classes regularly. However, we believe that higher education in Iraq can more likely play an important role in overcoming the country's social, economic and political conflicts(Mahmud, 2013). Furthermore, high-quality education and new approaches for teaching and learning can improve the student learning experience and solve academic difficulties. For example, self-esteem, cooperative and collaborative work among students. They can also focus on improving higher education by integrating the cutting-edge of online and digital technology (e.g. MOOCs and Online Labs).

TECHNOLOGY-ENHANCED LEARNING

Higher education systems can be improved in developing countries by including modern technology and new approaches for teaching and learning, similarity to those used in developed countries. These approaches can develop the students' learning experience and skills, especially in Science, Technology, Engineering, and Math (STEM) fields. Currently, the education system in several developed countries is based on technology and this has led to updating their education systems efficiently.

On the other hand, some developing countries still have not adapted and integrated their education system with technology, for example, Iraq. Meanwhile, they are still following traditional forms in the teaching and learning process (Ali & Shiratuddin, 2018). These methods led to several challenges for teachers and students such as accessing resources, interacting with devices, collaborative work, timing issues, and finding suitable materials.

ICT has developed dramatically in recent years. Besides, computer devices have appeared in different types such as desktop, laptop, and tablets. Lately, mobile technologies have also produced many different types of devices with a wide range of advanced features. These devices have interconnected network via the internet. The internet connectivity beyond these devices is also extended, for example the emergence of the Internet of Things (IoT). These technological evolutions have a significant impact on the education sector by allowing students and teachers to interact with others around the globe. Therefore, a number of tools can be found where teachers and students interact to improve the quality of teaching and learning at present (Plymouth, 2015; Jewitt, 2017). Thus, learning with technology has become a critical part of today's higher education. In sum, the use of technology in Higher Education Institutions (HEI) is going to enhance the student learning experience in a vibrant area of interest across all levels of worldwide education(HE, 2018).

The term Technology-Enhanced Learning (TEL) refers to the application of technology that improves learning outcomes (Cullen, 2018). It also refers to learning with technology, instead of only through technology (HE, 2018), as mentioned by the CEO of CISCO "the next big killer application for the internet is going to be education" (Samir & Oster, 2015). Briefly, with TEL, the students are no longer restricted to the textbooks that their teachers provide to them or to what teachers can tell them. The students are also connected outside educational institutions to access more information and use additional resources such as video, audio, and collaborative learning. Besides, teachers can also find innovative techniques to transfer their knowledge to students in an engaging way (Bullock & de Jong, 2013).

Right now, learning based on technologies has significant modifications in the teaching environment. One of the most important alterations is changing the education paradigm, from a closed model tradition defined as "Teacher-Centric" to a more open learning model named as "Student-Centric" (Jewitt, 2017; Rosalina & Ana Azevedo, 2009). Moreover, it has changed the traditional higher education pedagogy to online and digital innovations for providing learners with the opportunity to increase the interaction with many students and encouraging collaboration in diverse disciplines globally (HE, 2018). Moreover, through online technology, learners do not need to meet in one physical location (classroom) at the same time so they can participate flexibly at their own place and schedule.

Furthermore, extra benefits of technologies used in the teaching process are to assist teachers in transforming knowledge through different types of media and also change teachers and instructor role to focus more on the development of students' skills (Mareco, 2017; Peck, 2013). Hence, using technology in education (i.e. Open

Online Learning) can provide an affordable and flexible way to learn new skills, advance career, and deliver quality educational experiences at scale in higher education.

COURSES BEYOND BORDERS: OPEN ONLINE LEARNING

Several human life aspects, especially in educational life, have been affected by the rapid development in the area of ICT over the last decades. Presently, education becomes open to everyone who can access the internet to online learning anywhere, no longer limited to classrooms and universities only. So, this kind of education is called Open Online Learning (Sallam, 2017).

Today, creative web technologies are focusing on education areas as well. Thus, Open Online Learning (e.g. MOOCs) can be considered one of the most innovative technological developments over the web, similar to Online Labs and Virtual Reality (Spyropoulou, Pierrakeas, & Kameas, 2014). Open online learning has made a crucial revolution in the learning experience process which supports different essential activities such as Interaction and cooperation among learners (Sallam, 2017; Salah et al., 2014).

The MOOC concept appeared in 2008 with a course entitled "Connectivism and Connective Knowledge". This course was organized by the University of Manitoba (Canada) and approximately 2,300 students have enrolled on it (Peco & Lujan-Mora, 2013).

Historically, MOOCs started to be more popular in 2012, after being adopted by some western countries. This year became "The year of the MOOC"(Pappano, 2012). Therefore, most of the developed countries started lunching their MOOC platforms for applying them in their higher education systems. Some creative MOOCs gained world-wide popularity such as Coursera, Udacity, or edX. Many experts consider MOOCs to be a "revolution in education" (Friedman, 2013) while others believe that MOOCs are still in the early phase, so it is very soon to give MOOCs such a title as they still need to demonstrate their actual value (Kolowich, 2013). The main goal of MOOC is to provide online courses, either they are free or not, to an unlimited number of participants from anywhere at any time via the Internet by providing several tools, such as video presentation, quizzes, and exams, etc., for completing the course process (Kim, 2015; Samir & Oster, 2015). In general, a MOOC has four fundamentals characteristics:

- **Massive**: Unlimited number of students can participant (Mohamed, Yousef, Schroeder, Wosnitza, & Jakobs, 2014);
- **Open**: Free of cost (Baturay, 2015);
- **Online**: Course provided via the Internet (Music & Vincent-Lancrin, 2016), and;
- **Courses**: Academic curriculum in higher education and delivered to the learners, containing OER, learning objectives and learning tools, and assessments.(Allen & Seaman, 2013)

Usually, MOOCs can be classified into two different types: cMOOCs or connectivist MOOCs (e.g., Peer-to-Peer University and Open Learning), and xMOOC or extended MOOCs (e.g., Coursera, edX and Udacity). cMOOCs follow a connectivism learning philosophy where a learner can develop their own learning environment and build their learning objectives and views through open sources web platforms such as wikis, blogs, Twitter, Facebook, Google groups and other social networking sites. xMOOCs follow the behaviorism, cognitivist, and (social) constructivism learning theories, so their courses are predefined by teachers and delivered through learning management platforms (Stewart, 2013). Therefore, cMOOCs are distributional and networked learning spaces whereas xMOOCs are centralized environments. Also, communication among the course participants in xMOOCs is limited, while communication among course participants in cMOOCs is open (Gaebel, 2013).

There are different assessment methods used in MOOCs, for instance E-assessment method, which is widely used to grade assignments or tests. This method restricts assessment to closed questions which machines can grade automatically such as short multiple optional questions (Conrad, 2013). This assessment method is suitable in Sciences but it is not appropriate in Humanities courses because they are based on learner's creativity and imagination (Sandeen, 2013).

Moreover, cMOOCs and xMOOCs use peer assessment to review essays, projects, and group assignments. These kinds of assignments are open and cannot be automatically graded by a

machine. So learners can evaluate each other works and provide feedback as well (Mohamed et al., 2014). This type of assessment is applicable in both Humanities and Science courses. With this assessment method, it becomes extremely hard for the instructor to evaluate all participants and give proper feedback, given the large number of students usually enrolled in MOOCs (Thakur, 2018). Self-assessment is also used in cMOOCs such as feedback questionnaires, logs or diaries) (Ali & Shiratuddin, 2018). Consequently, cMOOC and xMOOC models have shifted the learning system from a traditional scenario based on classroom into an Online Learning environment (Samir & Oster, 2015), as shown in Table 1.

Table (1): Comparing xMOOCs and cMOOCs

Compare Items	cMOOCs	xMOOCs
Learning theory	Connectivism	Behaviorism Cognitivist (social) constructivism
Content	Open Educational Resources (OER) Learner generated content Flexible Distributed Video Lecture	High quality content Teacher Generated Centralized Video Lecture
Communication	Open Network Outside the MOOC Platform	Limited interaction Built in the MOOC platform
Assessment	Self-assessment Peer-assessment E-test	Quiz E-test Peer-assessment Certificate
Example	Peer 2 Peer University Open Learning	Coursera edX Udacity

Since 2012, the use MOOCs has been increasing dramatically in several developed countries, for example, Coursera and edX in the United States of America (USA), FutureLearn in the United Kingdom (UK), and iversity in Germany. These flexible online courses have allowed thousands of people around the world to develop professional skills, and this is why that year was named "The year of the MOOC" in these developed countries (Pappano, 2012). Still, the situation was different from one country to another, especially in the Middle East. This means that MOOCs were still in an early stage of development.

In 2014, the Middle East started to develop and use open online courses, which can be called "the year of MOOCs in the Middle East" (Samir & Oster, 2015). This led some Middle East countries to launch their MOOC platforms such as Edraak in Jordan, Rwaq in Saudi Arabia, MenaVersity in Lebanon, and SkillAcademy in Egypt.

Looking at the rapid evolution in MOOCs, since 2000 the notion of openness in education has been around us. Hence, academics have shared digital content such as the open educational resources (OER) movement(Liyanagunawardena, Adams, & Williams, 2012). Open educational resources (OER) are free to be accessed and the courses are open to anyone who has an Internet connection. In 2001, Open Courseware (OCW) was launched by the Massachusetts Institute of Technology (MIT), with the aim of publishing their courses on the web. Then, many universities offered online education such as the Open University of UK through the OpenLearn project and Carnegie Mellon University via the Open Learning Initiative(Liyanagunawardena et al., 2012). The term cMOOC was invented in 2008 by Canadian scholars Dave Cormier and Bryan Alexander. In September that year, the first MOOC was established and named cMOOC by George Siemens and Stephen Downes from Canada (Zheng, Chen, & Burgos, 2018). Then, in 2011, Stanford University established xMOOC, with the aim to offer highly scalable online courses via the web (Ng & Widom, 2014). Many MOOC platforms were then rapidly implemented in 2012, for example Udacity, Coursera, MITx, EdX and FutureLearn (Pappano, 2012). Some platforms were implemented in 2013 in the Middle East, as well,

such as Edraak, Rwaq, MenaVersity and SkillAcademy, as illustrated in Table 2.

Table (2): List of MOOC Providers Around The World (Data collected from Class Center website and references (Samir & Oster, 2015; Liyanagunawardena et al., 2012; Zheng et al., 2018; Universities UK, 2013; Shah, 2018; Chauhan, 2017 ;Perifanou, 2015).

No.	MOOC Platform	Year of Launched	Country	Interface Language(s) and Supported
1.	Opencourseware (MITx)	2001	United States	ENGLISH
2.	NPTEL	2006	India	ENGLISH
3.	ALISON	2007	Ireland	ENGLISH, SPANISH, IRISH, ARABIC, CHINESE, and 30+ free language and culture course ~~Es, Fr, It, and Pt~~
4.	OpenClassrooms	2007	France	ENGLISH and FRENCH
5.	Open Yale Courses (OYC)	2007	United States	ENGLISH
6.	Open Source Software	Unknown		
7.	Open Content	Unknown		
8.	Open Learn	Unknown	United Kingdom	ENGLISH, CHINESE, FRENCH, Ma, FRISIAN, Mal 10 language/ culture course ~~En~~
9.	Social Media and Open	Unknown		
10.	Open Educational Resources	Unknown	United States	ENGLISH
11.	Connectivism MOOC	2008		
12.	Khan Academy	2008	United States	ARMENIAN, BENGALI, HINDI, BULGARIAN, CHINESE, CZECH, DANISH, FRENCH, GEORGIAN, GERMAN, GUJARATI, DUTCH, INDONESIAN, ITALIAN, TAMIL, POLISH, JAPANESE, KOREAN, NORWEGIAN, PORTUGUESE, SERBIAN, SPANISH, SWEDISH, and TURKISH.
13.	Peer to Peer University	2009	United States	
14.	Stanford-xMOOCs	2011	United States	ENGLISH
15.	Codecademy	2011	United States	ENGLISH
16.	OpenLearning	2012	Austria	ENGLISH and DEUTSCH
17.	mooKIT	2012	India	ENGLISH, HINDI, FRENCH, RUSSIAN, and UKRAINIAN
18.	Udacity	2012	United States	ENGLISH, CHINESE, DEUTSCH, ARABIC, BASHA INDONESIA and 4 Languages
19.	Coursera	2012	United States	ENGLISH, CHINESE, DEUTSCH, PORTUGUESE, and 5+ free language/culture courses
20.	Venduca	2012	Brazil	PORTUGUESE
~~21.~~	~~Power Searching with Google~~		~~SA~~	~~22.~~
~~24.~~21.	edX	2012	United States	ENGLISH, CHINESE, SPANISH, ITALIAN, FRENCH, PORTUGUESE, and Tur 250+ free language/culture courses
~~25.~~22.	FutureLearn	2012	United Kingdom	ENGLISH, , CATAL, and AN, DUTCH,40+ free language/culture courses

~~26.~~23.	Zhihuishu	2012	China	CHINESE
~~27.~~24.	Canvas Network	2012	United States	ENGLISH
~~28.~~25.	OpenHPI	2012	Germany	ENGLISH, DUTCH and CHINESE
~~29.~~26.	MiriadaX	2013	Spain	ENGLISH, SPANISH, and PORTUGUESE
~~30.~~27.	TopU	2013	China	CHINESE
~~31.~~28.	MenaVersity	2013	Lebanon	ARABIC
~~32.~~29.	SkillAcademy	2013	Egypt	ENGLISH
~~33.~~30.	IT Sligo	2013	Ireland	ENGLISH
~~34.~~31.	Open2Study	2013	Australia	CHINESE 1 free language/culture course
~~35.~~32.	FUN-MOOC	2013	France	ENGLISH, FRENCH, and 3 free language/ culture courses~~Fr~~
~~36.~~33.	Rwaq	2013	Saudi Arabia	ARABIC~~Ar~~
~~37.~~34.	Iversity	2013	Germany	ENGLISH, DEUTSCH, and FRENCH
~~38.~~35.	XuetangX	2013	China	CHINESE and ENGLISH
~~39.~~36.	Stanford Lagunita	2013	United States	ENGLISH
~~40.~~37.	Complexity Explorer	2013	United States	ENGLISH
~~41.~~38.	University of China MOOC	2013	China	CHINESE
~~42.~~39.	eWant	2013	Taiwan	CHINESE and ENGLISH
~~43.~~40.	OpenupEd	2013	The European Union	ENGLISH, TURKISH, SPANISH, and LITHUANIAN
~~44.~~41.	EMMA	2014	The European Union	CATALAN, DUTCH, ENGLISH, ESTONIAN, FRENCH, ITALIAN, PORTUGUESE, and SPANISH
~~45.~~42.	JMOOC	2014	Japan	JAPANESE and ENGLISH
~~46.~~43.	openedu	2014	Taiwan	ENGLISH, CHINESE, and BAHASA INDONESIA
~~47.~~44.	IITBX	2014	India	ENGLISH
~~48.~~45.	AKADEMA	2014	Turkey	TURKISH
~~49.~~46.	Edraak	2014	Jordan	ARABIC and ENGLISH ~~Ar and En~~
~~50.~~47.	gacco	2014	Japan	JAPANESE
~~51.~~48.	Kadenze	2015	United States	ENGLISH
~~52.~~49.	K-MOOC	2015	Korea	ENGLISH and KOREAN
~~53.~~50.	Open Education	2015	Russia	RUSSIAN
~~54.~~51.	MéxicoX	2015	Mexico	MEXICAN and ENGLISH
~~55.~~52.	IndonesiaX	2015	Indonesia	BAHASA INDONESIA
~~56.~~53.	Prometheus	2015	Ukraine	UKRAINIAN
~~57.~~54.	EduOpen	2016	Italy	ITALIAN
~~58.~~55.	Fisdom	2016	Japan	JAPANESE and ENGLISH
~~59.~~56.	LinkedIn Learning	2016	United States	ENGLISH
~~60.~~57.	SWAYAM	2016	India	HINDI and ENGLISH
~~61.~~58.	ThaiMOOC	2017	Thailand	THAI
~~62.~~59.	Federica.eu	2017	Italy	ITALIAN and ENGLISH
~~63.~~60.	CNMOOC	2017	China	CHINESE and ENGLISH
~~64.~~61.	Campus-Il	2018	Israel	ENGLISH, HEBREW, and ARABIC

(Shah ,2018) states that by the end of 2018, over 900 universities around the world had announced or launched Open Online Courses (MOOCs). Furthermore, online educational organizations that are based on the use MOOCs have grown significantly worldwide by allowing students to access several available online courses remotely. In general, most of their courses are offered free, in several languages, with the support of the top universities (Kim, 2015). Correspondingly, MOOC platforms have accommodated huge numbers of students, from different cultures and languages (Ali & Shiratuddin, 2018).

One issue should be highlighted here is that people around the world speak different languages with different variants, even if living in the same country, as the example of the Kurdish language spoken in the Kurdistan region of Iraq. This issue may lead to students from the same country not understanding well the video contents of some courses. It means that in order to achieve its full potential , a given MOOC platform, together with all its contents and supporting mechanisms, should account for the learner's cultural, language, and background (Chatterjee & Nath, 2014). Clearly, the tutors may use the language of the course which may not be the same the students understand, depending on their cultures in general (Ali & Shiratuddin, 2018). Also, it can encompass another issue related to learning opportunities.

Generally, the education opportunities among genders are still not equal in Middle East countries. This reason may be caused by cultural, social and religious reasons. Therefore, it is believed that MOOC-based courses can help reducing cultural, social and gender segregation limitations. This also helps female students to communicate and interact with other learners freely around the world (Samir & Oster, 2015).

To put it simply, the Kurdistan Region of Iraq should adopt and use a MOOC platform in higher education for avoiding issues such as language barriers, gender discrimination, and cultural aspects. Furthermore, this platform can enhance teaching methods and outdated curriculum, quality of education system, fill a gap of lack resources of the university and expert academic staff, increase interaction and collaborative work among students and teachers specifically those who cannot attend to courses regularly.

PROPOSAL OF A FRAMEWORK BASED ON A DEDICATED MOOC

Recently, several universities in the Kurdistan Region of Iraq have been integrating courses within their Learning Management Systems (LMS). These platforms (e.g. Moodle platform) are aimed to host and manage courses only, not open online courses (Rosalina & Ana Azevedo, 2009). Furthermore, Moodle is an LMS platform that can be used to host a course, whereas MOOC is a course itself that is based on the number of participants. Specifically, MOOC is based on context and a large number of students, and runs it on a LMS (Nielson, 2015). MOOC aims to provide real time education online with the help of various features like videos, study materials, quizzes and online exams. Therefore, a number of student can enroll in courses through Moodle and can be offered traditional content (Teacher-Centered) via the Internet (Thakur, 2018). At this point, (Cormier, 2019) states that students can interact with other participants through discussions and collaborations by providing new online course (Student-Centered).

By utilizing the proposed MOOC platform, the number of students from the Kurdistan Region of Iraq can access a wide variety of high-quality open online courses over the web. The proposed platform can mitigate several challenges that are faced in higher education in Iraq, particularly by those students who live in conflict areas or far away from universities campus. In addition, the proposed framework puts emphasis on enhancing the higher education system in the Kurdistan region and enriching the students learning experience and skills. Besides, the approach accounts for students' language and culture for understanding the online courses clearly and improving the level interaction among teachers and students, within courses contents.

Therefore, HEIs in the Kurdistan region of Iraq must move forward by using a MOOC platform as well, and not only LMSs. As mentioned above, cMOOCs learning environments are more flexible and more open than xMOOcs. Oppositely, xMOOCs offer a high-quality learning experience as compared to cMOOCs. To acquire the advantages of both cMOOCs and xMOOCs, hybrid MOOCs or bMOOCs have been proposed in literature (Mohamed et al., 2014).

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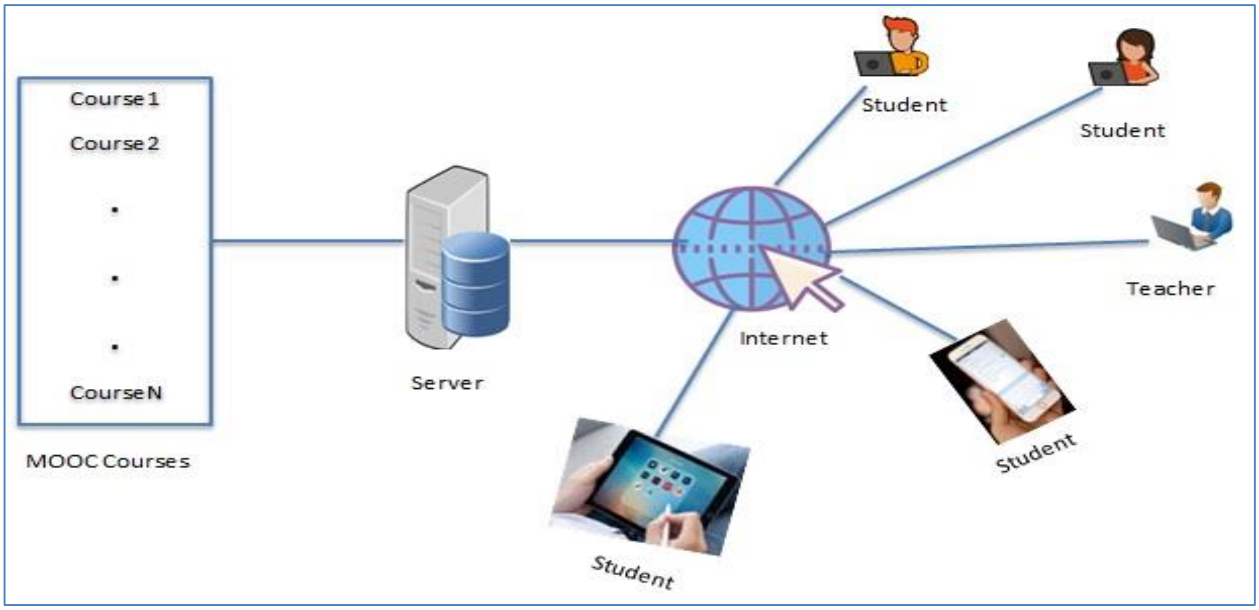
To sum up, the proposed framework is based on a MOOC that can provide learners with theoretical and practical contents in wide range fields and disciplines, which can be created by a teacher who speaks Kurdish. Furthermore, it allows students to collaborate with other students via discussion forums, to follow projects, and so on.

Simply speaking, students from the Kurdistan Region of Iraq and from other world regions can access the available courses via the Internet, whenever they want and wherever they can. In addition, this platform can be hosted by one of the Kurdistan universities (e.g. University of Duhok), as shown in figure 1.



Fig(1): A proposed framework based on a dedicated MOOC for Kurdistan-Region Institutions

A Scenario for the Proposed Framework

The MOOC platform includes four types of users: Administrator, Instructors, Learners, and Course Publisher. Each one has various functions and features based on their roles, as follow:

- **Administrator**: manages the entire platform.
- **Instructor**: creates open online courses according to categories and subjects.
- **Course Publisher**: checks the courses which are provided by Instructors.
- **Learner**: accesses the available courses in this platform.

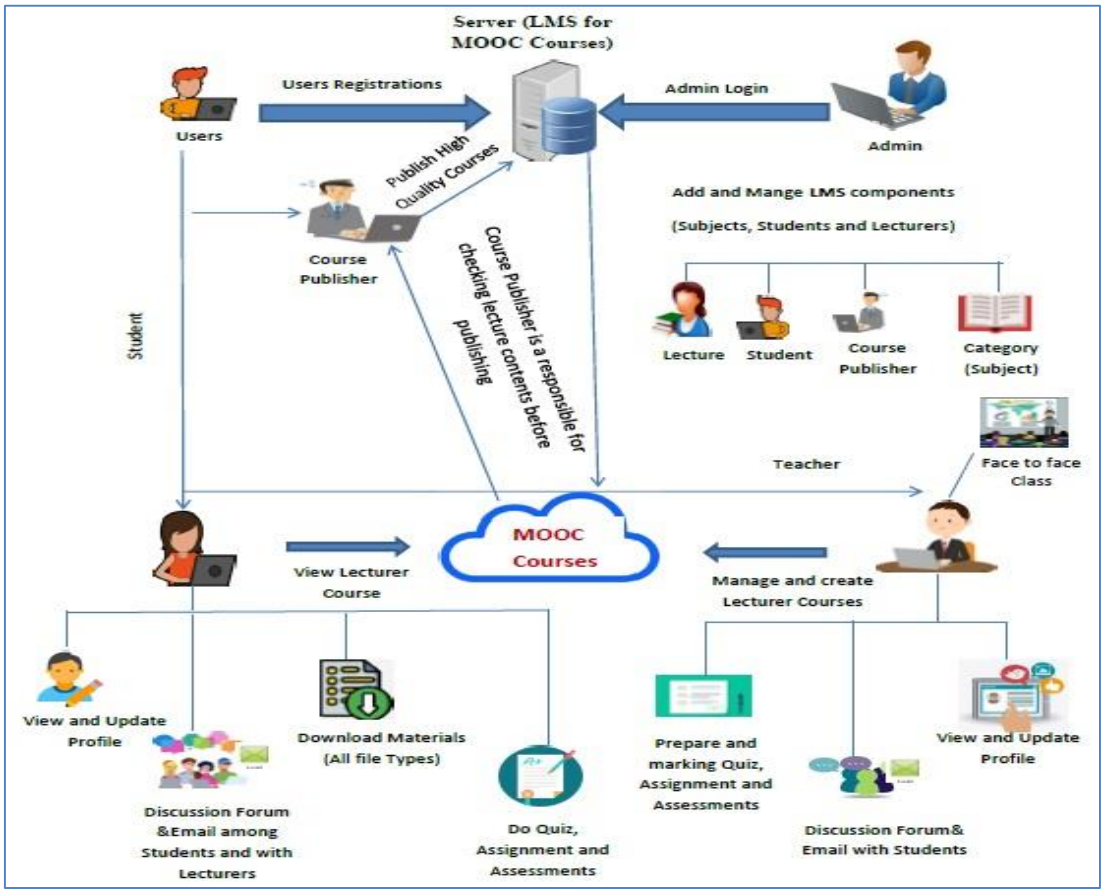
It is important to mention that an administrator controls all activities in this platform, (i.e. adding users as an instructor, a student and a course publisher, adding online courses, and other activities which are related to online courses), as shown in figure 2.

Fig(2): Course Published in the MOOC LMS

The general idea of this platform is that it provides a wide range of tools and activities to the learning environment for following teaching processes such as courses evaluation and e-assessments. One of the most important learning tools that can be highlighted in this platform addresses communication. This tool can enhance cooperative and collaborative work among learners and educators, which can be based on video contents such as forums, comments, and email and social media. For e-assessment methods, it is possible to focus on e-assessment (which is widely used in MOOCs) and peer-assessment.

The general scenario of this platform can be described as: lecturers have credentials to login to the system (Authentication and Authorization Operation). Then, they can create their own learning space and their courses based on a selected category. Nevertheless, the teacher cannot upload online courses to the platform until they get approval from the course publisher.

The course publisher can be selected based on his/her specialization and becomes responsible for checking all courses contents which are provided by the teacher. If the course is accepted, then it can be published on the LMS. As long as students are interested in the course, they can take and watch course video contents at their own pace and in their own time after registration, and they can also download the materials (e.g. text, audio, video, or other types of files), which are provided by the course teacher. Additionally, students are able to collaborate and interact among them or with lecturers through discussions forums, as shown in figure 3.Moreover, it is possible to include another significant facility in this platform, namely a search engine, which can help students quickly finding the required information and materials based on the course name, course type, or date of course activation. In result, these features can make the learning process more efficient and accessible.



Fig(3): A scenario for the proposed framework based on a MOOC

CONCLUSION AND FUTURE WORK

Over the last 20 years, the higher education system in Iraq, and particularly in the Kurdistan Region, has been facing several challenges because of political, economic and social issues, and languages barrier of Kurdish learners. These issues have made the higher education system to still follow the traditional teaching and learning methods. Therefore, it must now focus on how to overcome these issues (e.g., academic obstacles, missed up-to-date), and how to adopt technology (e.g., Open Online Learning) in higher education. Furthermore, it is important now to enhance the teaching and learning process by improving student learning outcomes and achieving goals in several interesting fields.

In the last five years, several researches and studies have shown that Open Online Courses (namely MOOCs) have the potential to play an important role in overcoming all challenges facing students globally. It is believed that Iraq and the Kurdistan Region can change their education approach from a traditional one to one based on online learning by using Open Online Courses (MOOCs) as well. Therefore, this contribution proposes a new MOOC platform based on languages (Arabic and Kurdish), that are used in Iraq and the Kurdistan Region, besides English as well. Furthermore, this platform can deliver open online courses that are easy to understand by the learner who speaks those languages, specifically the Kurdish language.

Based on findings, several short- and long-term outcomes can be attained by using this platform, for example:

1. Enhancing higher education system.
2. Developing learning and teaching methods.
3. Increasing the level of interaction and collaborative work among students and teachers.
4. Sharing the learning materials among universities.
5. Involving many open online courses from other universities in Iraq and abroad.

On the other hand, based on ICT opportunities using in education in developing

countries who are still little excluded from, and the increase of student numbers who are studying in the STEM fields, it can include some challenges of using MOOCs in Iraq and the Kurdistan Region in the coming days. For example, an assessment of student performance is considered one of the most challenging parts due to a large number of students who will participate in MOOCs. As well as, several learners still not received the Internet service yet, or ICT infrastructure still not scaffolding well. It possible includes other issues that can be considered such as the learners may still not believe the MOOC can support the educational process, and the students cannot communicate well with prof.

Regarding this work, the future steps are to focus on designing, implementing and launching this new platform, which can be called Hêlîn platform, for the HEIs in the Kurdistan Region of Iraq. Furthermore, the study can also focus on creating free academic courses by teacher including the Kurdish language in various areas. Afterward, they can publish these courses on this platform to make them publicly available for all students.

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