An Examination of the Impact of Using Hybrid MOOCs on Students' Experiences and Achievements within Higher Education in Saudi Arabia: A Case Study of Male Students in Majmaah University

By

Homoud Hadad Alanazi

Thesis Submitted for the Degree of Doctor of Education

EdD in Education and Communication

Faculty of Humanities and Social Sciences

School of Education, Communication & Language Sciences

Newcastle University

2020

Acknowledgements

This thesis and all its constituent parts would not have been possible without the assistance, support, and guidance of ***Professor Caroline Walker-Gleaves, Dr. Muge Satar Coen, Dr. Jill Clark, and Dr. Pamela Woolner***.

I sincerely express my deepest gratitude to my first supervisor, ***Professor Caroline Walker-Gleaves*** who showed understanding, patience, and gave me massive motivation to overcome many obstacles and finish my project. She is a true leader and scientist who gave more than any supervisor or teacher can, in academic and non-academic facilitation. At times when I was down and unsure, she gave me the strength to carry on. At times when I was over confident, she helped me understand my flaws. I started this project with relatively few skills compared to what I have learned today from Caroline. She was much more than a teacher for me as she was the light that illuminated the path towards my success.

I cannot forget the kind nature and technical expertise that ***Dr. Muge Satar Coen*** brought to the project. Her detailed insights, comprehensive view, and precise comments gave a sophistication to the project that ensured high standards are met. Her participation brought with it a scientific rigour and intellectual weight that I could not have contributed to alone. She always shared her opinions and ideas with me, in addition to enhancing my talents in the area of education, not to mention my personal development. I learned from her many fundamental skills such as diligence, organization, and attention to detail.

Dr. Jill Clark and Dr. Pamela Woolner offered certain improvements and amendments to my project which came in priceless. I value their evaluation and critique of my work as it lead to its perfection. They were involved with the project at various times in my PhD journey and selflessly did what they could as scholars to take my thesis to the next level.

Author’s Declaration

I certify that, to best of my knowledge, all the material in this thesis represents my own work and that no material is included which has been submitted for any other award or qualification.

Signature: .....

Date: .....

Abstract

Globally, many universities and colleges have been experiencing a transformation in pedagogy over the last decade where face to face learning has been integrated with the digital and online. MOOCs first emerged in 2008 and are platforms that have many online components able to offer university level courses to very large numbers of learners at no additional charge or relatively low costs for them. The Kingdom of Saudi Arabia (KSA) has not been entirely left behind in this pedagogical revolution, but MOOCs have not yet been implemented on a country wide scale. This research attempts to understand whether Hybrid MOOCs (integration of massive open online courses and in class activities) could affect student academic achievement in terms of marks obtained. In addition, the thesis investigates the learner experience, attitudes, and challenges when they study with Hybrid MOOCs. The thesis employs a quasi-experimental research design, convergent parallel mixed methods (qualitative and quantitative), and multiple sources of data collection: semi-structured interviews, questionnaires, and pre/post-tests. 81 BSc students (control group =36 /experimental group = 45) who studied the 'Educational Technology and Communication Skills' module at the Majmaah University in the 1st semester of 2017-2018 participated in this project for a whole 14-week semester. The study found that there was a statistically significant difference in the grades obtained by the experimental group when Hybrid MOOCs were deployed which was evident in the substantial difference in Mean marks obtained between the pre-test and post-test in this group. However, when comparing the marks obtained by the control group (studying with traditional face to face pedagogy) and experimental group (studying with Hybrid MOOCs) in their pre-test and post-tests, it was shown that there was no statistically significant difference (although the experimental group's marks were slightly better). The thesis results further indicated that the students had preferred Hybrid MOOCs learning, and particularly video-based instructions. It also revealed that students' attitudes changed radically before and after using Hybrid MOOCs, as they were quite anxious prior to studying with the new teaching method, anticipating it to be complicated and complex. However, after their engagement, their attitudes and feelings changed significantly, and they showed positive sentiments towards this mode of studying. Challenges of MOOCs were largely related to outside issues and not to studying in this new mode. The implications of this study are significant, especially in regards to Hybrid MOOCs being employed in developing countries. The study is an important one as the ability of MOOCs to influence academic grades may be the decisive factor in them becoming a possible alternative to the face to face classes within KSA higher educational institutions. However, due to the limited scope

of the study being conducted at one university in one city and all the participants being male, further research is needed in order to offer a more comprehensive account of the impact of this phenomenon on students' grades.

Keywords: Hybrid MOOCs, Students' Experiences, Academic Achievements, Attitude, Challenges, Higher Education, Saudi Arabia

List of Publications

Conference Papers

1. Alanazi, H and Walker-Gleaves, C (2018) 'Students' Attitudes Towards Using Hybrid MOOCs within Flipped Classrooms in the Context of Higher Education in Saudi Arabia'. The London International Conference on Education (LICE-2018), Cambridge, United Kingdom.
2. Alanazi, H and Walker-Gleaves, C (2019) 'Students' Challenges of Using Hybrid MOOCs in the Context of Higher Education in Saudi Arabia'. The Ireland International Conference on Education (IICE), Dublin, Arlanda.

Journal Papers

1. Alanazi, H and Walker-Gleaves, C (2019) Investigating Student Attitudes Towards Using Hybrid MOOCs in the Higher Education of Saudi Arabia. *The Literacy Information and Computer Education Journal (LICEJ)*, 10(1), pp. 3140-3146.
2. Alanazi, H and Walker-Gleaves, C (2019, Accepted/In press) 'Exploring the Challenges Encountered by Students of Higher Education in Saudi Arabia Employing Hybrid MOOCs' the Journal of Information Technologies and Lifelong Learning (JITLL).

Awards

1. Award received from The Ireland International Conference on Education (IICE), Dublin, Arlanda for the best paper in the conference.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ICT	Information and Communications Technology
KSA	Kingdom of Saudi Arabia
MoF	Ministry of Education
MOOCs	Massive Open Online Courses
OER	Open Education Resources
cMOOCs	Connectivist MOOCs
xMOOCs	eXtended Massive Open Online Course
HMOOCs	Mix of Online Learning Together with Face to Face Learning Activities
AMOOCs	Arab MOOCS
CB	Cognitive-Behaviorist Paradigm
PLN	Personal Learning Networks
PLE	Personal Learning Environments
LMS	Learning Management System
SRL	Self-Regulated Learning
ADDIE Model	Analysis, Design, Development, Implementation, and Evaluation

Chapter One: Introduction

1.1 Introduction

It is easy to witness the penetration and influence of technology in every dimension of our lives, including education. Education and technology are becoming increasingly dependent on each other. Technology is now part of the process of learning and teaching, and its contribution is difficult to neglect. These tools assist the teacher but also teachers' roles are to facilitate learners' engagement with the instructional content delivered via various platforms and tools. The 21st century has witnessed certain changes to the face of education from the traditional sense to a more digital one. Indeed, innovation in various educational disciplines rarely exists without the role of technological gadgets. Now that people have become increasingly aware of technological tools for their daily tasks, teachers have had to adapt and be prepared for the change and become acquainted with digital education. In fact, universities and **c**olleges in the world have to leap forward and integrate technology into their education as a result of the digitalisation of education. It has been increasingly perceived that a wider digital adaptation is necessary for most educational institutions. Whether it is the incorporation of various technological tools, scientific instruments, ICT systems, technical gadgets, software, hardware, or digital devices, modern infrastructure is seen necessary for the implementation of education for the new age. This quest for technology in education is not only advanced by convenience, efficiency, cost and accessibility, but also concerns its impact on academic achievement. The increased skill and ability for educators in conveying knowledge and enhanced communication is also a consideration when integrating technology to education.

1.2 Study Context

Although higher education in Saudi Arabia has a short history that is based on an Islamic philosophy of education (not necessarily in contradiction to western pedagogy), the number of universities has been growing rapidly in all regions of the Kingdom. Saleh (1986) and Alamri (2011) mention that the oldest university in Saudi Arabia was King Saud University, established in 1957. They also state that the number of universities in Saudi Arabia, by the end of 1981, reached seven institutions which were the King Abdul-Aziz University, Islamic University, Um Al-Qura University, Imam Muhammad Bin Saud Islamic University, King Fahd University for Petroleum and Minerals, and King Faisal University. In addition, the regulation within higher education in the kingdom is based on a gender segregation policy for staff and students in all

universities (Hilal, 2013). However, in some faculties such as medical schools and King Abdullah University of Science and Technology, this policy does not necessarily apply. The Ministry of Education governs all universities, whether public or private (Alharbi, 2016).

Throughout the last decade, the Saudi Government has focused directly on the country's education, especially Higher Education via increasing the quality of its output, increasing the effectiveness of scientific research, encouraging creativity and innovation, developing social partnerships, and raising the skills and abilities of education personnel. Moreover, the Saudi Government spent approximately 193 billion Saudi Riyals on the education sector in 2019 (Minstry of Finance, 2019). This budget includes new projects such as facilities and schools for males and females in all different regions within the kingdom. Similarly, the number of universities has increased from one in 1957 to seven in 2005 and 37 in 2015 with an %86 increase in the number of higher education institutes in the last decade (Pavan, 2016).

Not only is the Saudi Government interested in building universities in different regions of Saudi Arabia, but also it is concerned with supporting students in terms of continuing their higher education abroad. For instance, in 2005, The King Abdullah Scholarship Program was established to send students overseas. The aim of the program was to prepare and effectively train Saudi human resources to become a competitor in the global labour market and scientific research. Specifically, the program intended to create skilled people as an important guide in supporting Saudi universities and the public and private sectors with required competencies. The number of students sent to foreign countries for education and financed by the Saudi Government was 207,000 in 2016. In fact, Saudi Arabia is in 5th place after China, India, Korea, and Germany in terms of students sent abroad, not to mention having more than 1.5 million Saudi students studying now in the county's own universities. In addition, the kingdom has 32,000 international students from at least 155 nations, which increases the international status of higher education in KSA (Pavan, 2016).

The Saudi Ministry of Education does recognize the importance of utilizing educational technology within education sectors to improve the quality and level of teaching and learning. According to the Annual Report of the Communication and Information Technology Commission, the percent of internet users in Saudi Arabia has been increasing from 47% in 2011 to 74.9% by the end of 2016 (CITC, 2016). This percentage has further increased to 82.12% in 2017 (CITC, 2017). In addition, the Ministry of Education has launched several initiatives that focus on the development of education with a technological perspective. One of

the major initiatives in this regard is appointing a Deanship of e-Learning and Distance Learning for all universities (Al-Asmari and Rabb Khan, 2014). The purpose of this deanship is providing diverse and distinctive educational services through incorporating technologies via e-learning and distance learning according to local and international quality standards (King Abdulaziz University, 2019). The second initiative is establishing the National Centre for E-Learning. The aim of this centre is widespread publicizing of e-learning and distance learning applications in higher education institutions in the kingdom. It also supports research in the fields of e-learning and distance learning (National Center for E-Learning, 2019).

MOOCs are still in the early stages in the Arab world universities. Some Arabic nations have started to embrace MOOCs and even implemented them for their education. In fact, e-learning has become slowly established as a way to counter the limitations of traditional learning (Adham and Lundqvist, 2015). Generally speaking, education in the Arab world became acquainted and interested in e-learning from the global interest and practice of it. Specifically, the stimulus for MOOCs entering the Arab world arrived from high quality educational institutes in the West such as MIT, Harvard, and Stanford with the target of improving education for high number of learners (Ibid.). Actually, there was a need for MOOCs in Arabic speaking countries due to high population, the current education system being overloaded, private higher education institutes being so expensive, shortage of opportunities and resources for significant advancement, a scarcity of teachers, and learners who live outside main cities who must take long journeys to attend universities (Adham and Lundqvist, 2015).

Other reasons for MOOCs' entry into the Arab world are cultural matters such as gender segregation. Because of religious, societal, and cultural practices in certain Arabic counties such as Saudi Arabia, learning opportunities for women are currently inadequate due to gender segregation. It is not customary for men and women who are not related to have gatherings or converse without restrictions wherever and any time they please without firm cause (Tubaishat, Bhatti and El-Qawasmeh, 2006). MOOCs can assist in eliminating these barriers and ease the way to respect local cultural and religious norms and also offer learning opportunities to female learners. MOOCs have the capacity to empower female self-expression and advancement so women can interact, communicate, and collaborate for their education.

MOOCs also reduce the amount of money spent on private tutoring which is used very much by Arabic countries. MOOCs provide free courses that fix this problem. Compared to the more traditional education in Arabic countries, MOOCs would be a major transformation (Brahimi

and Sarirete, 2015).

Downes discusses the phenomenon of MOOCs travelling from one country to another and being well received in the Arab world: "*MOOCs have become a worldwide phenomenon, with Britain's FutureLearn launching in beta and the first Arabic MOOCs coming online*" (Downes, 2017, p. 246).

As a developing country, the Kingdom of Saudi Arabia has received and accommodated the notion of MOOCs quite well. The country has launched MOOCs in the local tongue, offering several courses. In fact, locally produced MOOCs have been a strong competitor for very reputable global ones such as edX and Coursera (Macleod *et al*., 2015), although this could be attributed to issues of English competency as most western MOOCs employ the English language. Among locally produced Arabic MOOCs, the following are especially noted: Rwaq, Mahara, Doroob, Zadi, An'ab, initiated in 2013, 2015, 2014, 2015, and 2016, respectively.

It was not until 2013 that MOOCs were formally utilised in the education systems of some Arab countries (Adham and Lundqvist, 2015). The Kingdom of Saudi Arabia was one of the first few Arab countries which adapted MOOCs that time. Rwaq was the first platform for MOOCs in Saudi Arabia. Rwaq was established in Saudi Arabia in 2013 as a platform for MOOCs. In 2014, the Saudi Ministry of Labour initiated open-platform MOOCs with the sole purpose of linking employment and education in the country. With the private sector booming in the country, an increased demand for workers with an improved skills-set, youth and females having high career aspirations, it can be predicted that MOOCs will be on the rise in the country (Adham and Lundqvist, 2015).

The current study took place at Majmaah University which was established in 2009. Majmaah University is one of the new and modern universities in Saudi Arabia which is located in Majmaah city. The university has thirteen faculties including Medical, Education, Engineering, Art, Business, Science, and it also has several branches in Zulfi, Rumaah, Hotat, Sudair, and Alghat. The number of students in all faculties and branches was 19,732 in 2017 (Majmaah University, 2019)

1.3 Study Background

Among systems and platforms which have entered as technological aids into education, MOOCs (Massive Open Online Courses) initially emerged approximately in 2008. They are seen as online courses which can interest large numbers of learners. MOOCs offer open content and access to knowledge and course materials for lifelong learning (Kennedy, 2014). Among the many characteristics of MOOCs, open access and limitless numbers of students are important. The initial underlying idea behind MOOCs' was to offer university standard courses free of charge (Annabi and Muller, 2016) and create a network of learners who want to learn the same topic and have similar interests. Instruction in MOOCs is given by texts, discussion forums, assignments, emails, quizzes, videos, blogs, etc.

Encouraging learners to communicate and engage not only with the topic of interest but with each other was especially considered when MOOCs were created (Erdem-Aydin, 2015). MOOCs are quite a well-known development in higher education in current times. At present, they have been considered as a possible solution to educate students who have difficulty in following conventional pedagogies (Bralić and Divjak, 2018). Moreover, the role of MOOCs in career advancement and professional development of individuals is one that has received much attention, as MOOCs can become a ladder for those seeking to improve their skills (Ma and Lee, 2019). Furthermore, in the area of learning new languages, which is quite expensive and time-consuming if individuals enrol on institutional courses, MOOCs have become the point of enquiry (Panagiotidis, 2019). MOOCs embody the following notions: open accessibility, video-based teaching material, worldwide, free (mostly), online, and discussions. Since MOOCs accommodate flexibility in geography and time, they become quite convenient for people all around the world, who are interested in the same topic, to register without pre-requites to participate and learn. Although MOOCs are supported by academics, institutions, and practitioners, there is a lack of research examining their current academic usage and pedagogic fit into different parts of the world, especially in relation to the nexus between pedagogical practice and technology integration (Baturay, 2015).

The learning process in MOOCs is enriched through participation, interaction, and contributions of learners in generating and sharing information. This participation is voluntary which values the learners' choice, autonomy, and independence. Knowledge in MOOCs is disseminated through a network of learners, with a huge portion of the activity occurring in online social learning settings where students interact with the course content and each other.

The course content and learning resources offered are preliminary start-ups for launching dialogue and added contemplation for learners (Baturay, 2015).

The recent rise of MOOCs created much hype in the media as they were seen as replacing, or at least troubling, the status quo of dominance for traditional approaches to teaching and learning (Castillo *et al.*, 2015). After higher education institutes started providing them in 2012, there was intrigue as to the reasons why so many students registered on them, what sustained this interest, and what factors affected their online study (Woodgate *et al.*, 2015).

Key properties of MOOCs are as follows: massiveness, openness, being online, and being a course. Each of these will be explained separately below.

Massiveness

The scale of numbers of learners who can be admitted to MOOCs is unlimited, which makes it very efficient for learning as universities cannot accommodate large numbers. This becomes very important for delivering education and knowledge to people who would not have otherwise had a chance for education due to limited resources. MOOCs grant opportunities for large numbers of people, which comes in as a priceless attribute which the traditional classes cannot compete with (Hew and Cheung, 2014).

Openness

Any learner who intends to participate in a MOOC can do so, usually for free, as the courses are open to anyone with internet. A learner has the ability to enrol on more than one module/course and has access to all the course materials. When students and facilitators create any knowledge or materials on the MOOC or for the course, it will be shared and made available to the public (Hew and Cheung, 2014).

Online

Access to internet is crucial for accessing MOOCs. This might make life difficult for places on the map where the country is underdeveloped, or the learner is in a remote place of the country without access to the World Wide Web (Hew and Cheung, 2014).

Courses

Courses in MOOCs can be in almost any subject, as long as laboratory equipment is not required, or a specific instrument is not the fundamental part of the specific course. MOOCs are usually affiliated with respectable academic institutions and can be in many languages depending on the platform and course (Stewart, 2013; Baturay, 2015).

1.4 Rationale for the Study

This study is timely, important, and salient for a variety of reasons. First, there is a serious shortage of studies done on MOOCs within the Arab world and especially, Kingdom of Saudi Arabia. Unfortunately, most studies are done in the Western world that have entirely different contexts in terms of culture, finance, and more up to date pedagogies. This shortage causes difficulties for scholars who want to investigate this phenomenon in other parts of the world besides the West (Liyanagunawardena, Adams and Williams, 2013; Veletsianos and Shepherdson, 2016; Adham, 2017).

Second, the government of Saudi Arabia has embarked on a massive ambitious development and reform plan designated VISION 2030, and has placed special emphasis on education and the role of technology in education (Ministry of Education, 2019). The development plan aims to take Saudi Arabia from being a developing country to the standards of developed countries, where technology and education play a significant role in that transformation. Although the government of Saudi Arabia has allocated the biggest portion of its budget on the education sector for 3 years in a row (2016-8) (Minstry of Finance, 2019), challenges persist, which is why the integration of technology into education must be explored further.

Third, the transformation of Saudi education from a traditional sense to a digital mode is happening very slowly at present (AlHarbi, 2014). However, there is scarce research in this area investigating the impact or feasibility of this transformation. The current study provides an angle to assess the issue and explore it.

Fourth, there is another transformation within Saudi education which has not yet happened but is slowly beginning to occur. The shift from the teacher-centred classroom (Miliany, 2014; Almulla, 2017; Alrabai, 2018; Farooq and Soomro, 2018) to the student-centred classroom that was mentioned earlier needs investigation, which does not exist in any overarching sense in KSA, to the author's best knowledge. This shift moves students from the passive mode to an

active mode. The current study considers the issue in a particular context, showing how Hybrid MOOCs were able to somewhat transform the learning process for Saudi students in Majmaah University, where before attending classes, students studied course materials from many resources such as articles, videos, discussion forums, and quizzes. They then came to class, doing group work and engaging in active collaborative learning, as opposed to simply sitting and being the receiver of information from the teacher.

Fifth, based on the author's 10 years of experience as a lecturer in Saudi higher education, there is resistance to using technology in education by the faculty members (especially older members) (Alfahad, 2012), despite the classroom having many of the necessary devices. This study can acquaint teachers with the benefits and harms, if any, of educational technology for them to make a more informed choice on their resistance, to assess if it is rational or not.

Sixth, there have not been any empirical studies done in Saudi Arabia or the Arab world to the best of the author's knowledge that used an Arabic language MOOC (MOOCs that utilise the Arabic language, not MOOCs with owners from Arabic countries). Other MOOCs experimented with were in English (Freihat and Zamil, 2014; Adham and Lundqvist, 2015). This is a notable change, as learning in the mother tongue facilitates student engagement much more than when using a foreign language. Actually, one of the challenges, as will be explained later in the literature review, and this study remedies, is the language barrier for students who intend to learn via Hybrid MOOCs.

Seventh, a further and final reason for this project's necessity is that it explores how or if the implementation of technology into education may overcome some of the serious challenges that Saudi education faces. To give five examples: certain student categories are impeded in their progress due to a shortage of educational facilities, programmes, and services; the Saudi educational environment is not very accommodating to innovation, creativity, and inventive thinking right now, but there are slow signs of hope; learners from deprived parts of the country are lacking in intellectual abilities such as critical thinking and up to date academic skills due to the prevalence of traditional teaching methods; the existing curriculum in Saudi Arabia is not up to date and arguably needs significant reform; there is no strong link between the results of a university training and what the job market requires (Ministry of Education, 2019). Consequently, this study evaluates, to a certain extent, if some of these problems could be alleviated in the country via Hybrid MOOCs.

1.5 Significance of the Study

This project arrives at a time where not only is education technology a topic of choice for educational scientists, but MOOCs in particular, are considered as a landscape changing phenomenon that might transform education as a whole and redefine the roles of the classroom, tutor, computer, internet, and student. In addition, experimenting with Hybrid MOOCs in Saudi education to identify various aspects of change in students' academic achievement presents an added understanding in how technology's entrance into education can affect marks obtained. Furthermore, this is one of the few studies in the Arab world or Saudi Arabia, to the best of the author's knowledge, that illuminates possible difficulties students face when learning with Hybrid MOOCs in higher education, attitudes they hold towards it, and their experience in the duration of one whole academic semester.

1.6 Purpose of the Study

This research investigates the prominence of technology in the learning and progress of students within Higher Education (HE). The pedagogical scenario included the employment of tools such as Hybrid MOOCs. This intervention converts the traditional classroom setting into a hybrid learning environment. Three purposes of the study were:

1. To examine how using Hybrid MOOCs could impact students' academic achievements in terms of marks or grades obtained, compared to the existing traditional learning methods with regards to the 'Educational Technology and Communication Skills' module in Majmaah University, Kingdom of Saudi Arabia
2. To identify the effects of using Hybrid MOOCs on student experience and their attitudes towards it, as compared with the existing traditional methods in teaching the 'Educational Technology and Communication Skills' module
3. To investigate the challenges that students who study 'Educational Technology and Communication Skills' module, by means of Hybrid MOOCs, might encounter

1.7 Research Questions

The aim of this research project is to understand the extent which Hybrid MOOCs can impact the academic achievement of students within the 'Educational Technology and Communication Skills' module. This study will try to answer the following questions:

1. What are the students' experiences when they used Hybrid MOOCs?
2. What are the students' attitudes towards using Hybrid MOOCs in their education?
3. What are the challenges that students who study the 'Educational Technology and Communication Skills' module by means of Hybrid MOOCs face?
4. What is the impact of using Hybrid MOOCs on students' academic achievement in the 'Educational Technology and Communication Skills' module?

The thesis is orientated towards the fourth question after answering the first three as they are influential factors leading to student achievement. The thesis investigates the three initial questions as a foundation for answering the fourth one, gradually developing towards the fundamental question regarding academic achievement.

1.8 Definitions of Terms

- MOOCS have long been known to have only two types recognized - cMOOCs and xMOOCs (Conole, 2014). However, later on where the concept of MOOCs had evolved, Hybrid MOOCs emerged as a combinatory structure of different characteristics of cMOOCs and xMOOCs, attempting to obtain both their advantages. cMOOCs were the first to emerge by Siemens and Downes in 2008 (Hill, 2012; Siemens, 2005; Downes, 2008; Adham and Lundqvist, 2015). Moreover, contrary to cMOOCs which have a foundation in 'connectivism', xMOOCs are grounded in traditional behaviourism and Hybrid MOOCs grounded in social-constructivism. As mentioned, Hybrid MOOCs are a 3rd category (Waite *et al*., 2013), which are an integration of processes, pedagogies, and elements of previous MOOC types, with the presence of a teacher to facilitate the learning activity (Grünewald *et al*., 2013) (*see* Chapter 2, Section 2.4).

- Hybrid MOOCs/Integrated MOOCs/Blended MOOCs: Hybrid MOOCs are viewed as a mix of online learning together with face to face learning activities. Hybrid MOOCs intend to incorporate in-class face to face interaction of students, together with outside of class online interactions within the MOOCs platform (Yousef *et al.*, 2015ab). This has also been referred to

as Integrated MOOCs or Blended MOOCs. However, for convenience, in this thesis, the term Hybrid MOOCs will only be used.

- Traditional Teaching and Learning/Face to Face Learning/Conventional Learning/Classical Learning: This approach to teaching is conducted in the classrooms with the teacher and students present at the same time and location where there is full dependence on the teacher for transferring knowledge to students regarding the course materials (Tularam and Machisella, 2018). This has also been referred to as Face to Face Learning, Conventional Learning, and Classical Learning. However, for convenience, in this thesis, the term Traditional Learning will only be used.

- Experience: This term refers to knowledge, encounters, skills, factors, and forces students were exposed to when they studied for one academic semester using Hybrid MOOCs. Various elements of this activity can impact the learners' experience with it, such as its flexibility of learning, quality of content, Networked Learning, assessments, and Instructional Design in the 'Educational Technology and Communication Skills' module.

- Achievement: In this thesis, the term achievement is regarded as the mark students obtain in their final tests that were conducted at the end of the semester.

- Attitude: In this thesis, the term attitude indicates the positive or negative sentiments students have towards using Hybrid MOOCs when they study at university for a semester.

- Challenges: This term refers to all the tangible and intangible impediments that students are confronted with or have to overcome when studying with Hybrid MOOCs in one semester.

- 'Educational Technology and Communication Skills' module: This is the compulsory module studied by students of different departments (Arabic language, English language, Islamic studies) within the Faculty of Education during the 1st semester of their BSc.

1.9 Creating and Delivering Hybrid MOOCs

In order to accomplish this study, many instruments and materials have been employed to teach the experimental group (the group of students in Majmaah University who study via Hybrid MOOCs as opposed to control group who study via traditional method). The content of the 'Educational Technology and Communication Skills' module was decided from the primary recommended textbook, 'Educational Technology and Communication Skills', by Mohamad

Alqomaizy 3rd edition, 2016. The book contains 14 chapters. However, after careful deliberation between the researcher and the teacher of the module, the 1st 10 chapters were used to teach the students of the experimental group in the new method (Hybrid MOOCs) due to time constraints. Moreover, the Rwaq platform was used because it is in the Arabic language, free of cost, can be accessed by laptop or smartphones, and easy for the students to operate. In addition, the platform offers a comprehensive variety of features which accommodate learning and interaction with the course materials. Among the tools used online by the researcher for the students' better learning experience, the following can be noted: videos created by the researcher (1 or 2 per week), readings (articles, book chapters, website links, and PowerPoint slides), assessments produced by the researcher (a quiz or questions related to the video), and discussion forums (online medium for students to interact and learn from one another). The mentioned components constitute the course materials for the module.

For the purpose of designing the course content, the ADDIE model was used by the researcher, encompassing 5 stages: Analysis, Design, Development, Implementation, and Evaluation. The 1st stage (Analysis) is the most fundamental as it lays the groundwork for the rest of the stages, analyzing the following: aims of the module, students' abilities, educational materials, teaching approaches, and assessments. The second stage (Design) deals with ensuring that the online and face to face course content are aligned perfectly with the abilities of Majmaah University students within the experimental group. The 3rd stage (Development) concerns developing and piloting the designed course content so it is ready for student usage. The 4th stage (Implementation) is where the researcher actually and effectively applies the new method for the experimental group. In the final and 5th stage (Evaluation), the success of the new method (Hybrid MOOCs) is appraised by the researcher.

For the purpose of merging the aforementioned created course materials with the face to face class, the concept of the Flipped Classroom was used which allows learners to study the course materials created by the researcher at a place and time convenient to them online, prior to attending the face to face classes. There exists 3-phases (before/in/after-classroom) when executing Hybrid MOOCs with Flipped Classrooms, consistent with Wang *et al*. (2016), Johnston (2015), Parra (2016) and Griffiths *et al*. (2015). Before attending the class, students access the Rwaq platform and watch the video lectures, doing quizzes from information in the videos. They also read the articles related to the lesson of the following lecture and use discussion forums to interact with their peers and/or other students in case of enquiries. When

arriving at the face to face class, the students are divided into many groups with tasks allocated to each group. The teacher interacts with them to offer guidance on issues which students require added elaboration on and have trouble with when in the 'before class' phase. The teacher encourages group work and students give presentations on the tasks that they have accomplished in class. They also offer a summary of what they learned during the 'in class' phase. Finally, the teacher finishes the 'in class' phase by giving students homework. Within the 'after class' phase, students interact with each other and the researcher regarding what they learned in class with opportunity available for Q &A in the discussion forum. In addition, they can communicate via the discussion forum with their teacher in case of questions related to the homework.

The researcher's specific activities were preparing course materials such as video lectures, articles, slides, and assessments, uploading them into the Rwaq platform. He was involved with ensuring all students are registered in the Rwaq platform. The researcher also interacted with students in the online discussion forums to answer their questions. He cooperated with the teacher of the 'Educational Technology and Communication Skills' module to design the whole course curriculum and guided the teacher on how to merge Hybrid MOOCs with Flipped Classrooms. Furthermore, the researcher prepared students mentally and technically for the new method of learning. Finally, he used the ADDIE model to design course content.

1.10 Structure of the Thesis

The current thesis is composed of seven chapters. The goal is to convey the aims of the thesis in a coherent fluent manner.

Chapter 1 explains the whole thesis, describing the main points and presenting a preliminary picture of what is to come and happen for the reader. It states the reasons for, and importance of, the whole project.

Chapter 2 follows from Chapter 1 in reviewing relevant literature on MOOCs, identifying a gap within the current literature, and positioning the thesis in that gap. It does this by explaining, analysing, critiquing various scholars' points of view on MOOCs, relevant theories on MOOCs, types of MOOCs, various students' experiences with MOOCs, identifying trends in e-learning within and outside Saudi Arabia, etc.

Chapter 3 acquaints the reader with the methodology, research design, data collection, and approach of the thesis. It shows that a quasi-experimental approach has been utilised, convergent parallel mixed methods used, pre/post-tests applied, questionnaires and semi-structured interviews conducted for obtaining qualitative and quantitative data, and issues of validity and reliability contemplated.

Chapter 4 will present quantitative results from the questionnaires and pre/post-tests, their analysis by descriptive statistics, and inferences regarding the main questions of the thesis.

Chapter 5 offers the qualitative results of the thesis, uses thematic analysis to evaluate them, and investigates views of 8 students regarding their experience, attitudes, and challenges when they used Hybrid MOOCs.

Chapter 6 integrates the qualitative and quantitative results from the previous two chapters and evaluates their implications. For this to happen, the qualitative and quantitative results were linked to the literature review, educational theories, certain key viewpoints of the students participating in interviews and scholars who had significant ideas regarding the merits of the results. A reflection and interpretation was also offered to gain meaning from all this.

Chapter 7 offers a summary of the whole thesis and discusses whether and how the thesis achieved its aims. This chapter offers contributions, implications, recommendations, limitations, and reflections regarding the whole dissertation journey.

Chapter Two: The Literature Review

2.1 Introduction

Massive Open Online Courses (MOOCs) have been designated by some educators and scientists as a new revolution for the 21st century, a novel teaching method, or pedagogy for distance learning (Minghua, 2013; Skiba, 2013). It has four terms attached to it: Massive, Open, Online, and Courses. 'Massive' refers to being limitless for registration and the capacity for high scale. 'Open' refers to availability being there for all kinds of enrolment at any time or place. 'Online' refers to accessibility to the internet for the online educational resources which are video, text, assignments, and submissions. 'Courses' refer to modules which have a start and end date, content, and activity (Anderson, 2013; Billington and Fronmueller, 2013; Hollands and Tirthali, 2014).

MOOCs have played important roles in transforming the learning and teaching processes in education systems from traditional methods to modern ones (Brahimi and Sarirete, 2015). In terms of students or learners, they have the quality of being able to help students enhance and improve their academic achievement through various productive activities. Conole (2016, p. 3) describes them in this manner:

> "*Essential tool for learning, they use a variety of strategies for findings and collating resources and for communicating and collaborating with peers. In essence, the characteristics of good learning*".

In a majority of novel MOOC platforms used today, common activities such as watching videos, having discussions, working on assignments, doing quizzes, conducting interactive tasks, and using textbooks inside and outside the classroom, are evident (Najafi, Evans and Federico, 2014; Griffiths *et al.*, 2015; Magen-Nagar and Cohen, 2017). Moreover, MOOCs helped to overcome several obstacles of access to education and have proven to support people in completing their education for lifelong learning in schools, universities, and distance learning (Karsenti, 2013). They give people the ability or freedom to learn what they want, at their own pace, in any location or time convenient for them, being constantly open for anyone to access (Daniel, 2012; Kaplan and Haenlein, 2016). As a result of these attributes, many high caliber universities in developed countries are using MOOCs to offer courses for their students (Alcorn, Christensen and Kapur, 2015; Stockwell *et al.*, 2015). What is more, MOOCs are being more

and more seen to have practical applications such as providing new skills and training for students towards their future careers in the job market (Kaplan and Haenlein, 2016). All this has overwhelmingly led researchers and educators to study and understand the phenomena of MOOCs with much more motivation.

In recent years, many researchers have been studying how Massive Open Online Courses (MOOCs) can improve students' academic achievement in higher education within the context of formal education or distance learning. The literature review of this thesis will thoroughly focus on seven important subjects which are directly related to the influence of using MOOCs on students' achievements in Higher Education. The seven subjects are displayed in the illustration in Figure 1 demonstrating the structure of the literature review (Liyanagunawardena Adams and Williams, 2013; Stockwell *et al.*, 2015).

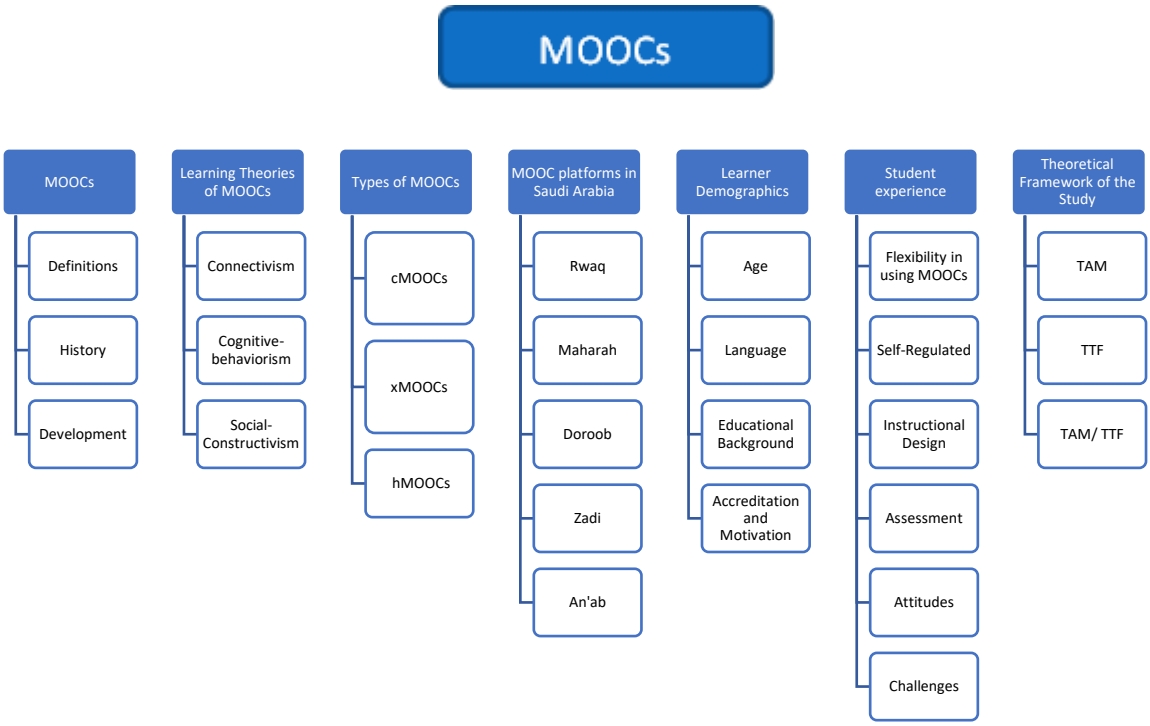

Figure 1: Structure of the Literature Review Chapter

The literature review will commence by discussing the basics of MOOCs such as defining them, showing their founding and evolution, and how they established themselves in the mainstream (western) educational contexts. In this regard, the reasons for their initiation and obstacles to their implementation will be explored. Afterwards, the variety of MOOCs will be described, with their differences explained, and to what use they are best fitted for. In this regard, special attention will be focused on Hybrid MOOCs which are the type used for this project. At the

conceptual level, the philosophies behind MOOCs which give it an abstract foundation will be elaborated. In this manner, it will be clarified which MOOCs are grounded in which learning theories to portray the foundation for each.

Leaving the western thinking on MOOCs and moving towards Saudi Arabian education where this project is focused, the literature review will attempt to understand the position of MOOCs within Saudi educational culture and discover how they have penetrated Saudi education. This is necessary as this project focused on MOOCs in Saudi Arabia, and Saudi education is radically different from western education. Also, MOOCs in Saudi Arabia are a very novel concept and not yet implemented fully and correctly. For elaboration, different kinds of MOOCs in the Arab world, and especially Saudi Arabia, will be described, their uses explained, and how they were received by the local population expounded.

Thereafter, the factors which might influence learning with MOOCs (learner demographics) will be explored such as learners' age, languages they know, educational background, and the motivation factor in relation to MOOCs offering certificates. An examination of the academic results of students when learning via 'MOOC only', 'Traditional learning', and 'Blended/Hybrid MOOCs' will be done to understand which one yields better academic accomplishments. In this section, these three modes of learning will be uncovered, clarified, and compared as to understand differences for achievement in students.

Subsequently, an exploration of elements shaping student experiences while learning with Hybrid MOOCs will be conducted, focusing on the following elements: Flexibility in using Hybrid MOOCs, Hybrid MOOCs enhancing Self-Regulated Learning, Instructional Design in Hybrid MOOC platforms, assessments in Hybrid MOOCs, attitudes towards using Hybrid MOOCs, and students' challenges in using Hybrid MOOCs. The reason these elements are explored is that they can impact students' experiences in using Hybrid MOOCs. For instance, students' attitudes towards Hybrid MOOCs are an important element when they are first exposed to them as this attitude tends to change after using MOOCs (Joseph and Nath, 2013). The flexibility Hybrid MOOCs offer students is another element which affects their experience as they can use Hybrid MOOCs at their own convenience (Bruff *et al.*, 2013; Ghadiri *et al.*, 2013). Hybrid MOOCs also afford autonomy for students using them in education as students can engage in Self-Regulated Learning (Zimmerman, 2000; Israel, 2015). These are elements which shape the experience students have when learning with Hybrid MOOCs (Li *et al.*, 2015; Kulik and Kidimova, 2017).

Furthermore, there will be an exposure to the theoretical framework the thesis employs to examine the acceptance, usage, and intention towards Hybrid MOOCs' adoption in Majmaah University (TAM/TTF) which considers 'perceived usefulness (PU)', 'perceived ease of use (PEOU)', 'attitudes', and 'continuance intention' as influencing technology acceptance, but also elaborates that these elements are themselves affected by the alignment of the technology with 'its task (TTF) and individual student abilities (ITF) 'which in turn, impacts technology acceptance and adoption at the institution.

All of the sources examined in the literature review will be compared/contrasted, critiqued as to their credibility/generalizability, and also extrapolated for the Saudi context. The cultural and educational forces in Saudi Arabia will be considered and contemplated throughout the way as to place the study in context.

2.2 Definitions, History and Development of MOOCs

2.2.1 Definition of MOOCs

MOOCs are platforms which use web-based tools and environments to provide education and lessons in a more developed fashion compared to their predecessors, e-learning and Open Education Sources, without concern for geographic restrictions and time zones and for much larger number of learners (Voss, 2013).

The European Commission has given the following definition for MOOC being:

> "*an online course open to anyone without restrictions (free of charge and without a limit to attendance), usually structured around a set of learning goals in an area of study, which often runs over a specific period of time (with a beginning and end date) on an online platform which allows interactive possibilities (between peers or between students and instructors) that facilitate the creation of a learning community. As it is the case for any online course, it provides some course materials and (self) assessment tools for independent studying*" (European Commission, 2014, cited in Liyanagunawardena, 2015, p. 35).

Another definition of a MOOC is as follows:

> "*it is an online course designed for large number of participants that can be accessed by almost anyone anywhere, as long as they have an internet connection, is open to everyone without entry qualifications and offers a full/complete course experience online for free*" (Brouns *et al*., 2014, pp. 161-162).

Furthermore, Kesim and Altınpulluk (2015, p. 15) defined MOOCs as:

> "*MOOCs are online education platforms accessed for free by great masses. Online courses taught by elite academies in elite universities draw a lot of interest, and provide a complete distance learning environment through assignments, presentations, videos and other course materials*".

It must be noted that it is difficult to devise a rigid, precise, and exact definition of MOOCs as there can be versions and types of MOOCs in various institutions which are customized and will not fit certain aspects of the definitions above. As an example, not all MOOCs are free of charge, which refutes the European commission's definition. In addition, the European Commission's definition of MOOCs refers to an assumed standard for any online course, offering study materials together with self-assessments for autonomous learning. However, this is not universal as some connectivist MOOCs don't have self-assessments. Furthermore, not all e-learning and OER (Open Education Resources) courses provide self-assessments. The definition offered by Kesim and Altınpulluk (2015) focuses on courses offered free and by elite higher education institutions. This definition is not complete either, since universities which are not considered elite do offer MOOCs as well, and also these are not necessarily free of charge.

Through these definitions, it can be noted that there are several common elements that constitute MOOCs. These elements contribute to the spread and usage of MOOCs in the education sector. The first element is online environment or platforms. In this environment, students can connect by the internet at any time and any place. The online platform has many courses in different subjects such as sciences or arts (Onah *et al.*, 2014; Brahimi and Sarirete, 2015). In addition, these courses can be offered free of charge depending on the platform and institution, and are open for anyone to register or enroll. It requires participants who are interested in joining, to usually just input their email address in order to register/access the platforms. Moreover, most of these courses are presented by a group of faculty members or experts who have teaching

experience in the particular fields or subjects. Almost all instructors in the platforms come from various high standard universities and institutions (Altbach, 2014; Ulrich and Nedelcu, 2015). MOOC platforms include several tools that help learners to participate in its educational activities and collaborate with each other such as course materials, video lectures, discussion forums, assessments, and articles.

2.2.2 History and Development of MOOCs

Petkovska *et al.* (2014) think that MOOCs emanated from a phenomenon called Open Education Resources (OER) which was a campaign to provide lecture materials without charge for learners and tutors. The abbreviation OER was first thought of when a related educational venue within UNESCO in 2002 convened (Petkovska *et al.*, 2014), and following it, by 2012, the Massachusetts Institute of Technology (MIT) had provided 2150 online courses which received 127 million logged visits (De Freitas, Morgan and Gibson, 2015). This program has since transformed itself to the OpenCourseWare Consortium, comprising 100 academic institutions partaking to ensure course materials are available online and available with easy access (Abelson, 2008; Caswell *et al.*, 2008).

The concept of OER found a more global meaning when in 2012, UNESO signed the Paris Declaration for OER (Petkovska *et al.*, 2014). This pronouncement encouraged the widespread use of OER, the raised awareness towards it in education, the devising of educational policies and plans for adopting it, and the adaptation of OER for various contexts considering language and culture (UNESCO, 2012). The spread of digital resources and worldwide web usage has had a massive impact on the growth of OER, due to ease and cost-effectiveness (Tuomi, 2013).

Progress in innovation and technology, together with notions of open and accessible education for all learners despite their demographic limitations, has been a major factor in advancing educational technology, surpassing the simplicity of OER to MOOCs, in a revolution of education technology which is unprecedented (Van der Merwe, 2011; Yuan and Powell, 2013).

This emergent phenomenon, Massive Open Online Courses (MOOCs), was launched by faculty members at the University of Manitoba, Canada, namely George Siemens and Stephen Downes (Downes, 2008; Adham and Lundqvist, 2015). There were many stages in the emergence, development, and maturity of MOOCs. The initial MOOC and the MOOC term itself arose from the work of Canadian academics Stephen Downes and George Siemens (Hill, 2012). Opening in 2008, Downes and Siemens established the first MOOC at the University of

Manitoba, "*Connectivism and Connective Knowledge*" [CCK08]. The second version of the same course was offered in 2009 by the same scientists and the same name, "*Connectivism and Connective Knowledge*", [CCK09].

Following the accomplishments of Stephen Downes and George Siemens in the University of Manitoba, these two scholars, with the aid of Dave Cormier and Rita Kop, offered the course, "*Personal Learning Environments Networks and Knowledge*" [PLENK2010] at Athabasca University (Bidarra and Araújo, 2013).

In a deviation from the above scholars, Professor Sebastian Thrun of Stanford University and Peter Norvig of Google initiated the MOOC, *'Introduction to Artificial Intelligence'* (CS 271). In their courses, they used different pedagogical methods in comparison to Stephen Downes and George Siemens. They used Learning Management Systems utilizing machine learning and artificial intelligence to automate many of the processes such as examining and feedback. Due to the immense number of students the course attained (minimum of 80,000), Professor Sebastian Thrun left his position at Stanford University to establish his firm 'Udacity' (Yeager, Hurley-Dasgupta and Bliss, 2013; Moe, 2015; Almuhanna, 2018).

The underpinning philosophy for MOOCs emerging was, 'Connectivism' (Downes, 2008). This is a novel idea in education pedagogy which describes how new learning opportunities have come into being from the widespread usage of digital and web technologies and devices. This opportunity offered a chance for people to study and share information with each other and across the internet (Daniel, Vázquez Cano and Gisbert Cervera, 2015). When MOOCs came into existence, the key educational factors were: education within the interface of social networking; students' self-managed, self-paced, and Self-Regulated Learning in the context of a comprehensive far-reaching curriculum construct; exploitation of free diverse educational online sources, and taking advantage of digital tools to gather information (De Barba *et al.*, 2016). Universities claim that certain necessities led to the emergence of MOOCs, such as low cost spread of knowledge, flexibility, variety of courses available (Daniel, Vázquez Cano and Gisbert Cervera, 2015), easy accessibility, bringing teacher and student together even if at distance, no prerequisites, and no predefined obligation for involvement (Liyanagunawardena, Adams and Williams, 2013).

Like any other innovation (Fini, 2009), MOOCs emerged in response to a need that existed at that time (Atiaja and Proenza, 2016). One of the reasons MOOCs came into existence was to

provide courses for high numbers of learners with good learning experience through the use of online tools (Ng and Widom, 2014). Another intention was to create a much richer learning environment where students could thrive in (Baturay, 2015), or phrased differently, a novel pedagogy (Hollands and Tirthali, 2014). Of course, there were other dimensions considered such as offering a connectivist (Kop and Hill, 2008) open learning through a digital platform (McAuley *et al.*, 2010). It should not be forgotten that an increase in accessibility for students and easy transmission of knowledge, was to be an added bonus (Kop and Carroll, 2011). Considering the aforementioned, the main reason for the creation of MOOCs was nevertheless to encourage faculty members and students, community members and professionals, to commit towards collaborative thinking of ideas shaping our world (Moe, 2015), from any discipline which would contribute to the distribution of information, education, knowledge, connecting, networking, and learning (Daniel, 2012). This distribution was to be one of distance and online learning which would be occurring in the context of mediums that allow knowledge to be shared simultaneously across many sectors (Levy, 2011). The distribution, as mentioned before, would go beyond conventional learning modes, structures, and methods (Levy, 2011). When created, there was a prediction that MOOCs would help students who do not have access to traditional higher education institutes (Marshall, 2013), which today, can be observed has come true (Rodriguez, 2012). Finally, the factors that place differences between people such as geographic, demographic, cultural, economic, or religious boundaries would be annulled when it comes to education by MOOCs (Yuan and Powell, 2013). Although this was not the main reason for its creation, it certainly answered a specific need in diverse learning and education (Liyanagunawardena, Adams and Williams, 2013).

2.3 Learning Theories of MOOCs

2.3.1 Connectivism

Downes has claimed that connectivist learning is grounded in four main values: "*autonomy, diversity, openness, and connectedness/interactivity*" (Milligan, Littlejohn and Margaryan, 2013). Connectivist MOOCs (cMOOCs) are aimed to produce network features for learning by allowing and encouraging students to utilize social networks such as Facebook, Twitter, Blogs, email, and Google groups to interact with each other and connect. MOOCs' emphasis on massiveness and openness allows for large numbers of students to use e-learning. The high level of networked engagement can promote digital literacy, online circulation of expertise, augmented peer-to-peer communication, and knowledge creation (Stewart, 2013). Based on the

reasoning of network features, the massiveness of cMOOCs is valuable since it gives a growing variety and concentration of possible connections between its participants, resources, tools, and constituting elements. The openness of cMOOCs and the virtual autonomy of participants permit these connections to be shaped without the intervention of an authority. The aim of cMOOCs is to enable emergent, self-organized forms of collaborative learning.

cMOOCs are adjustable, flexible, and offer autonomy in terms of students choosing the outcomes they like to obtain, goals they desire to reach, the time and place for obtaining them, and the processes they wish to engage in for the learning, offering the learning experience in a more informal manner, and offering more personalized and adaptive pathways (Saadatmand and Kumpulainen, 2014). Many cMOOCs function like discussion-based seminars for a cluster of webinars on a weekly basis. Others might be constructed around organized actions, containing tasks and projects that enable the progress of certain proficiencies. The vital issue to remember is that in cMOOCs, the learning experiences are networked, open, and decentralized. One person could join in numerous courses and be involved in several sets of overlying connections. The history of these learning experiences will continue to be presented on the person's social media or personal blog. Learners cultivate and preserve portfolios of their distinct learning, while at the same time, they support the progress of 'networks of connected and connective knowledge' in the long term (Downes, 2012).

The criticism of connectivism as the underpinning theory behind cMOOCs is that it cannot expound the evolution of ideas during the course of human development. Ideas held by different people can evolve and be modified through time and experience in life. The manner a person regards a notion in a certain age is not the same after a couple of years of maturity (Clarà and Barberà, 2014). Connectivism does not take into account the information and knowledge learners previously held and is why it cannot measure or contemplate learning throughout the duration of a learner's growth (Ibid.). In addition, Kop and Hill (2008) report that connectivism has a deficiency of empirical research backing it. That is why they think its validity is under question, especially in regard to various educational contexts.

2.3.2 Cognitive-Behaviourism

The cognitive-behaviorist (CB) paradigm relates to the manner in which education was regarded during the 1950s to 1990s. The behaviorist theory in education is concerned with how the context or setting contributes to the process of learning for the student or learner (Jackson,

2009). Behavioral learning theory deals with ideas of education, considering new behaviors or modifications in behaviors, that are attained when the learner reacts to stimuli. The focus in this theory is on the learner and measuring genuine behaviors, although it did also contribute to understanding the relationship between learning settings with learning outcomes (Weegar and Pacis, 2012). Behaviorism is focused on the more visible and objective aspects of behavior (Dolati, 2012). This theory does not concern itself with mental processing and sense making of the person. Behaviorism is one of the teacher-centered instructional approaches which had dominated educational scholarship and contexts influencing almost all dimensions of instructing and syllabi (Yilmaz, 2011).

The behaviorist theory led to cognitive thinking, starting at the end of the 1950s decade (Miller, 2003). Cognitivism in education theory is concerned with understanding the cognitive and mental processes of the individual (Hassan, 2011). A learner's cognitive faculty and way of mental processing impact his/her capability to learn and the manner in which he/she can learn (Demetriou, Spanoudis and Mouyi, 2011). Students' emotions and motivations are fundamental to their learning outcomes and how they experience education. Their educational outcomes are a mutual point of interest to teachers and students (Økland, 2012). Cognitive learning theory concentrates on how knowledge is absorbed in the students' mind and linked with other structures of knowledge which are pre-existing. It does not focus on how students react to stimuli from the environment like behaviorism does. In this theory, the learning process is shaped by students' aims, experiences, and anticipations (Rutherford-Hemming, 2012). Cognitivism concentrates on the intangible, and the occurrences in the learners' mind. In the cognitive process, understanding is attained through adding facts to meaning. It also promotes an investigative attitude to learning, where learners are increasingly seen as active participants (Hassan, 2011). Cognitive pedagogy emerged as a response to the necessity for considering attitudes, psychological obstacles, and incentives that can be somewhat seen through or connected with discernible behaviors. It is noteworthy to add that cognitive paradigms were founded upon a more advanced awareness of faculties and processes within the brain and the manner computerized models were utilized to explicate and demonstrate learning (Mayer, 2001). Despite the fact that learning was until then regarded as an individual endeavor, the research on it moved away from only concentrating on behavior to modifications on knowledge/capacity that is saved and evoked in the learner's memory.

Rodriguez (2012) has claimed that courses presented by xMOOC (eXtended Massive Open Online Course) platforms largely utilize a cognitive-behaviorist or instructivist pedagogy. Based on the classification established by Anderson and Dron (2011), cognitive-behaviorism is the first of three generations of distance education pedagogical concepts. It is distinguished by content-based teaching offered at scale by a one-to-many distribution paradigm. Most xMOOC courses are provided as a professionally made video lecture series, usually presented by one tutor. Videos are aimed to be short, 4-5 minutes, and include quizzes to aid students keeping focus and remembering the material. The learning procedure can also be reinforced by practices, readings, problems, case studies, and testing.

xMOOCs based on the CB paradigm are offered chronologically, divided into weeks so students can learn incrementally. The role of the teacher is to define the course aims and prepare course materials in advance for learners. Assessments in these xMOOCs are usually multiple-choice which intend to measure predefined objectives. The structure of these courses resembles Learning Management Systems in higher education institutes. Furthermore, learners engaging in discussion forums, aiding their understanding of course materials.

CB paradigm characterized the first individualized version of distance education learning. It capitalized on access and student autonomy, and enabled large numbers of learners to gain benefits at considerably lower financial costs compared to traditional learning (Daniel, 1996). Nevertheless, these rewards came at a high price which were noteworthy reductions in teaching, a considerable decline in social presence, and diminishing formal models of cognitive presence. CB paradigms seem to be very suitable when and where learning objectives are well defined and clear, but they excuse themselves from contemplating the richness and complication of humans learning-to-be, set against learning-to-do (Vaill, 1996). Learners are human beings, not blank memories. They hold pre-existing knowledge of the world and learn as they develop through life, existing in a social context of complexity and depth (Anderson and Dron, 2011).

2.3.3 Social-Constructivism

Social constructivism stems from the works of Vygotsky and Dewey. Social constructivist pedagogies recognize that knowledge is socially created in students' minds. Social constructivism in education regards the following points as critical: new knowledge is built upon former knowledge, learners develop knowledge with the context's help, learning is active not passive, language has impact in creating knowledge, metacognition is used for self-

assessment of students, the learning context is learner-centered, social dialogue is paramount, corroboration is fundamental, and real-world relevance for knowledge is key (Ibid.). Similar to concepts of 'cognitive apprenticeship' and 'situated learning' (Brown, Collinsand and Duguid, 1989) that consider the learning process positioned in environments and associations in addition to the minds of learners, sociohistorical and sociocultural ideas are premised on the notion that learning comes from involvement in shared activities, are linked to social practices, and informed by artifacts. These views respect community and societal contributions to learning, along with the contributions offered by individuals and groups to the learning process, considering the associations among them (Greenhow and Belbas, 2007).

In a social-constructivist framework, the tutor is not totally in control, as he or she is closer to being a guide than an instructor, while holding the vital job of influencing learning endeavors and the structure in which they take place. While the particular knowledge that each student constructs is obscure to the tutor, the tutor can grasp the general field of knowledge that students can construct in any given subject (Vrasidas, 2000).

Social-constructivism, the second generation of pedagogical philosophy, suggests that "*each learner constructs means by which new knowledge is both created and integrated with existing knowledge*" (Anderson and Dron, 2011, p. 85). In this procedure, social settings and relationships with other persons are vital to the practice of transferring meaning and learning new expertise. The educational practices of this belief highlight socially-intensive and interactive learning experiences, frequently in small teams aided by the teacher as a speaker and facilitator.

It must be noted that although the interface design and feature set of xMOOC platforms are mostly inclined in the direction of a content transmission paradigm of learning, xMOOC designers and facilitators have also conducted experiments with social and collaborative actions to better incorporate the visions of social-constructivist pedagogical philosophies (Poplar, 2014).

2.4 Types of MOOCs

Conventionally there are two types of MOOCs in a binary structure (cMOOCs and xMOOCs). The division mentioned is popular among educators but too simplistic to be accurate in terms of MOOCs' educational/theoretical origins and their pedagogy (Conole, 2014). This section will explain cMOOCs, xMOOCs, and Hybrid MOOCs. cMOOCs and xMOOCs will be

described in terms of their, learning method, communication, teacher's role, and assessment. Hybrid MOOCs will be described in terms of the balance between various features of the two aforementioned types of MOOCs.

2.4.1 cMOOCs

cMOOCs are systems where every student configures and controls his/her education. Each student creates his/her individual learning network by means of connections, links, nodes, and intersections (Levy and Schrire, 2015). cMOOCs can be seen as expansions of what was denoted as PLN (Personal Learning Networks) and PLE (Personal Learning Environments) (Kesim and Altınpulluk, 2015).

cMOOCs were the first type (Hill, 2012) intended to test the values of connectivism by (Siemens, 2005), created and tested by Siemens and Downes in 2008 (Downes, 2008; Adham and Lundqvist, 2015). They tried to understand and describe the nature of learning in networked contexts. Early cMOOCs were planned to support practices of creation, concepts of sharing, aggregation, and relations between scattered clusters collaborating online (Kop, 2011). cMOOCs were organized to offer a minimum of centralized regulation/content, and to grow students' capabilities to offer insights to and learn from the network. The cMOOCs were designed based on the concept described as '*connectivist*' (Siemens, 2005) principles, involving a networked and collaborative approach to learning that is not primarily curriculum-driven, and does not involve formal assessments (Ross *et al.*, 2014). Moreover, cMOOCs grant learners more autonomy regarding what they want to study. Students can select any course or subject that is offered on the platforms without being asked for any requirements. This is how they are available for any learner to access (Hew and Cheung, 2014; Admiraa, Huisman and Pilli, 2015).

Learning Method

According to Kop (2011), the method of learning in cMOOCs has four essential steps in sequence: aggregation, relation, creation, and sharing. In the first step, the learner accesses the platform and attempts to use resources such as articles and videos. After that in the 2nd step, learners relate (reflect) what they have read and watched to what they know from their experiences. The 3rd step is where learners' reflection will create comments in their Moodle discussion, Blog post, Facebook, or Twitter accounts. In the final or 4th step, learners share their thoughts and opinions on what they learned from the course (taught by cMOOCs) with each other outside the online learning environment, such as Facebook, twitter, blogs, and email.

The courses adopting the cMOOC model provide weekly materials consisting of short YouTube/Vimeo clips and articles. Extra readings are also suggested for those interested in a more in-depth learning. Throughout the cMOOCs, no formal systematic curriculum-based or lecture-based content is provided (Smith and Eng, 2013).

cMOOCs are intended to be readily accessible and to let students participate with their own blogs and social media accounts. The course website might also host little more than a cluster of easily obtainable readings and a timetable of weekly webinars held by guest spokespersons. This simple plan establishes a shared context and up-to-date application for learning that happens across the web network in a decentralized manner. The actual activity of cMOOCs happens in posts and notes left on participant blogs, social media dialogues, and also video-chats. The main constituent of most cMOOCs is a shared hashtag that collects these actions into a shared stream accessible to all contributors. In the cMOOC supported by Downes and Siemens, this shared stream is in the shape of a daily email with links to member blogs and social media accounts, plus imminent virtual events (Stewart, 2013; Saadatmand and Kumpulainen, 2014).

Communication

Another aspect of cMOOCs is communication. The manner of communication in cMOOCs is different from xMOOCs (explained in section 2.4.2). Students in cMOOCs use many different methods to contact each other. According to Admiraal, Huisman and Pill (2015), Yousef *et al.* (2015ab), and Kop (2011), the communication of cMOOCs is outside the platform as the learners use Twitter chats, Facebook, Google groups, and e-email to contact each other. For this purpose, the teacher supports and encourages students to collaborate on social media, sharing contact details for that purpose (Foroughi, 2016). Learners in cMOOCs collaborate and share knowledge using Web 2.0 technologies such as blogs, wikis, Google groups, Facebook, and other social networking tools (Smith and Eng, 2013; Waite *et al.*, 2013; Hakami, 2018).

Teachers' Role in cMOOCs

As the theories underpinning cMOOCs and xMOOCs are different (explained in section 2.3), so is the role of the teacher within these two types of MOOCs. The job of the tutor in cMOOCs is close to what can be described as a '*discussion moderator'* (Rodriguez, 2012). Although teachers working in the capacity of discussion moderators in cMOOCs do offer outlines for the course, the content and materials provided are shaped by the learners during the advancement

of the course instead of the teacher forming it prior to its commencement (Rodriguez, 2012). The teacher inspires students to form their own individualised learning environment together with a collaborating network of other learners (Conole, 2016). He/she does this to reduce dependence on himself and encourage independence on the side of the students. The teacher acts as a participant and enabler inside the learning network, encouraging students to utilise social media for their learning (Foroughi, 2016).

Due to this position that the teacher takes, throughout the duration of learning via cMOOCs, learners have increased autonomy and freedom regarding choices they make such as the level of engagement they have with the course and which part of the course they are interested in (Mackness, Mak and Williams, 2010). This, in turn, results in various subjects being studied by the students in the same cMOOC or even switching to other cMOOCs, based on their inclinations or aptitudes (Hew and Cheung, 2014).

Assessment

Although no official assessment exists for cMOOCs, students have the possibility of receiving comments and feedback from other participants or undertaking self-assessments (Yáñez, Nigmonova and Panichpathom, 2013; Admiraal, Huisman and Pill, 2015). The problem with other participants offering feedback for assessment is that this feedback might not be professionally done, leaving students dissatisfied (Kirschner, 2012). In order to remedy the problem of low-quality peer-assessments, many strategies have been deliberated. Firstly, placing a component in the MOOC to train students in assessments has been seen as a solution. Secondly, the assessing of peers could be logged into the system for teachers or administrators to review for quality. Thirdly, a reward strategy could be considered to motivate peer assessors for accurate work. Fourthly, a set, clear, concise assessment criteria be made available to students so assessments are objective and not subjective. Fifthly, by dividing the course to small components for assessment, assessments could be made easier and more accurate. Sixthly, creating a sense of trust between students is essential so they are more confident that assessors are fair. Seventhly, allowing more students from diverse backgrounds to participate in MOOCs affords the possibility of various perspectives checking the work of peers. Eighthly, feedback regarding assessors can be obtained from students to check how students feel about the quality of the peer-assessments. Ninthly, ensuring that another student assesses the assessment already made on a participant allows for better monitoring and transparency (O'Toole, 2013).

Although cMOOCs were prominent when the idea of MOOCs started, nevertheless, the decentralized networked method advocated by connectivism is not the only or even the most renowned paradigm of MOOCs. xMOOCs offer much more centralization, and their content-focused outlook for MOOCs (Hill, 2012) was different than their predecessors. They include courses offered by cloud-based management platforms obtained from Coursera, edX, and Udacity. Furthermore, they give ample opportunity for traditional LMS roles, plus delivering possibilities for creating and relaying multimedia instructional content for learners. The following section goes in depth.

2.4.2 xMOOCs

xMOOCs are essentially systems that allow the tutor to offer video demonstrations to learners in order to teach the module when each learner does his/her tasks at the pace that is convenient to him/her (Kesim and Altınpulluk, 2015).

xMOOCs differ from cMOOCs, as they are similar to the traditional behaviorist educational framework while cMOOCs are of a connectivist theoretical background. xMOOCs also came after cMOOCs historically. xMOOCs are very structured, content-driven, made for high numbers of students, led via pre-recorded lectures, and examined through automated assessments. They concentrate on knowledge duplication whilst cMOOCs encourage knowledge creation. xMOOCs depend on specialist knowhow and authority, whereas cMOOCs support self-directed learning. xMOOCs have a teacher-driven style while cMOOCs focus on social interaction (McGuire, Raaper and Nikolova, 2016). Wider media consideration and academic attention in xMOOCs actually started in 2011 with, "*Introduction to Artificial Intelligence*," a course given by Sebastian Thrun and Peter Norvig at Stanford University. This course registered over 160,000 applicants internationally and founded a more centralized, content-focused method for MOOCs (Hill, 2012). Downes invented the abbreviation xMOOC to label this kind of MOOC, which contained courses given by the cloud-based learning management platforms of startup MOOC sources: Coursera, edX, and Udacity. Besides adopting traditional LMS roles for use at scale, these platforms provide greater options for generating and conveying multimedia instructional content for students.

Learning Method

The structure of xMOOCs resembles traditional formal courses (face-to-face pedagogy/conventional classrooms). They provide the learners with quizzes, discussion

forums, assignments, video lectures, and text-based readings as the central learning tasks. xMOOCs offer less freedom and autonomy, compared to cMOOCs, due to their model being highly structured and based on higher teacher monitoring (Kennedy, 2014). They give learners self-study courses with less chance for interaction with each other, compared with cMOOCs (Kalz and Specht, 2013). It could be also stated that xMOOCs require students to learn from predetermined course materials typically conveyed by lecturers at higher education institutes (Almuhanna, 2018). Finally, their model is close to the ones used on campus in many universities and is established on a learning route which is characterized as objective-oriented, content-based, and linear (Admiraal, Huisman and Pill, 2015). xMOOCs are designed for a large number of learners operating alone aided by pre-recorded video lectures. Their purpose is to offer well recognized academic subjects accredited by universities (Ross *et al.*, 2014).

Communication

As regards to communication among learners, interactions between learners in xMOOCs are limited, typically occurring in a centralized discussion forum within the course platform (Yousef *et al.*, 2015ab; Hakami, 2018). It must be noted that within xMOOCs, interaction is not mandatory and xMOOCs do not necessitate it between students (Margaryan *et al.*, 2015). Interaction in xMOOCs is noncompulsory and most of the times the students aren't given any instructions on creating learning groups or networks with other learners (Tawfik *et al.*, 2017).

Assessment

Contrary to cMOOCs which have no formal assessments, within xMOOCs, assessments are conducted via automated assessments (computer marked assignments) or peer-marked ones. Pupils are evaluated by a mixture of final exams, weekly quizzes, and assignments with the format being usually multiple-choice or short answered. Assessments in xMOOCs aim to check how much students learned from video lectures by using quizzes and peer-marked assignments (Admiraal, Huisman and Pill, 2015).

Teachers' Role in x MOOCs

The contribution of teachers in xMOOCs is closer to that of professors in higher education establishments such as universities. Learning is teacher-centered or traditional or conventional and face to face learning is predominant with students on the receiving end of knowledge transfer (Rodriguez, 2012; Hew and Cheung, 2014), as these teachers are leaders who are

charged with developing course materials and defining objectives (Yáñez, Nigmonova and Panichpathom, 2013; Admiraal, Huisman and Pill, 2015). xMOOC teachers use a curriculum and have a clearly designed syllabus. This syllabus comprises discussion in online forums together with course readings and video lectures made ready before the course commences, by the teacher (Belanger and Thornton, 2013). These video lectures are normally around 3 to 15 minutes in duration. Often, learners would commence each week's lesson by watching the video lectures, studying allocated readings (articles, journals, textbooks, etc.) which are frequently of no charge, partake in the discussion forums with their peers, and complete the quizzes, assignments, or tests on the course materials (Admiraal, Huisman and Pill, 2015). Students can use various features of the video lectures such as 'pause' and 'view' with the speed they are comfortable in order to write down important points (Frank, 2012). They can contact teachers using the email service within the course email system. In addition, they can upload the enquiries they might have into the discussion forums. Even though the teachers' involvement in the discussion forums is not always the same, a majority of them are inclined to answer enquiries once or twice per week, at a minimum (Hew and Cheung, 2014).

2.4.3 Hybrid MOOCs

Although the cMOOC-xMOOC binary makes it easier for scholars to distinguish between MOOCs, more recent literature diverts from this simplistic division towards a more detailed and nuanced description of what happens in different types of MOOCs (Conole, 2014). Nowadays, Hybrid MOOCs have emerged as a new categorization (Waite *et al.*, 2013), which is an integration of processes, pedagogies, and elements of previous MOOC types, with the presence of a teacher to facilitate the learning activity (Grünewald *et al.*, 2013).

The intention of discussing xMOOC and cMOOC paradigms as separate categories is to demonstrate the important characteristics and approaches of a range of MOOCs. It could be considered that all MOOCs are Hybrids of different components from these models. Further explanation would be that all MOOCs are Hybrids as far as they offer a mixture of pedagogical practices and are co-created by contributors who bring their own special behaviors, requirements, and activities. MOOCs are unique in that they offer customization to the needs of students, because of their flexibility in being capable of having numerous forms of hybridization (Anders, 2015). It should be noted that this thesis holds the view that although all MOOCs may perhaps mix multiple approaches, methods, and strategies, each will have a slight tilt towards one model or another which is inevitable depending on context.

According to the availability of different forms of hybridization, many scholars have contended for acknowledging further kinds of MOOCs (Beaven *et al.*, 2014). As xMOOCs are mostly seen as content-based and cMOOCs usually considered network-based, Beaven *et al.* (2014) have proposed a framework where content-based, community-based, task-based, and network-based are seen as the main categories of MOOCs. Anders (2015) has explained and classified them as follows: Although all kinds of Hybrid MOOCs provide chances for useful innovation, there are noteworthy differences in their capabilities. Content-based hybrids use high quality instructional materials as the vital constituents of blended learning practices. Community-based Hybrids offer socially-engaging experiences that promote the cultivation of shared values, knowledge, or objectives. Task-based hybrids promote the growth of specific talents or accomplishment of particular tasks. Network-based Hybrids ease the development of self-organized social networks and the expansion of emergent knowledge that remedies situated problems in a given context.

As regards to social-constructivism, which is one of the underpinning theories of Hybrid MOOCs, it can be noted that Hybrid MOOCs have the capacity to foster learning communities that present huge dialogical and social learning practices. In relation to andragogy, Hybrid MOOCs are in the middle in terms of learner autonomy and course structure. The aim of Hybrid MOOCs is to reach an equilibrium between the strong points and weak points of xMOOCs and cMOOCs for certain students, environments, and activities (Anders, 2015).

To sum up, Hybrid MOOCs come with noticeable gains. It is clear that a useful benefit of Hybrid MOOCs is that a balance of different instructional strategies could best help student development along with a range of learning methods. Hybrid MOOCs can deliver helpful settings in which students can get the experience and self-assurance essential to have academic accomplishments in more distributed and open learning environments. Eventually, Hybrid MOOCs can foster diversity in students, aid the progress of variety in learning skills, plus support engagement with emergent learning contexts and networked ones.

Generally speaking, this thesis considers the right balance of different MOOC styles and elements within them as suitable for helping students with diverse backgrounds and needs (as will be further demonstrated in section 2.6).

2.5 Existing MOOC Platforms in Saudi Arabia

The expectation of MOOCs making their way into the education systems of Arabic countries has increasingly become a reality. This was forecasted by Lee, Stewart and Parvez (2014) where they singled out Middle Eastern nations as possible recipients of MOOCs. This thesis needs to offer an induction of MOOCs used or developed by Arabic scholars and students (AMOOCs) in the Kingdom of Saudi Arabia.

2.5.1 The Upsurge of MOOCs in Saudi Arabia

The language of Saudi people is known to be Arabic, but what is not well known is that it is the 7th most employed language online (Sawahel, 2014). The reception of MOOCs in Saudi Arabia has been substantial as well as many other Arabic countries. These countries have initiated platforms in the Arabic language to offer academic courses in a not for profit capacity. Despite many commentators having thought that well established MOOC platforms such as edX and Coursera would prevail in the Arab educational contexts, competition has come from indigenously produced platforms (Macleod *et al.*, 2015). This could be due to language barriers that prohibit many Arabic speaking persons, like Saudi citizens, to participate in these platforms. These local platforms have become famous, not only in Saudi Arabia, but also in other Arabic countries and are explained below.

2.5.2 Rwaq MOOC Platform

Rwaq MOOC platform prides itself in innovativeness and connectivity. It demonstrates how mobile devices can be used to access the courses. The platform has Arabic characters along with some selective English in an integration of technology and local culture. Rwaq is the 1st enterprise of its kind in Arab countries, which started in September 2013 by Saudi entrepreneurs, Sami Al-Hussayen and Fouad Al-Farhan (Al-Omran, 2013). This platform was precisely intended for Arab speakers with no need to translate materials from English into the Arabic language (Macleod *et al.*, 2015). The content is completely in the Arabic language advanced by Arabic lecturers and specialists from a variety of subjects (Curley, 2013).

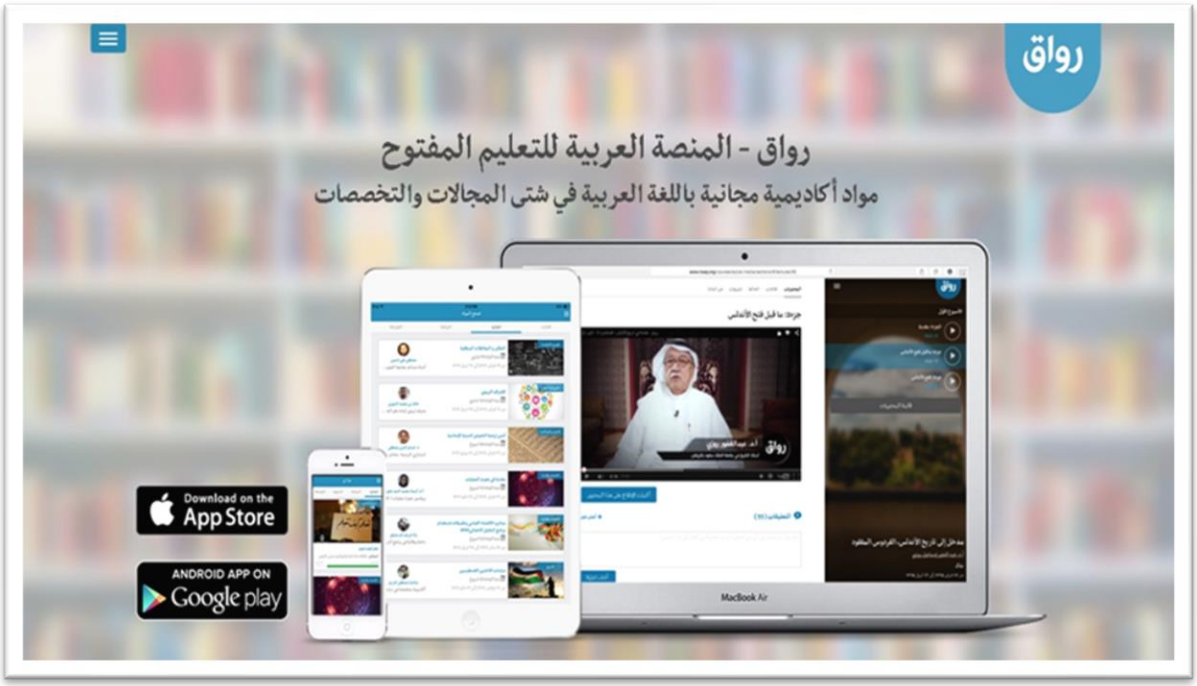

Figure 2: Rwaq Homepage Screenshot

Taken from http://www.rwaq.org/

What is interesting is that Rwaq has fascinated students from non-Arabic nations as well (USA 3.17%). A possible explanation is the usage of the platform by the Arabic diaspora in addition to increasing attractiveness of online education for non-Arabs by means of the Arabic language (Macleod *et al.*, 2015). There are many Rwaq courses distributed in association with competent lecturers from Saudi Arabian institutions of higher education (e.g. Taif University, King Saud University (KSU), King Abdulaziz University) now.

Even though this platform has not yet offered authorized diplomas from academic institutions (to the author's knowledge), it occasionally grants certificates of completion when students finish their courses. Al-Farhan, however, proclaims that discussions have been underway with five universities to have authorized access to the Rwaq platform for the universities' online courses (Al-Omran, 2013).

Rwaq learners comprise job seekers, employees, students, and anybody wishing to improve his/her knowledge. In addition, Rwaq offers diverse courses allowing students to study subjects in economics, management, medicine, engineering, art, education, technology, religion and history. Rwaq tries to mirror subjects in Saudi universities.

On the matter of Rwaq's success, the information presented by Class Central in 2015 (describing highest performing platforms offering MOOCs), indicated Rwaq held 1.83% of the global MOOC production (Shah, 2015). The platform has offered 428 courses since its inauguration. Since that time, the platform has been able to develop many strategic partnerships with globally renowned firms inside or outside Saudi Arabia like Monsha'at (Small and Medium Enterprises General Authority) and Microsoft.

The platform is free of charge. The only kind of MOOC that the platform uses is xMOOC, with its teachers coming from the top academic positions in Saudi higher education (Rwaq, 2019). Rwaq also was at the forefront of modernizing itself by being the 1st platform in Saudi Arabia that has a smartphone App. This makes mobile learning easier and more comfortable with learners. This is a constructive effort by Rwaq administrators as it could make the platform more in demand (Almuhanna, 2018).

2.5.3 Maharah MOOC platform

Maharah was established in 2015 by the founders of Rwaq due to increasing demand, but of a different nature than Rwaq. Courses that were in demand did not have the criteria set by the lecturers working in Rwaq. The initial idea of this platform was that it is less fixed and offers learners more freedom to create their own desired courses in any subject for all and free. The symbol of the platform (Rubik's cube) represents that creativity and freedom.

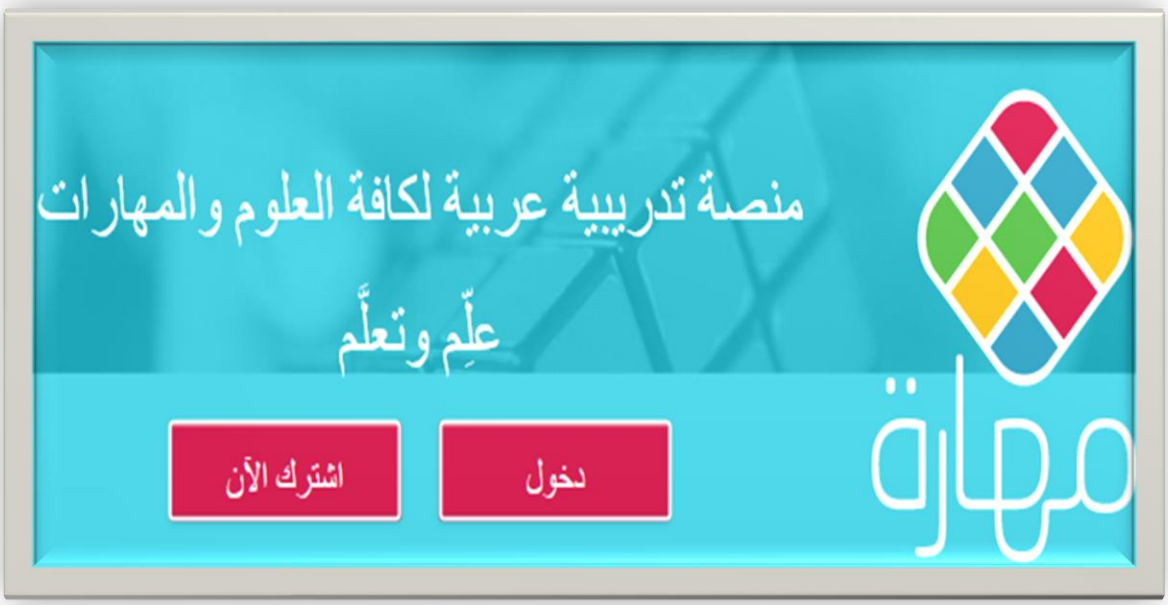

Figure 3: Maharah Homepage Screenshot

Taken from https://www.maharah.net

The fundamental principle of Maharah is like Rwaq in spreading knowledge, but with more creativity and freedom for the learner to have his/her own designed course. This platform, like Rwaq, is also in the Arabic language. The only limitation to the freedom and creativity on Maharah is that there are criteria set by the platform when they customize and design their own imaginative course, these courses do get reviewed by administration before becoming available to all, and they are not all free.

The platform has so far offered 267 courses, but unlike Rwaq, the courses are more vocational training with teachers, not necessarily top academics. On this platform, there is an oddity where attendance is actually monitored and if attendance does not reach a threshold, the completion certificate is not granted. In addition, the free courses do not offer any certificate for completion (Mahara, 2019).

2.5.4 Doroob MOOC Platform

Doroob commenced in 2014 as another Saudi enterprise for offering MOOCs. It was established based on the cooperation of edX (not for profit online platform formed by Harvard and MIT) with the Saudi Ministry of Labor to inaugurate a MOOC portal intended for Saudi Arabia and entirely for Arab learners (Almuhanna, 2018). Doroob is the only platform in Saudi Arabia

which has two forms, in Arabic and English, with the same interface and courses. This actually signifies the position of Arabic and English languages in Saudi society and learning contexts as respected and acknowledged by Doroob. Offering an English version can please Saudi learners who attend international schools in Saudi Arabia, and university students whose courses are in English. The Doroob homepage displays elements of Saudi Arabia's transformation towards modernity while retaining its rich culture.

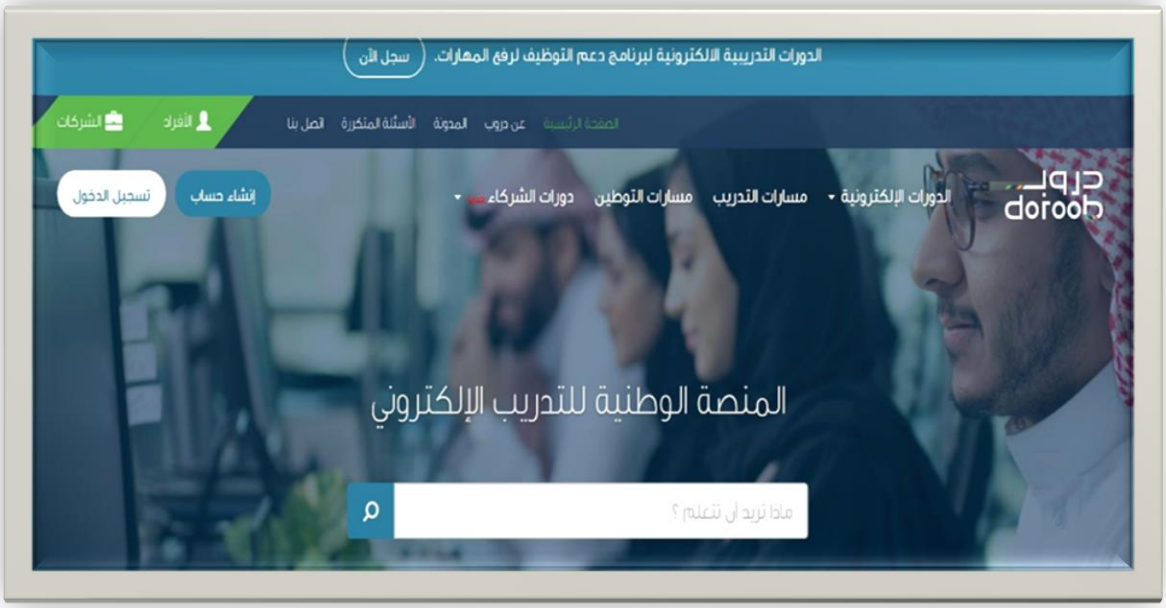

Figure 4: Doroob Homepage Screenshot

Taken from https://www.doroob.sa

Doroob was originally intended to reach out to labor training needs but has evolved thereafter (Hazlett, 2014a) to grant skills to those who are jobless due to a lack of skills, especially living in suburban areas or those with special education needs. That is why it had the full support of the Ministry of Labor (Almuhanna, 2018). The rise in demand for skilled workforce in Saudi Arabia made Doroob essential for the job market (Almuhanna, 2018).

In addition to support from the Ministry of Labor, the Human Resources Development Fund (HRDF) has endorsed it as a way to train people with certificates respected by employers in the market. Saudi job seekers have a unique opportunity to get the training they need and apply to jobs as the basic employment skills Doroob offers is necessary for any job such as English language skills, computer skills, interpersonal skills, accounting skills, and IT. An added benefit of Doroob is the chance for candidates to have Blended learning and on the site training which

creates a short route to employment (Almuhanna, 2018).

The platform has 137 courses in many vocational areas. Doroob has also worked extensively to have reliable partners inside the country as well as outside, such as Saudi Ministries of Education, Health, Finance, Saudi universities, and Edraak (MOOC platform initiated by Queen Rania of Jordan) (Hazlette, 2014b).

It is important to know attending courses is free but if one demands certificate or wants to be examined, a financial contribution is required. The platform employs both cMOOCs and xMOOCs (Doroob, 2019).

2.5.5 Zadi MOOC Platform

Zadi is a platform started in 2015 for theological courses under the direction of Muhammad Al-Munajjid, a religious scholar. The platform's target is to disseminate religious knowledge in an interactive educational format via up-to-date technologies to aid access to dependable theological understanding for people of any demographical characteristic anytime and anywhere free. In addition, the platform wishes to have a transition from a mere instruction giving format to a more interactive one as its learning method. Certain courses in the platform contain assessments and tasks, but this is a route intended for students who aim to obtain certificates of completion.

Figure 5: Zadi Homepage Screenshot

Taken from https://zadi.net

It should be mentioned that the dates on this platform are in Hijri, not Gregorian. The main language is Arabic with some courses in non-Arabic languages which are all translated to Arabic. The course varies in presentation, with certain courses having videos and others just texts. Zadi offers 118 courses in religious studies via xMOOCs and cMOOCs (Zadi, 2019).

2.5.6 A'nab Platform

This platform started in 2016 by Emkan Company aimed at serving the education department of universities. The platform is only in Arabic language and aims to serve Arabic educators. The platform aims to make a qualitative leap in Arabic education, highlight the talents of teachers and those who provide support for the educational process, and create a platform with high standards that will encourage them to develop and share their experience and ideas with the educational community**.** The first program offered to educators was to obtain a certificate in digital teaching which was launched by the Ministry of Education and developed by Emkan Company. This program was designed in line with the Vision 2030 and the national transition plan which includes the transition to digital education to support student and teacher progress. The certificate will be awarded to 150 teachers from the Ministry of Education.

Fouad Al-Farhan, co-founder of the Rwaq platform has stated that his experience in the Rwaq platform showed him that a specialized platform intended for teacher training, developing educational skills, and offering an environment where educational experience might be shared, is required for the advancement of education in Saudi Arabia. He has been exposed to the reality of 80,000 teachers registered in the Rwaq platform aiming to increase their skills. This showed Fouad that teachers have a high demand to improve their skills.

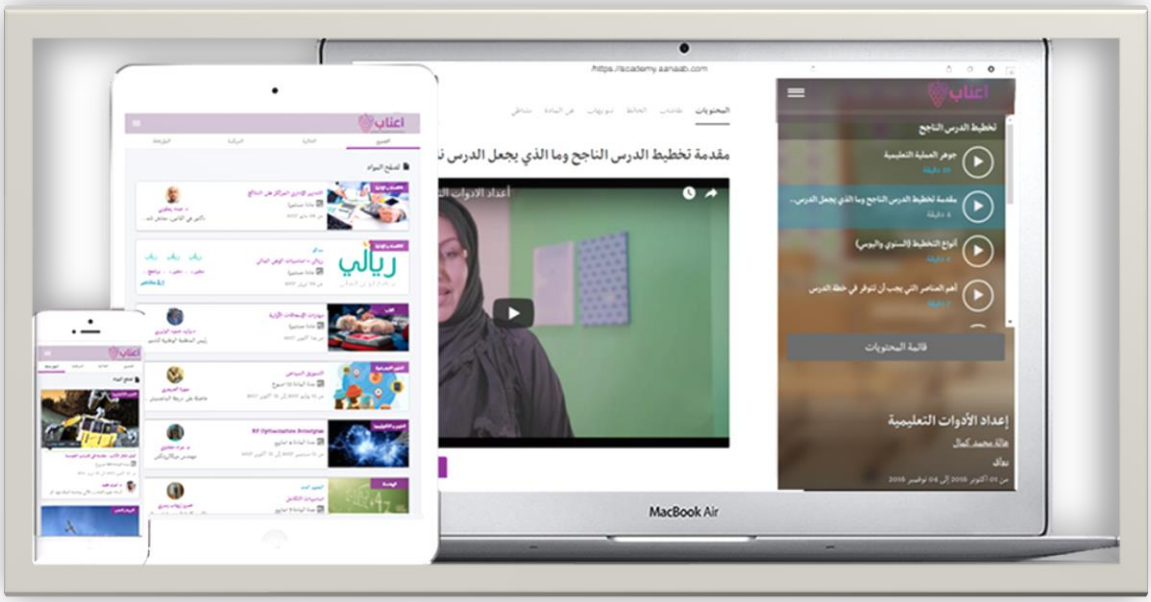

Figure 6: A'nab Homepage Screenshot

Taken from https://www. A'nab.com

A'nab platform's courses are not all free, but grant certificates at the end. This platform uses xMOOCs and provides the chance for educators to register in 30 courses with App availability for smartphones. The platform has strong partners collaborating on educational matters. Some of these partners include Rwaq platform, Dar Al-Hekma University, and Cambridge Assessment International Education (A'nab, 2019).

To sum up, Saudi Arabia has at least 5 MOOC platforms with different characteristics. These 5 are only found in Saudi Arabia and nowhere else in the Arabic world. Table 1 displays the various properties each MOOC platform has.

Table 1: MOOC platforms in Saudi Arabia

Name of Platform	Date	Types	N of C	Target learners	Granting certificate	Financial costs	Language	App availability
Rwaq	2013	xMOOCs	428	Learners in the Arabic world	Yes	Free	Arabic	Yes
Maharah	2015	xMOOCs	241	Vocational learners in the Arabic world	Yes	Profit/non-profit	Arabic	No
Doroob	2014	xMOOCs/ cMOOCs	137	Labour in Saudi Arabia	Yes	Profit/non-profit	Arabic/English	No
Zadi	2015	xMOOCs/ cMOOCs	118	Students of Islamic studies	Yes	Profit/non-profit	Main language is Arabic with options in other languages which are all translated into Arabic	No
A'nab	2016	xMOOCs	30	Teachers and educators in Arabic world	Yes	Profit/non-profit	Arabic	Yes

As such, the characteristics of various MOOC platforms in Saudi Arabia vary in terms of their creation date, types, number of courses offered, target learners, whether they offer certificates upon completion of the course, the financial status (i.e. free or non-profit), the language of the user interface, and accessibility on smartphones.

According to Table 1, seven points can be made in relation to existing MOOC platforms in Saudi Arabia. First, the most mobile and easily accessible platforms are Rwaq and A'nab as they are offered in Apps. Second, all platforms are compatible with xMOOCs and the only ones that also offer cMOOC capability are Doroob and Zadi. Third, the highest number of courses offered is by Rwaq and lowest by A'nab. Fourth, all platforms have a specified target audience except Rwaq which is the most open platform for any type of learner in the Arabic world. Fifth, except Rwaq, which is an entirely free platform granting certificates to everyone, the rest are profit/non-profit platforms but only grant certificates to only paying learners. Sixth, the main language for all platforms is Arabic except Doroob, which offers courses in both English and Arabic. Zadi also has certain courses in non-Arabic languages, but these are all translated into Arabic as well. Finally, all MOOC platforms within Saudi Arabia have been initiated in or after 2013. This is an interesting point regarding Saudi Arabia's adoption of MOOCs, as they started in 2008 in the world, and Saudi Arabia caught up quite quickly comparing to other Arab countries.

2.6 Influential Factors for Academic Achievement in MOOCs

There are many dynamics which may influence student academic achievement, such as learner demographics, educational context, and technological issues. These influences must be considered to understand why and how each element could affect academic achievement. This is necessary in order to contemplate the bigger picture while students study with MOOCs, as mentioned in the literature regarding MOOCs.

2.6.1 Learner Demographics

Learner demographics as a factor influencing students' academic achievement while studying in MOOCs is categorised in the following sub-categories: Age, Accreditation and Motivation, Educational Background/Relevant Work Experience, and Language.

Age

Age has been seen as a strong influence on academic achievement while students study in MOOCs, according to the literature. Although the type of influence has not been consistent, it is worthy of consideration. As an example, according to Woodgate *et al.* (2015), younger learners who were under 25 years of age, were less successful in academic achievement compared with older learners. In contrast, Magen-Nagar and Cohen (2017) conducted studies in the high schools of Israel, discovering that younger learners are actually more robust in using MOOCs for their education, passing with high percentages. Najafi, Evans and Federico (2014) agreed while doing the same study but on secondary schools in Canada. At the same time, Breslow *et al.* (2013, p. 20) commented regarding this issue, "*we found no relationship between age and achievement or between gender and achievement*", which contradicts the three previous studies. Overall, age has been an influential factor but not consistent in how it influences.

Language

Language has been seen to be one of the barriers impacting the improvement of students' academic achievement in MOOCs, especially learners who are non-native English speakers (Fini, 2009; Engle, Mankoff and Carbrey, 2015). A further notice of this was recorded when students who studied with MOOCs in their native tongue had higher academic achievements (Freihat and Zamil, 2014; Kursun, 2016). An important aspect of the latter two studies was the utilization of a MOOC like setting instead of the actual real MOOC. Kursun (2016) was

compelled to use a MOOC like setting for the reason that credits earned through MOOCs have not still gained validity in Turkish academic regulations, while Freihat and Zamil (2014) used customized MOOCs developed solely for the purpose of the class with possible regards to local culture.

Educational Background/Relevant Work Experience

Prior educational background has proven to be a major factor in the success of students in higher education using MOOCs. According to Bruff *et al.* (2013), Najafi, Evans and Federico (2014), and Breslow *et al.* (2013), having knowledge of the subject being studied by MOOCs has been a boost to grades. On the other hand, Engle, Mankoff and Carbrey (2015) have observed mixed results where even students with no or little background knowledge have been able to pass. Surprisingly, a positive correlation, similar to prior academic background, was observed when students who possessed related work experience in their CV obtained superior academic achievements through MOOCs. For instance, for the Human Physiology discipline, the number of students who took all the exams and passed were 345. The success rate of this course was divided into six different groups of students from different backgrounds as follows: Humanities 13.9 %, Social Sciences 7.5%, Technical 14.5 %, Natural Sciences 25.8 %, Health Sciences 31.0% and Professional 7.2 % (Engle, Mankoff and Carbrey, 2015).

Accreditation and Motivation

Other factors which had a substantial effect on the academic achievement of students in higher education have been observed to be the granting of certificates, courses being accredited, modules holding credits, motivation of students, and procrastination, all interlinked. Woodgate *et al.* (2015), Kursun (2016), and Fini (2009) all agree that courses done via MOOCs in higher education have produced better results for the students' success when they were accredited or held credits towards their final mark. Similar accounts have been held by Greene, Oswald and Pomerantz (2015) and Fini (2009), stating that when MOOCs offer certificates to students, there is a higher likelihood of success. Contrarily, Diver and Martinez (2015) did not find a strong positive correlation between certificates and academic success, although they do claim that their research in this area is inconclusive and requires more work. Engle, Mankoff and Carbrey, 2015), Fini (2009), and Magen-Nagar and Cohen (2017) have reached a consensus that when motivation exists within students, their academic achievements via MOOCs are higher. Diver and Martinez (2015) detected a comparable relationship, not entirely unrelated to motivation,

regarding procrastination of students causing lower academic performance. This was observed when participating in MOOC quizzes was postponed by students lacking punctuality, and resulted in lower marks.

Reflection

MOOCs, if used appropriately and in the right context, can be beneficial to all ages. The findings of Breslow *et al.* (2013) are not conclusive or applicable in the Saudi context for the Majmaah University. The reason is that they found no relationship between age and MOOC success, and also, their study focused on open resource examinations. Studies of Magen-Nagar and Cohen (2017) and Najafi, Evans and Federico (2014) can be generalized to the wider users of MOOCs in all ages, although they focused on youth only, and found that youth did well in their education with MOOCs. Woodgate *et al.* (2015) saw that MOOCs only benefit more mature learners which contradicts prior studies.

All scholars view language as a barrier or facilitator in MOOC success, meaning that if one is native, he/she has a higher chance of success, which is a natural occurrence. Therefore, foreign participants who register with MOOCs and are of beginner, lower intermediate, higher intermediate, and advanced level of English or speak the native tongue, have varied challenges/advantages for succeeding in MOOCs.

Prior academic knowledge is linked to success in MOOCs, as Bruff *et al.* (2013), Najafi, Evans and Federico (2014), and Breslow *et al.* (2013) indicate no matter what format a student attends an exam (digital or traditional), the knowledge to fill the answers is crucial. The study of Engle, Mankoff and Carbrey (2015) however, claims a mixed relationship between academic knowledge and MOOC success not in line with the three aforementioned studies.

When students feel that their course has credits and they will obtain a certificate for their efforts, their motivation could increase and their procrastination in doing the exams possibly decreases because they are worried for their future as most scholars such as Woodgate *et al.* (2015), Kursun (2016), Fini (2009), and Greene, Oswald and Pomerantz (2015) portray. Only Diver and Martinez (2015) did not find a strong relationship between academic successes in MOOCs with these elements which contradicts the aforementioned four studies.

2.6.2 Implementation in the Saudi Educational Context

On the question of how and whether the elements age, language, prior academic background, or receiving certificates, would impact students in the Saudi context towards their educational accomplishments, it is important to consider the educational culture in the country. There is a possibility that youth will benefit better from Hybrid MOOCs in Saudi Arabia since they are more up to date with digital systems compared to older students in Saudi Arabia who are more used to traditional face to face teaching (Miliany, 2014). This project will experiment with youth. Unfortunately, language might not be a strong point among Saudi students since there is no guarantee that everyone will speak English. That is why only if the Hybrid MOOCs are in Arabic, they can have an impact on educational accomplishment. In this project, the Hybrid MOOC experimented will be in Arabic. As far as having prior academic background, all students in the experiment will come from various disciplines at the same level (1st semester of UG courses in the Faculty of Education) but within the Faculty of Education, doing the module 'Educational Technology and Communication Skills'. Exposure to e-learning, distance learning, digital learning, and Open Education Resources may help students to acquaint better with Hybrid MOOCs of course. Moreover, since the module 'Educational Technology and Communication Skills', which the Hybrid MOOC will be experimented on, has 100 credits and 60 credits of that is based on the final exam (%40 based on participation, engagement in classroom, and attendance), there would be motivation among students to take it seriously as shown in previous literature (Fini, 2009; Woodgate *et al.*, 2015; Kursun, 2016).

2.6.3 Technology and Limitations

Certain digital issues exist within MOOC literature where there has been considerable debate. These matters are not only a topic of discussion, but of controversy in terms of them being barriers or potential benefits to MOOC learning. They are as follows: student's IT skills, user-friendly nature of MOOC tools, student participation in video lectures, and participation in online discussion forums.

The first factor which has seen to be a potential benefit or liability is a student's IT skills which might not be relevant as far as academic success is concerned in general, but when it comes to MOOCs, there has been a negative correlation between lack of IT skills and academic success (Fini, 2009). Woodgate *et al.* (2015) seconds Fini (2009) in that students who were more comfortable in using the online tools of MOOCs, achieved better. On the technical front, Fini

(2009) has detected a factor not noticed by many in the low success rate of higher education students learning by MOOCs, being technical malfunctions which deserves attention.

A second factor under consideration by scholars which can inhibit or facilitate MOOC learning is what Al-Atabi and DeBoer (2014) found as the user-friendly nature of MOOC tools, having had a significant increase in learner achievement. On top of that, Diver and Martinez (2015) noted a 3rd factor, stating that student participation in video lectures went a long way in academic success and vice versa. Furthermore, Bruff *et al.* (2013) confirmed this viewpoint by observing the success of students who were involved in MOOC video lectures. Additionally, Woodgate *et al.* (2015) observed similar trends in students who exploited the video lectures to their benefit in learning by MOOCs.

Engle, Mankoff and Carbrey (2015), Najafi, Evans and Federico (2014), and Woodgate *et al.* (2015), all found a fourth factor that could inhibit or accommodate MOOC learning which was a solid relation between participation in online discussion forums and positive academic achievement. Diver and Martinez (2015) and Al-Atabi and DeBoer (2014) found the same results but they especially emphasized on students reading forums for feedback and collaborative learning. Similarly, Bruff *et al.* (2013) who used qualitative methodology and a small sample of 10 students, discovered a negative correlation between a lack of involvement in online forums and academic achievement, although due to their small sample size and qualitative methods, students would naturally collaborate person to person on campus, compared to a large sample using quantitative methods where students are compelled to discuss everything online because face to face connections are not feasible.

Overall, the following 4 factors were seen to be a double-edged sword in terms of being positive or negative in MOOC learning: student's IT skills, user-friendly nature of MOOC tools, student participation in video lectures, and participation in online discussion forums. Although the aforementioned scholarship confirms this, more research has to be done in order to verify whether each factor necessarily has a positive/negative impact on MOOC learning as other forces can play a part as well. For example, a learner with good IT skills might not necessarily perform well with MOOCs as he simply prefers learning the traditional face to face manner, even though he possesses good computer skills.

Consideration of IT/Technology Issues when Implementing in Saudi contexts

As for the Saudi context, the lack of IT skills, digital awareness, technological proficiency, or general computer skills is expected to be much less of a hurdle since according to Brahimi and Sarirete (2015) Saudi youth actually engage highly with social networks. Although engagement with Saudi social networks does not mean students will have the relevant skills, awareness and proficiency for MOOCs, it does say much about the digital savviness of Saudi youth. Brahimi and Sarirete (2015) surveyed 310 high school students right before attending their undergraduate courses at university where 68% of students had a high emphasis on using YouTube for studies, 63% exclaimed the usage of WhatsApp to be beneficial for sharing thoughts, %40 used Twitter for presenting ideas, 50% have experienced using their school website and its services for their curriculum, and 35% had extensive use of Askfm (a social network forum which students can ask enquiries and receive answers from their peers).

Moreover, interestingly, Mansoor (2002) somewhat concurs with this growing interest of Saudi youth in becoming technologically savvy. He surveyed 303 medical science students at King Abdul Aziz University. 6.3% said they had no awareness of computer skills while 93.7% claimed awareness. For the purpose of using computers, 62.5% claimed they use it for personal reasons, 15% claimed they use it for professional reasons, and 21.9% said they use it for academic reasons.

Furthermore, research done at the College of Education in King Saud University by Alfahad (2012) surveyed 161 female students which stated the following: 61.5% of the contributors used electronic tools in their study activities, 65.8% utilized their IT skills for blogging, and 88.6% of the participants were connecting to one another through email and applications which allow instant messaging.

Within the Saudi context, the technological proficiency of Saudi students might potentially impact the academic achievement of students positively (Brahimi and Sarirete, 2015; Fini, 2009; Woodgate *et al.*, 2015). Since the Hybrid MOOC test will be done on Rwaq platform and they will use their student credentials to access it, it is important that the platform is technically sound (which it is) as this will help student achievement. Although the Hybrid MOOC used in the experiment has user-friendly interface, this could be new to students and (it probably is) therefore, it is necessary to give induction to using it. The experiment will offer this induction but still, the lack of familiarity with Hybrid MOOCs might as well reduce marks. Fortunately,

Saudi students are very keen to learn from videos and they are socially active, so they can use the forums by smart phones or tablets and ask academic questions from teachers or peers.

2.7 Research on Academic Achievement Attained in 'MOOCs Only', 'Traditional Learning', and 'Blended/Hybrid MOOCs'

A number of scientists mentioned, with others not yet noted, have compared and contrasted situations and impacts of academic achievement when students are exposed to MOOC only classes, MOOCs with teacher (Blended/Hybrid/Integrated MOOCs), and traditional classes (face to face classes/conventional classes).

Freihat and Zamil (2014) compared Blended MOOCs to traditional learning in terms of their contribution to academic achievement. The results showed that the Blended MOOCs were more contributive towards academic achievement. This study was done in Saudi Arabia and on female students only. Bralić and Divjak (2018) also conducted a study at the University of Zagreb in Croatia investigating the differences between students of the 'Discrete Mathematics with Graph Theory' course at the Faculty of Organization and Informatics who had the option of choosing the Blended MOOCs option or traditional learning. These students were doing a Master's degree and between 2014 and 2017, 273 attended the course which 43 chose the Blended option. The study span 3 years and was done on full-time and part-time students. It is noteworthy to point out that part-time students chose the Blended option of the course more than full-time students due to difficulties in participating in the traditional classes. The results came out similar to Freihat and Zamil (2014) in Saudi Arabia that the students in the Blended MOOCs have better outcomes compared to the traditional classes.

Relevant to the above two studies is the one done by Ghadiri *et al*. (2013) at San Jose State University in California, USA which achieved a drastic improvement in marks when converting the traditional classes of the undergraduate 'Circuit Theory Course'. The results were a staggering improvement from 59% pass rate to 91% after the Blended MOOCs were deployed in 2012 comparing to the previous year where traditional class were used. Surprisingly, Griffiths *et al.* (2015) also conducted a study focusing on the comparison between Blended MOOCs and traditional learning, finding no significant difference in academic achievement. 7 campuses participated with 855 students, 19 instructors, and 14 faculty members who were involved. The methodology was a mixed-method and 10 case studies investigated, all pointing to a credible study.

Najafi, Evans and Federico (2014) conducted a study in Canada where they compared the effects of MOOCs only with Hybrid MOOCs, on academic achievement. They learned that MOOCs only students had lower marks than the Integrated MOOCs.

Magen-Nagar and Cohen (2017) investigated the effects of Blended MOOCs in Israel and found that it was beneficial for academic performance. This study demonstrated that when a diversity of learning strategies through Blended MOOCs is used, there will be a better effect. On the other hand, Bruff *et al.* (2013) examined the effects of Hybrid MOOCs as well, finding that if online and in-class material are not in alignment, there could be negative effects on academic performance. During this study, students felt that Hybrid MOOCs are more helpful than other methods used alone, but only if there is cohesion between the online and face to face materials. They also found discrepancies with the course materials taught by the teacher with the ones taught on MOOC videos. In addition, students concluded that they did not benefit from online communications in the forums, preferring to study via MOOCs alone, and afterwards meet face to face with teacher. A shortcoming of the study was that it only had 10 student participants and strength was Stanford University conducted the study which is internationally reputable.

Another matter is the study of Diver and Martinez (2015) in Virginia, USA investigating MOOCs only effects on academic success in higher education. They found that if procrastination is involved, students score lower. The strengths of this study were that two MOOCs were used and large student samples participated. The weakness of the study was that the quizzes posted online could be taken many times by the pupils and the MOOCs would take the maximum score. Another limitation was that the two MOOCs used in the research were the popular ones in the university, so the results could be different if non-popular MOOCs were employed. Greene, Oswald and Pomerantz (2015) investigated MOOCs only learning as well. They noticed that MOOCs only education benefits academic success more if students have older age, more work experience, higher degrees, and more educational experience. Although the strength of the study was its large sample from diverse countries, due to many participants lacking in the mentioned characteristics, the dropout rate was high.

MOOCs only, Traditional learning, and Hybrid MOOCs were compared and contrasted with no concluding and decisive results in terms of superiority in the above studies, as findings proved contradictory but with an inclination towards Hybrid MOOCs having the most advantage for academic success, followed by MOOCs only, and then traditional classes.

Reflection

To recount, implementation of different MOOCs were contemplated in various contexts and compared with alternatives: Comparison between Blended MOOCs and traditional learning (4 studies), Comparison between Blended MOOCs and MOOCs only (1 study), inspection of Hybrid MOOCs (2 studies), and scrutinization of MOOCs only (2 studies) were conducted.

Freihat and Zamil (2014) found that Blended MOOCs were superior to conventional ones. However, Griffiths *et al*. (2015) found no huge difference between Blended MOOCs and traditional learning. Moreover, Najafi, Evans and Federico (2014) established that Blended MOOCs are superior to MOOCs only for academic success. Magen-Nagar and Cohen (2017) claimed that Blended MOOCs were positive for performance while Bruff *et al.* (2013) differed, stating Blended MOOCs are positive only if there is a correlation between online and face to face materials.

Other scholars went into more detail in their description, as Diver and Martinez (2015) claimed that MOOCs only courses are productive if there is no procrastination whilst Greene, Oswald and Pomerantz (2015) stated MOOCs only work better if students have older age, more work experience, higher degrees, and more educational experience.

Overall, it seems that Blended or Hybrid MOOCs have certain advantages when it comes to academic success. In this format of study, students are given course materials prior to class which allows students to be prepared and communicate with peers before the class begins. In addition, before/after/during the class, students can also discuss problems with peers and teachers to enhance their understanding. Through feedback and open channels of communication via the MOOCs' forums, the teacher who has access to student profiles, knows his/her flaws and can correct them before the class begins or offer guidance prior to continuation of further study. In this type of learning, there are more sources of information which range from diverse online sources in MOOCs to teacher guidance and student feedback. Integrated MOOCs also have the advantage of being more professional since only students registered with the class can participate, while MOOCs only courses are open to non-professional or academic persons (Li *et al.*, 2014; Najafi, Evans and Federico, 2014; Muhua and Yan, 2015).

A downfall of traditional learning is that the teacher has to control many students at the same time with different learning curves, while in the Blended MOOCs, the teacher can customize this management, fixing their flaws individually, and attend to each student based on his/her

unique qualities. An uncertainty affecting success in MOOCs only learning is that the student does not always have access to a live teacher on the forums, depending on which type of MOOCs he/she is using (Fidalgo-Blanco, Sein-Echaluce and García-Peñalvo, 2015; Yousef *et al.*, 2015b; Gamage *et al.*, 2018). What is more, in Blended MOOCs, students almost always communicate face to face, but in MOOCs only, there is no compulsion to communicate face to face which makes learning tedious and boring (Fidalgo-Blanco, Sein-Echaluce and García-Peñalvo, 2015; Yousef *et al.*, 2015b; Gamage *et al.*, 2018). In Blended MOOCs, students get the benefit of face to face contact with a teacher while in MOOCs only, they do not. An added benefit of Blended MOOCs is that their design is especially customized to that specific class with its requirements (curriculum) but in the MOOCs only, there is no such customization. In traditional learning, the teachers are limited in accessing diverse learning tools while the MOOCs only have no face to face contact with the teacher, but Blended MOOCs have the best of both worlds and less of their limitations.

As for the Saudi context, there is a high probability that Blended MOOCs would be better received since students are getting more acquainted with digital systems daily and are very technology savvy (Mansoor, 2002). On the other hand, the educational culture is inclined towards the traditional face to face learning (Miliany, 2014). Blended MOOCs allow for this transition from the old to the new. There are studies to back this up, demonstrating e-learning in the Saudi context is well received by teachers (AL-shammari, 2016) and students (AL gahtani, 2011) alike.

2.8 Student Experience while Studying via Hybrid/Blended MOOCs

2.8.1 Flexibility in Using MOOCs

Using MOOCs in higher education has given the ability to target various types of groups with more flexibility in or outside of campus. Although students have loved the flexibility of MOOCs as they can study any time or any place, they do refer to the flexibility being problematic in terms of MOOCs' students receiving less one-to-one support. They point that because of the existence of MOOCs, they were able to do courses which otherwise could not be done due to family obligations, jobs, or living far from university, but acknowledge that some on-campus courses are more helpful. The unscheduled way MOOCs can be used is appealing to students who espouse freedom and flexibility, but they will have to organize themselves more as there is less regulation from the university and supervision from teacher

(Bruff *et al.*, 2013; Ghadiri *et al.*, 2013; Griffiths *et al.*, 2015; Yousef, 2015ab; Wild and Gimbrère, 2017).

Autonomy in Hybrid MOOCs improves flexibility as learners have more say in what, when, where, why, who students decide to learn from or how to engage with materials. This autonomy and flexibility opposed to rigidity and strict oversight has led to motivation in students to follow through as they could join in fully or partially. The only problematic issue with flexibility was when students needed some assistance from a teacher, or the flexibility is too much leading to chaos and disorder, where some structure can be beneficial (Mackness, Mak and Williams, 2010).

Some scholars have pointed to flexibility in materials and course content, their delivery, and types of access. The possibility for students to move course materials from inconvenient weeks to the weeks they are comfortable studying them, is a positive (McGuire, Raaper and Nikolova, 2016). MOOCs have been instrumental in moving the locus of control away from educational institutions to students. In this way, students have more freedom of choice in their learning materials and more choice in the form of the learning offered. This flexibility made education more student-centered than traditional institutionalized learning as learners can control their study more (Saadatmand and Kumpulainen, 2013).

xMOOCs afford flexible access to a huge variety of learning resources (Yousef *et al.*, 2015ab). The diversity of accessible learning materials in MOOCs contributes to their flexibility and this flexibility can become a major success factor of the phenomenon (Mackness, Mak and Williams., 2010). Students can access lectures, tasks, activities, plus select from a variety of learning materials they feel suitable for them (Yousef *et al.*, 2015b). Flexibility in MOOCs has come in ways for content delivery as it is delivered in various multimedia formats including audio, video, text, images…It is also delivered via smartphones, tablets, laptops, and desktops, making it easy for students (Robinson, 2016).

cMOOCs support flexibility and openness where students can define their own aims, project their own outlook, and cooperate in knowledge generation, distribution, and sharing, while Blended MOOCs offer students the possibility to attend video-conferences in different times based on their availability. Furthermore, video clips of the video conferences are placed online for students to play, repeat, change sound and video features for comfort, slow down and fast forward, stop or pause (Yousef, 2015).

Flexibility in the way one can use his/her time on MOOCs without much pressure on course content as opposed to traditional learning, is impressive which teachers have praised (Griffiths *et al.*, 2015).

2.8.2 Self-Regulated Learning

One of the learning aspects of Massive open online courses (MOOCs) is that they inevitably necessitate students to self-regulate their learning process, deciding how much and at what time they engage with the course materials (Hood, Littlejohn and Milligan, 2015). Those types of students who are better at planning, managing, and controlling their learning process (Self-Regulated Learning-SRL) can outdo students who do not possess these qualities when studying in MOOCs (which have low levels of teacher support and oversight). Learning contexts such as MOOCs require students to be adept in Self-Regulated Learning (SRL) to get the most (Kizilcec, Pérez-Sanagustín and Maldonado, 2017). Students have also mentioned that the major advantage of MOOCs compared with traditional learning is the higher accessibility, flexibility, autonomy, and customization which promote SRL (Bruff *et al.*, 2013). Now that MOOCs have minimum direct contact between students and teachers, the pressure is built upon students to manage and draw their own learning journey. For this reason, students must have SRL skills to monitor and adjust their activities corresponding to the MOOC learning context (Zimmerman, 2000). Students have freedom of choice but must make that choice wisely in how, why, when, where, or what materials they occupy themselves with. There is no teacher like before, directing them (Milligan and Littlejohn, 2014).

There is research done to suggest that students who are generally better in SLR, perform higher in online learning contexts such as MOOCs (Bernacki, Aguilar and Byrnes, 2011). The contribution that SRL techniques have when learning under MOOCs has been related to a number of elements such as behavioral, affective, and cognitive issues (Hood, Littlejohn and Milligan, 2015). Other research suggests that the background learners come from and their roles in that particular setting have a lot to do with their SRL ability when in MOOCs (Hood, Littlejohn and Milligan, 2015).

When learning under MOOCs, how one views the context is very influential on his/her ability to self-regulate, as SRL is not a static entity (Zimmerman, 2000). It has been shown that students with high SRL abilities and those with low SRL abilities have conceived the educational settings of MOOCs differently. People who saw the MOOCs' environments as a

place to obtain a certification and saw the endeavor as a formal classroom activity, had less SRL, while those who did not care much for certificates and only participated in MOOCs to improve their skills for a given job, had higher SRL (Hood, Littlejohn and Milligan, 2015).

2.8.3 Instructional Design

Conceptual roots of Instructional Design stem from early 1940s when psychologists and educators were tasked with forming training manuals for military reasons (Reiser, 2001) One of the most recognized typologies is referred as the ADDIE explicated by Molenda (2003, p. 41)

> "*What is emerging in the recent literature is a tendency to accept the ADDIE term as an umbrella term, and then to go on to elaborate more fully fleshed-out models and narrative descriptions*."

ADDIE is an abbreviation for a model containing 5 steps. This model has an ordered structure comprising Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model has been able to generalize itself as not only a model in instructional design, but also the general model where other Instructional Design models emerge from (Almomen *et al*., 2016).

Following ADDIE, Henich *et al.* (1999) proposed the ASSURE model in the late 1990s which can be referred to as the, "*media-oriented evolution of the ADDIE models*" (Botturi, 2003, p.21), involving six components of 'analyzing students', 'stating aims', 'selecting methods, materials, and media', 'utilizing materials and media', 'requiring student involvement', and 'evaluating' (Henich *et al.*, 1999).

Robert Gagné initiated a model for Instructional Design in his book 'Conditions of Learning' in the 1960s. Gagné configured nine elements in his Instructional Design (Reiser, 2001): obtaining attention, notifying students of aims, encouraging recollection of previous knowledge, presenting the content, offering guidance, drawing out performance, giving feedback, judging performance, and improving retention and transfer (Gagné and Medsker, 1996).

During the late 1970s, Walter Dick and Lou Carey crafted a new Instructional Design in 'The Systematic Design of Instruction'(Reiser, 2001; Dick, Carey and Carey , 2009). In this model, instruction is regarded as a system and has to be considered in its interdependence to the content, context, and the learning itself. The model has 10 components: weigh needs to recognize

targets, perform instructional analysis, examine students and contexts, document performance aims, create assessment tools, create instructional approach, create and choose instructional materials, design and implement a formative appraisal of instruction, review instruction, design and implement summative appraisal (Dick, Carey and Carey , 2009). Smith and Ragan (1999) however, offer their own views on Instructional Design where they associate it with three elements, not 10, contrary to the prior model: analysis, development of a strategy, and an evaluation.

The Morrison, Kemp and Ross Model (MKR) concentrates on the student as the focal point of the Instructional Design, offering 9 elements in forming it: instructional difficulties, student characteristics, tasks analysis, instructional aims, content sequencing, instructional plans, crafting the message, forming the instruction, and appraisal tools. The founders of this model affirm, "*Instructional design focuses on the individual and how to improve individual performance rather than on what content to cover*" (Morrison *et al.*, 2010, p. 12). It should be noted that the MKR Instructional Design concentrates on students and their individual performance while Gagne's model is a behaviorist one focusing on outcomes (Höfler and Kopp, 2014).

As stated by Brouns *et al.* (2014), many MOOCs are established and applied without any discussion with knowledgeable designers of online learning environments. Considering (Merrill, 2013) principles of instruction as a benchmark, Margaryan, Bianco and Littlejohn (2015) discovered that most of the 76 MOOCs studied lacked even rudimentary Instructional Design principles. Although Instructional Design is a vital component for any kind of course development, designing a MOOC poses exceptional difficulties. For instance, Instructional Design is especially challenging when figuring out how to involve huge numbers of dissimilar students with different learning aims (Adair *et al.*, 2014). Therefore, the idea of personal learning goals is a significant point to consider for the Instructional Design of a MOOC (Watson *et al.*, 2016).

Defects in Instructional Design have led to high drop-out in learners taking part in MOOCs. That is why MOOCs' Instructional Designs are of high importance. Students have reported their understandings of what they expected in MOOCs' Instructional Designs which came from their experiences studying with it. Critical elements were voiced by students as follows: aims being plainly explained at the commencement of every class was seen helpful; having adequate support for cooperative learning between students was considered accommodating; the lack of

coaching and scaffolding had made student experiences difficult; at times, students felt that a concise course outline including modules, subjects, and time schedule was missing which was irritating; if students did not have a chance to use self-organization, their study experience deteriorated; when learners were not provided with their progress in the course in visual graphs, they became demotivated; videos conveyed too many topics for the students to grasp. They would prefer each video focus on three or fewer goals; students had no authority in establishing course aims (they only have to follow) which led to them feeling neglected; when the background of students was not respected and their individualities not considered, their learning experience became negative (Yousef and Wosnitza, 2014; Yousef, 2015).

2.8.4 Assessment

One of the most noticeable pedagogical advantages of MOOCs is thought to be its assessments (Glance, Forsey and Riley, 2013). They are normally employed to check how much knowledge was learned and whether a certificate can be granted. MOOCs' assessments can be in the form of peer assessments, self-assessments (students evaluating their own work against a given rubric), quizzes (automated multiple choice), final exams (automated multiple choice), or development of plans that offer an indication of how much learning was achieved. Relating to MOOCs' assessments, Sandeen (2013, p. 11) contends that:

> "*assessment is less about compliance than about supporting student learning outcomes and ultimately student success and attainment—directly in the center as it should be*".

Due to the huge number of students involved in MOOCs, it is not plausible for tutors to check progress with each student and mark every single assignment. That is why MOOCs' assessments provide for appraising a huge number of students via peer-assessed tests or automated multiple-choice quizzes (Daradoumis *et al.*, 2013; Glance, Forsey and Riley, 2013; Admiraal, Huisman and Pill, 2015) .

The chief worry on employing peer-assessments in MOOCs is the reliability of marks in comparison to the traditional teacher grading (Glance, Forsey and Riley, 2013). Fortunately, peer-assessments in MOOC platforms have been positive as Glance, Forsey and Riley (2013) reveal that information coming from the results of a peer-assessed exam was highly in alignment with the results from the teacher marked ones. Piech *et al.* (2013) second this idea and report that overall, peer assessments and teacher assessments haven't been very different

to cause worry. This does not mean that peer assessments in MOOCs have reached the desirable level of accuracy as both aforementioned authors state further advancement is needed since there have been cases of slight discrepancy between tutor corrected exams and peer corrected ones. Actually, this worry is shared by others, as they consider automatic assessments and peer assessments not good enough, even if done accurately, since they do not offer learners detailed feedback and explanations to their development in the subject (Daradoumis *et al.*, 2013; Laverde *et al.*, 2015). The problem of marking in MOOCs could have been overlooked before, but now that they have become so widespread, dependable marking has become vital as is the need for feedback and follow up (Piech *et al.*, 2013). In many types of courses, live feedback is necessary and automatic ones are not adequate. Perhaps artificial intelligence can play a role here, or put simply, teachers have to contribute more, merging their extra involvement with the MOOCs. An additional concern is security as students could cheat in exams because of weak authentication processes (Daradoumis *et al.*, 2013). Plagiarism is another worry in MOOC assessments where the MOOC designers have to consider an application to check writings (Almuhanna, 2018).

Due to comfort with automated assessments, students prefer it over peer assessments, and prefer peer assessments over self-assessments which is not favoured at all. Students report that if there were more guidance, peer-assessments would be more effective, although the idea of another person with no expertise marking a work is not seen in positive light and is also considered as an extra hassle for students. Some students suggested a mix of various assessment types as they each have a purpose. MOOC assessments were seen by students as adding motivation towards learning on the platform (Papathoma *et al.*, 2015). All kinds of assessments did have some use in their own way, even if pupils did not favour them. Students felt that automated assessments helped test student memory and student knowledge, offering them a chance to see right and wrong answers, strengthening what they learned and offering a feeling of achievement. Furthermore, peer assessments were seen to be showing other points of view and ensuring concepts are conveyed powerfully. The rewards of self-assessments were to improve learning experience and educational progress as students were required to evaluate their own work, matching it against criteria given to them (Admiraal, Huisman and Pill, 2015).

One point to remember is that students come from different educational backgrounds, which impacts how they react to MOOC assessments. These students have different expectations of assessments and with MOOCs becoming global now, assessments must consider cultural differences. This will lead to customizing assessments to each student's requirements to enhance his/her learning experience (Papathoma *et al.*, 2015).

Overall, gaining lessons from students' experiences regarding MOOC assessments can offer insightful feedback. Students' experiences were affected by MOOC assessments in the following ways: When assessments did not offer detailed feedback to students after they saw the videos, their engagement levels diminished. Students also felt that diverse forms of questioning must be used in MOOCs' assessments to enhance their learning experiences such as true/false questions, short responses, essays, mix/matching, fill the blank, and multiple choice. If assessments had reasonable deadlines for students, they felt more in charge and comfortable in doing them. Moreover, the usage of IA (integrated assessments) within tasks was seen as positive in students' experience. Students felt they were in the dark when the marks for each question within assessments were not known. This had a negative impact on their experience. Since learners were not involved in the design of questions and their thoughts were not considered in regard to the assessments, they felt demotivated. Respecting their involvement would improve their experience. Students were very optimistic about having a database for a diverse set of questions for their assessments, as this would ensure a comprehensive collection of assessments types and questions are always available, rather than the teacher designing each time. Learners felt that if the assessments had clues or hints, this would greatly improve their engagement as well (Yousef and Wosnitza, 2014; Yousef *et al*., 2015ab; Yousef, 2015).

A bright prospect for MOOCs is due to a lot of experimentation and speedy prototyping of technology-based assessments employed. This makes life easier for assessments as the numbers of students involved in MOOCs are global. As for now, standard assessment approaches are implemented in MOOCs, particularly in disciplines that can be assessed by typically used objective means. New development is arriving in the fields of peer grading and machine grading which can be employed to mark writing-based assessments. (Balfour, 2013; Sandeen, 2013).

2.8.5 Students' Attitudes Towards Using Hybrid MOOCs

When it comes to Hybrid MOOCs, there is a general consensus that students approve of this method of teaching. Fesol and Salam (2016) discovered six categories regarding student

perceptions towards Hybrid MOOCs within higher education. These six aspects are student beliefs towards web learning, study management, learning flexibility, technology usage, interaction on the internet, and learning within classrooms. When students are positively predisposed towards these six elements, they look favourably towards adapting to Hybrid MOOCs in education and vice versa. The study also found that the few students who have low self-independence in their studies, are more inclined to like traditional face to face pedagogy.

Kulik and Kidimova (2017) conducted a study with findings which to the most part agree with the previous study, discovering that 71% of the participants absolutely agree or agree that the inclusion of Hybrid MOOCs in their curriculum is a positive experience.

However, contrary to the previous two studies where Hybrid MOOCs were very favoured, a study done within the Russian education system intending to identify attitudes towards integrating MOOCs in Russian universities revealed that only top students, those who were active learners and highly autonomous, were positive towards this integration. Moreover, the study disclosed very clearly opinionated intentions of students regarding advantages and disadvantages of this new learning method (Roshchina, Roshchin and Rudakov, 2018).

In addition to the previous study conducted in Russia (Roshchina, Roshchin and Rudakov, 2018), a research done in the USA (Bruff *et al.*, 2013) found that student perceptions on Hybrid MOOCs in higher education were positive, depending on better cohesion between online and offline material. Students felt that there was a strong lack of alignment between the online component of the course and the face to face. In addition, they had less inclination to participate in online discussion forums in some instances, preferring to do it in person (Bruff *et al.*, 2013).

2.8.6 Students' Challenges in Using Hybrid MOOCs

Many researchers have been integrating Massive Open Online Courses (MOOCs) with Flipped Classrooms, terming them Hybrid or Blended MOOCs. This integration not only applies in higher education, but also within schools. The target of this integration is to understand the influence of using a new teaching method on students' academic achievement, motivation, attitudes, and challenges in higher education. Although there are many advantages for utilizing Hybrid MOOCs in education such as course flexibility, added interaction with other students, enhanced quality of technology used for education, there are many challenges that face students when they study on the MOOC platforms or in the Flipped Classrooms as presented in the literature. These challenges are as follows: teachers not considering learners’ tough timetables,

students' difficult task in self-managing to engage in face to face classes as well as MOOC platforms, the low appeal of video lectures compared to face to face ones for some students, lack of alignment between face to face and online dimensions of the course, low motivation of students to interact in discussion forums as opposed to in person.

The first challenge of using Hybrid MOOCs is related to students' activities in discussion forums. There are several studies confirming that all students did not participate actively in the discussion forums. According to Caulfield, Collier and Halawa (2013) at Stanford University, 62% of students participated in the discussion forums for one session or less, while 15% of participants did not use the discussion forums at all. Moreover, Bruff *et al.* (2013) argue that students valued social interaction in person during the class time, as they preferred not to discuss with each other via the online community on every single matter. Adding to this, Holotescu *et al.* (2014) state that students have bad experience from online instructions in the discussion forums. Learners were disappointed because they did not obtain direct feedback regarding their work from the online teachers in the MOOCs' forums. However, Narrainen (2018) add to the previous studies, by showing that when teachers are active, learner participation is high in discussion forums. In her study, she found that the challenge is not necessarily the use of discussion forums, but the teachers' lack of active involvement in them. Her findings also indicated that students found discussion forums an appropriate venue where teachers can effectively interact with students answering their questions.

Another challenge, as seen in the literature, is that online and face to face activities may not be well coordinated. Some teachers who integrated MOOCs (Bruff *et al.*, 2013) in their classroom were searching the relevant online contents due to a lack of preparation and organization. This content may not match directly or accurately with the contents of the subject in the class, not least that such content is developed instantaneously (Bruff *et al.,* 2013). Students report that there were discrepancies between the classroom's contents and online MOOC's contents and noted that materials of the video lectures in the MOOC were not in alignment with the subjects covered in the classroom (Bruff *et al.,* 2013).

In addition, some students mentioned that the video lectures were not as motivating and interesting as face to face lectures (Bralić and Divjak, 2018). This is quite a downside for MOOCs as one of their major strengths is the interactive multimedia facilitating education. Griffiths *et al.* (2015) confirm this in their study where students recounted that the value of practical in-class tasks was slightly higher than in computer-generated resources offered online.

In the traditional face to face teaching method, students attend the class at a specific time. However, in the Blended or Hybrid class, students spend considerable time studying inside the class with their tutor; in addition to time spent outside the classrooms online in the MOOC platform. Students who study in Blended learning need to manage their time to participate in both face to face classes and on the MOOC platforms (Narrainen, 2018). Combéfis *et al.* (2014) emphasize, based on their experience, that when Blended learning is applied, teachers must take into account students' busy schedules, the fact that they may have many modules to study, courses to complete, projects to finish, family obligations, and of course, maintenance of a social life.

2.9 Theoretical Framework of the Study

The 1970s was a decade where demand for technological systems and equipment experienced a significant change. This high rise in demand had consequences such as errors and failures of implementation and adoption within organizations. Therefore, being able to diagnose and predict the usage and acceptance of new systems and technologies became of interest to scholars, although a huge majority of studies were not successful in explaining the rejection or adoption of new systems. (Davis, 1989). That is why Fred Davis developed the TAM (Technology Acceptance Model) as part of his PhD during his time in the Sloan School of Management in MIT (Davis, 1985). He stated in his thesis that in order to predict the usage of a system, the motivation the operator has must be considered (which is itself impacted by external stimuli comprising the characteristics and functions of the system). His work was grounded in research formerly done on the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975). Davis (1985) believed the acceptance/rejection to use a new system was depending on the motivation of the operator which itself was based on the perceived usefulness of the device and its perceived ease of use.

Similarly, ideas relevant to TAM have been developed such as the one by Goodhue and Thompson (1995, p. 216). They have explained, "*the degree to which a technology assists an individual in performing his or her portfolio of tasks*", as being an important part of the technology usage. Their ideas evolved into the concept of TTF (Task-Technology Fit) which explicates the alignment between technology and its task (Furneaux, 2012; Zigurs and Buckland, 1998; Zigurs and Khazanchi, 2008). Later on, TTF evolved to consider not only whether technology is fit with the task requirements at hand, but with the individual's characteristics who is using the technology (Individual-Technology Fit-ITF) as well (Yu and

Yu, 2010). Consequently, the newly comprehensive and evolved TTF model considers the extent to which a technology meets people's task needs and individual abilities (i.e. TTF/ITF).

In case of MOOCs as an educational technology, motivations vary for using them, but due to offering a free and open learning platform, students can be inclined to select it for their personal academic purposes and development goals (Kizilcec and Schneider, 2015). Moreover, the issues pertaining to learning styles emerge as they could be a factor in the incentive to use MOOCs (Chang, Hung and Lin, 2015). Ultimately, psychological elements are considered an influential force as to why people adopt MOOCs (Terras and Ramsay, 2015). In this area, scholars have explored the perceptions and intentions of pupils when they decide to use MOOCs (Zhou, 2016; Alraimi, Zo and Ciganek, 2015). However, more investigation is required as to understand MOOCs' simultaneous utility and acceptance which is why this thesis employs the TAM/TTF model as it is recurrently deployed in many studies for the purpose of contemplating technology utilization and acceptance (Wu and Chen, 2017).

In this thesis, the theoretical framework to assess Hybrid MOOCs' acceptance, utilization, and intention for adoption in Majmaah University, Saudi Arabia is done via an integrative model described in more detail within the following paragraphs, TAM/TTF (Technology Acceptance Model/Task-Technology Fit). TAM alone, describes the students' reactions when accepting a new system during their learning. When a novel technology is deployed in an educational context, there are a variety of elements which decide its acceptability and where it can be used (Davis, Bagozzi and Warshaw, 1989). The TAM model portrays how the characteristics of a new system can influence the belief students have towards it, particularly evaluating the effects of four factors on its implementation and practical use as follows: (a) 'Perceived Usefulness (PU)', (b) 'Perceived Ease of Use (PEOU)', (c) 'Attitudes towards use', and (d) 'Behavioral/Continuance intention for using the new system'. How much using Hybrid MOOCs would actually assist students in Majmaah University on their academic performance is indicated by PU. PEOU however, refers to how much the students at Majmaah University deem using Hybrid MOOCs for their 'Educational Technology and Communication Skills' module an effortless endeavor (Davis, Bagozzi and Warshaw, 1989). Consequently, students' inclination towards employing Hybrid MOOCs will be based on their attitudes on its utility and ease. That attitude is effectual on the willingness of Majmaah University students to accept the new teaching method and continue it (Adams, Nelson and Todd, 2010; Davis, Bagozzi and Warshaw, 1989).

Task-Technology Fit (TTF) prescribes that the new system used and the task it is supposed to achieve must be aligned (Goodhue, Klein and March, 2000; Kim *et al.*, 2010). TTF is a model which evaluates how new systems such as the Hybrid MOOCs in Majmaah University can enhance performance, assessing the impact of its implementation, and deliberate on the alignment of the new system with its responsibilities. The new system's features and the description of its responsibilities, both influence the students' performance and usage of Hybrid MOOCs (Wu and Chen, 2017). TTF describes how the results of using a new technology such as Hybrid MOOCs in Majmaah University is affected by the features of the new technology and the features of the tasks it has to accomplish, firmly believing that if a strong correlation exists between the new technology (Hybrid MOOCs) and the tasks it is supposed to conduct, students will use it to a higher degree.

However, Lee and Lehto (2013) discovered that integrating TTF with TAM provides a more elaborate explanation regarding technology usage and acceptance, than deploying them separately. This thesis agrees with the aforementioned scholars that merging the above two models offers a more comprehensive account, as it has been seen in more than 100 researches involving technology use and acceptance (Iversen and Eierman, 2018). The thesis has used the TAM/TTF model because it not only explains usefulness and ease of usage influencing technology acceptance, but also explains that they (usefulness and ease of usage) too are affected by the alignment of the technology with its task and individual abilities (and this alignment affects the acceptance of the new technology). An additional benefit of the merging is that the new paradigm considers the impact of the students' experiences with the new system (Hybrid MOOCs) on PEOU and PU (Iversen and Eierman, 2018) in Majmaah University.

What is important is to remember that most models pertaining to technology use and acceptance were developed in western nations (Kripanont, 2006) and it is not clear how they can be used in non-western contexts (Al-Adwan, Al-Adwan and Smedley, 2013). Scholars point to this dilemma, "*Information systems research reveals that there are different technology adoption and usage patterns when cultural difference is taken into account*" (Linjun, Ming-te and Bo, 2003, p. 383 cited in Khosrow-Pour, 2003). That is why deploying the TTF/TAM model, which is a rather new development for the Saudi Educational environment, is a notable aspect of this thesis.

2.10 Conclusion

The chapter reviewed the fundamentals of MOOCs by describing what they are, how they emerged, their development and entry into education, and their theoretical framework. It also hinted to various aspects of applying them in practical contexts. Moreover, different types of MOOCs (cMOOCs/xMOOCs/Hybrid MOOCs) were discussed with their specific usages. Afterwards, the place MOOCs hold in Saudi education was elaborated, and current MOOCs used there such as Rwaq and Maharah discussed. The chapter explained that MOOCs are not yet a fully developed concept in the country as the educational culture in the country is fundamentally different than its western counterparts.

The chapter also delved deep into the factors that can affect learning via MOOCs and compared academic achievement when learning in 'MOOCs only', 'Traditional learning', and 'Blended/Hybrid MOOCs' in order to reveal how each learning mode contributes to academic achievement in students. Next, since this project focuses on Hybrid MOOCs, student experiences with Hybrid MOOCs were explained, referring to areas such as flexibility, self-regulation, Instructional Design, assessments, attitudes, and challenges. Ultimately, the TAM/TTF model's historical development was explained, its concepts described, and reasons for integrating TAM and TTF for this thesis elaborated, as the theoretical framework.

The next chapter will explain the methodology and research design that this thesis employs in order to reach its aims.

Chapter Three: Methodology and Research Design

3.1 Introduction

After critiquing the literature available on MOOCs and demonstrating the significance of the current study, this chapter will aim to show the research methods that the thesis employs. For this purpose, first, an overview of various paradigms in social research and especially education science will be offered, with a section following it explaining the paradigm this thesis chose and why.

Second, the types of methods and data collection will be defined and the research methods used in this thesis will be described with the justification for the choice, linking to the paradigm employed in the current thesis.

Third, the research design utilized for the thesis will be shown with its links to the research methods, explaining its suitability to the thesis. Fourth, the study participants, along with the types of sampling for the qualitative and quantitative sample size are introduced.

Fifth, the variables within the study, their types, and links with each other will be described along with what they signify. Sixth, the materials and instruments that this thesis employs will be explained followed by various relevant components such as the textbook used, teaching program designed, learning strategies employed, and curriculum design. The instruments that this thesis uses to collect data and the procedures it employs for this purpose are explained thoroughly in the context that the participants are active in the study.

Seventh, the qualitative and quantitative data analysis will be elaborated with the tools and procedures employed to obtain an appropriate interpretation for the research questions. Eighth, in order to ensure the accuracy, quality, and value of the results are to an acceptable standard, the concepts of validity and reliability in quantitative data are adhered to and trustworthiness in qualitative data are considered.

Ninth, since this study involves human subjects and conducts the research in a culturally sensitive environment, ethical considerations are clarified. Finally, tenth, a conclusion of the chapter offering a brief but comprehensive summary of what the chapter covered and its important points will be given.

3.2 The Nature of the Research

There are several paradigms that apply to social sciences, especially in educational research such as positivism, post-positivism, interpretive and critical paradigms (Matthews and Ross, 2010). In addition, in recent years there has been a big debate between scholars and educators regarding the nature of educational research. The reasons are that, according to Weaver and Olson (2006), research paradigms have several differences in methodology, when the researcher conducts his/her studies. These differences are important because they inform the understanding of reality and knowledge construction for the researcher. Therefore, it affects both the way and strategy to conduct a study (Poni, 2014). However, Taylor and Medina (2013) state that there is no single paradigm superior to others, but each has a specific purpose in producing unique knowledge. In order to obtain some clarification, it is important to consult Willis (2007, p. 8) on the definition of paradigm, "*A paradigm is thus a comprehensive belief system, world view, or framework that guides research and practice in a field"*. Another clarification comes from Bryman (1988, p. 4) describing paradigm as,

> "*a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, how results should be interpreted, and so on*".

There are differences between kinds of paradigms that are used in educational research which this chapter will explain in terms of ontology, epistemology, methodology and method. The chapter will also elaborate on the paradigm suitable and utilized for this project.

There are a large number of differences among four leading paradigms in social sciences: positivism, post-positivism, interpretivism, and critical paradigms. The first major difference is in their ontology, or how each paradigm views the nature of reality. To elaborate, ontology considers a number of issues regarding the form of reality, its deep essence, and what knowledge can be gained and understood regarding this reality (Ponterotto, 2005).

The term "positivism" was initially used by the creator of this paradigm. Auguste Comte, who was a French philosopher, assumed the world around us and essentially, reality could be grasped. Comte's outlook actually started the path towards an overall approach (positivism) that presumed the entire corpus of credible knowledge is grounded in sense experience and could be further developed merely via experimentation and observation. Comte's positivist paradigm upholds that the researcher is the witness and/or spectator of an objective world or

reality. Comte's ontological perception led the way for employing methodology of observation in natural sciences, for social science research use. Positivism holds that reality is external to the scientist and represented via objects in space which hold meaning free from any awareness of them. This reality could be apprehended through the scholar's senses and anticipated (Mack, 2010). Overall, positivism believes that there is a single reality and objective truth which can be understood. Viewing this reality and truth can be identified and measured, independent of the observer (Ponterotto, 2005; Aliyu *et al.*, 2014).

Post-positivism emerged due to discontent with certain features of the positivist position. While positivists agree to an objective perceivable reality, post-positivists recognize an objective reality that is simply defectively comprehendible. This paradigm assumes mental processes of human beings are essentially unsound and existence's occurrences are ultimately uncontrollable. Consequently, a scientist can by no means completely seize a so-called true reality, if it ever existed. A main difference amid the positivist and post-positivist outlooks is that the positivist paradigm emphasizes proving theories while post-positivist paradigm concentrates on disproving theories (Lincoln and Guba, 2000). Post positivism permits for more interaction between the scientist and the participants in the research. This paradigm's target is generating impartial and generalizable knowledge regarding social patterns in the world and aims to confirm the existence of common features and rules in interactions between variables which have been defined prior to start of the research (Taylor and Medina, 2013). Overall, as far as ontology, post-positivism has no major difference with positivism in terms of how it views the world (Bunniss and Kelly, 2010). Post positivism agrees that there exists a true reality. However, they believe that this reality can be understood and measured inaccurately, even with technically reliable instruments (Ponterotto, 2005).

The interpretivist paradigm which at times is referred to the constructivist paradigm has an anti-positivist stance as it was created to counter positivism. This paradigm stresses the capacity of the person to construct his/her reality. Hermeneutics and phenomenology profoundly impacted the ontology of this paradigm. The researcher's meaning generating procedure is the foundation of the constructivist (Ernest, 1994). Part of this paradigm is the belief in using people's subjective understandings and personal inferences from the world, as the basis for appreciating social occurrences (Ernest, 1994). Consequently, the ontological presumption of interpretivism/constructivism is that social existence is understood by numerous persons in a different ways ensuing manifold viewpoints of an event. Interpretivism's chief principle is that

research cannot be objectively viewed from the outside. On the contrary, it has to be viewed from inside by direct experience of persons. The function of the researcher in the constructivist paradigm is understanding, enlightening, and clarifying the social world via the lens of various individuals (Cohen, Manion and Morrison, 2007). Overall, interpretivism/constructivism believes that reality is subjective, can change, can be explored, and there is no one ultimate truth. Followers of this paradigm assume that multiple realities exist, but which are constructed and/or interpreted by the individual and no single true reality can be found. This reality which is different from person to person is shaped by circumstances, context, and the situation. It can also come from the experiences, observations, understandings, and insights of the person within the social environment, or the interaction between the researcher and the participant. There are those who entitle this paradigm as Constructivist paradigm or call it the relativist position (Ponterotto, 2005).

The critical paradigm is rooted in critical theory (Cohen, Manion and Morrison, 2007). In education research, it demands to comprehend or offer a description of social behaviours and also modify them. This paradigm came from the concern that research in the educational field was too technical and focused merely on efficacy, ignoring social inequity and matters related to power relations (Gage, 1989). This paradigm has a schema to alter the social structures and people's lives. The critical paradigm holds that the social world is configured by people inhabiting society and socially created by institutions and media. It also believes that social conduct is the result of oppressive forces controlling people that do not have their best interest at heart (Cohen, Manion and Morrison, 2007; Mack, 2010). Similar to constructivists, followers of this paradigm support a reality created within a social/historical setting. Still, they go further than constructivists in theorizing a world and happenings inside the framework of power relations (Tolman and Brydon-Miller, 2001). For followers of critical paradigm, a person's thought process is essentially influenced by power relations which are socially and historically established. The paradigm considers truths in a manner that cannot be separated from values or ideology. It also holds that language is key to shaping subjectivity for humans (Tolman and Brydon-Miller, 2001; Ponterotto, 2005). Overall, this paradigm believes that reality could be objective, but truth could be different from group to group as it recognizes reality influenced by religious, ethnic, sectarian, religious, cultural, social, gender, national, and political values. This paradigm pays attention to truths that are established by power relations which have been socially and historically grounded (Ponterotto, 2005).

The second difference in these paradigms is their epistemology or how they view the nature of knowledge. For instance, positivism believes that knowledge has the quality of being neutral, objective, and made into a general theory that describes reality precisely. Post-positivism does not agree with positivism in many areas. It is of the opinion that objective knowledge of reality is not entirely feasible and attempts to discover a probable truth. Interpretivism, on the other hand, moves away from any attempt to find an objective account of reality, believing that reality is completely subjective and that multiple understandings of it can legitimately exist. It is much more flexible than positivism in terms of believing that one correct manner of knowing does not exist. A very different account of how one comes to know is offered by critical theory. This paradigm views knowledge under constant modification and impacted by power relations. Within this paradigm, knowledge is co-created between persons and groups (Corbetta, 2003; Weaver and Olson, 2006; Gall, Gall and Borg, 2007; Bunniss and Kelly, 2010; Taylor and Medina, 2013; Guba and Lincoln, 1982; Lincoln and Denzin, 2000).

The third dissimilarity between the paradigms is in their methodology and the essence of their outlook towards research. For example, positivism discovers and creates knowledge through observation and uses reason to understand human behaviour. It also tests theories and relationships between variables. In contrast, post-positivism has a different view that attempts to improve knowledge by the falsification of hypotheses, empirical testing and controlled conditions. The interpretivist paradigm focuses on the environment of the research. In this paradigm, the researcher interacts with the participants in order to understand the phenomenon. Research from the perspective of critical theory aims a change for the better, through using communal knowledge and is based on cooperative interaction (Corbetta, 2003; Weaver and Olson, 2006; Gall, Gall and Borg, 2007; Bunniss and Kelly, 2010; Taylor and Medina, 2013; Guba and Lincoln, 1982; Lincoln and Denzin, 2000).

The fourth issue separating the paradigms is method or the ways in which data is gathered. Each paradigm has its own method to collect information. Positivism uses quantitative methods such as questionnaires and surveys, while post-positivism uses both quantitative and qualitative methods which include surveys (quantitative), questionnaires (quantitative), interviews (qualitative), and focus groups (qualitative). On the other hand, the interpretivist paradigm tends to use qualitative methods such as observations and interviews whilst critical theory allows for the use of both quantitative and qualitative methods (Weaver and Olson, 2006; Bunniss and Kelly, 2010; , 2011; Taylor and Medina, 2013; Guba and Lincoln, 1982; Lincoln and Denzin,

2000).

As the previous discussion above showed, there are several paradigms from social sciences which can be applied in educational research. In addition, there has been considerable debate among scholars and researchers regarding what paradigm is more suitable for their study based on the ontology, epistemology, methodology and method which the paradigm is built upon. After careful consideration, it appears that a different paradigm (pragmatic) from the above is suitable for the current thesis which is explained below.

3.2.1 The Pragmatic Paradigm Adopted in this Research

The roots of pragmatism can be observed in the United States in and around 1870 in the thinking of Charles Sanders Pierce (1839-1914), and evolved through the works of William James (1842-1910), John Dewey (1859-1952), and Jane Adams (1860-1935) (Hookway and Legg, 2019). This paradigm when performing research, does not prohibit communication amongst researchers who follow dissimilar paths (Morgan, 2007). Actually, the pragmatic paradigm inspires researchers who employ unlike methods from dissimilar paradigms to concentrate on finding shared meanings and follow mutual action (Morgan, 2007). In this manner, the pragmatic paradigm provides an alternative outlook that considers constructivist paradigms together with positivist/post-positivist ones when answering research questions (Teddlie and Tashakkori, 2009). Basically, it provides room for a compromise when combining qualitative and quantitative methods for responding to research questions (Johnson and Onwuegbuzie, 2004; Teddlie and Tashakkori, 2009; Creswell and Plano Clark, 2011). The pragmatic paradigm offers flexibility and pluralism in that it sees various methods that might seem contradictory, as actually complementary, and allows the researcher to see a more comprehensive account of reality (Onwuegbuzie and Johnson, 2006).

The pragmatic paradigm is different to the qualitative (constructivist) and the quantitative (positivist/post positivist) methods in terms of the link between theory and data, and how inferences are drawn from it (Morgan, 2007). Whereas quantitative and qualitative research links theory to data by means of deduction and induction respectively, the pragmatic paradigm, similar to the critical realist world view (Modell, 2009), depends on theoretical thematic analysis (Braun and Clarke, 2006) to operate between deduction and induction. When linking theory to data, pragmatism utilizes what is helpful during the integration phase of mixed methods, as it endorses an equilibrium between subjectivity and objectivity during the course

of the research (Shannon-Baker, 2016). Whereas quantitative research is known to be objective and the qualitative subjective, the pragmatic paradigm in research opposes the conventionally perceived division between these in the process of doing research. This paradigm trusts that from an epistemological standpoint, during the research, there will be a point where the researcher will inevitably contemplate an objective attitude by not interacting with subjects, while at other phases of the research, it will be essential to consider a more subjective outlook by interacting with subjects in order to co-construct realities (Teddlie and Tashakkori, 2009). This is how pragmatism permits for freedom and fluidity to espouse the most feasible method in answering research questions. In this manner, there can be singular and multiple realities resulting from the qualitative and quantitative sides of the research (Rorty and Rorty, 1999; Creswell and Plano Clark, 2011).

As far as pragmatism's epistemology, this paradigm is not in favour of considering knowledge in terms of being a "copy" of reality (Rorty, 1980), as it sees knowledge constructed with the intention of better managing existence and participating in the world. As far as its ontology, action and change are seen as the fundamental two elements shaping the world people exist in (Blumer, 1969). Actions are important to the pragmatic paradigm, rather than being in isolation. Action operates as the tool to change the world people live (Festenstein, 2018).

The current research employs a combination of pre/post-tests and questionnaire/interviews, bringing them together in a complementary fashion. This is done in order to understand how Hybrid MOOCs can impact academic achievement in the Saudi context and understand student experiences of it. For this purpose, pragmatism does offer the pluralism and flexibility to take multiple methods into consideration and contemplate multiple realities. This is essential as various students can offer diverse views of their experience with the new teaching method and these multiple realities need to be put together in a complementary form, not contradictory. Pragmatism also allows for the quantitative and qualitative dimensions of the study to be able to express themselves without being in contrast to one another, but forming a comprehensive picture for answering the research questions.

3.3 Research Methods

This section describes the research methods used: quantitative, qualitative and mixed methods.

3.3.1 Qualitative Data

Qualitative research is one of the oldest and historical methods which has been utilized in social research (Gall, 1996). The aims of this method are to explore and discover human behaviour in social sciences, and the essential questions for the qualitative method are: what the researcher intends to find out and why it is important (Bryman, 2012). Cohen *et al.* (2011) point out that the qualitative methods provide a researcher with an in-depth understanding of the phenomena in terms of behaviours, attitudes and interactions. Matveev (2002, p. 59) states that

> "*qualitative methods can supply a greater depth of information about the nature of communication processes in a particular research setting*".

Moreover, the qualitative method can be used in various types of research. For example, case study research attempts to study some phenomenon in its real-life situation. Also, historical research and comparative studies are fields where the qualitative method can contribute (Gall, Gall and Borg, 2007; Cohen *et al*., 2011).

In the qualitative method, there is different information involved, data collection methods used, and strategies for enquiry utilized from other methods (Hartas, 2010; Bryman, 2012; Creswell and Creswell, 2018). Cohen *et al.* (2011) and Hartas (2010) indicate that participant observation, interviews, conversations, documents and field notes are the main methods for data collection in the qualitative method. The results or outcomes from the qualitative method are deep, rich and meaningful (Amaratunga *et al.*, 2002). Amaratunga *et al.* (2002) claim that the power of qualitative data comes from exploring and discovering a new area and developing a hypothesis. They believe that the outcomes of qualitative method give us data regarding how and why things occur. Moreover, this method helps the researcher to interact well with participants within the research (Sarantakos, 2005; Cohen *et al.*, 2011).

Qualitative analysis is seen as translating qualitative data to findings, by a process of induction (Patton, 2002). Mertler (2008) views qualitative data analysis as a daunting task since scholars have to condense enormous volumes of data and examine it. Other scholars have pointed out that data analysis for qualitative research involves indicating, recognizing, and acknowledging trends/patterns within the data.

However, there are several limitations for the qualitative method that were noted in the literature review. According to Bryman (1988, p. 71), one of the main aspects of qualitative research is, "*the ability of the investigator to see through other people's eyes and to interpret events from their point of view"*. In other words, one of the shortcomings of this method is researcher bias. The bias of the researcher could influence the study adversely. It can negatively impact research design, data collection and affect the outcome of the study. In addition, the result of this method is difficult to generalize. The main reason could be that the assumptions of the researcher are having an effect on the research (Miles and Huberman, 2002). In the qualitative research, the researcher does not focus on the literature review and it plays a minor role. This is due to the fact that the study is more influenced by the perspectives of participants rather than the elements within the literature review noted by the researcher (Creswell, 2012).

3.3.2 Quantitative Data

The quantitative method was originally developed in the natural sciences and describes natural phenomena (Creswell, 2012). The aims of the quantitative method are to develop knowledge through studying relationships between variables or test hypotheses (Punch, 1998; Lankshear and Knobel, 2004; Creswell, 2012). In addition, Punch (1998) mentions that quantitative research seeks to conduct a comparison between groups (experimental or control). Creswell (2012) states that there are three designs for quantitative research that are employed in educational research. The first is the experimental design which includes true and quasi-experiments. Second, is the association test which discovers and perceives relationships between variables. The third, is survey design which explicates aspects of a large group in order to understand behaviours, attitudes, and characteristics (Punch, 1998; Creswell, 2012).

Moreover, the literature review plays an important role in the quantitative research in two ways. First, is to justify the necessity of the problem within the research. This is done through showing how the topic studied within the research is a prominent one and worth the consideration. Second, is to propose possible aims and questions for the research (Greenland, 1987; Creswell, 2012). In addition, the quantitative method is based on numerical data aiming to gather information regarding independent and dependent variables from many participants (Hartas, 2010; Cohen *et al.*, 2011; Creswell, 2012). Moreover, the role of the researchers who conduct quantitative research is in a manner which does not interact with the participants of the study. Thus, the researchers have the ability to investigate without influencing the participants (Sarantakos, 2005; Cohen *et al.*, 2011). The results of quantitative research have the added

value of a lower risk of bias (Cohen *et al.*, 2011).

However, from studying the literature review, there are several limitations in quantitative research. It needs a large number of people to participate in the study to obtain results which could be generalized (Cohen *et al.*, 2011). In addition, Amaratunga *et al.* (2002) mention that quantitative research is not useful for generating theory. Moreover, in some cases, a quantitative method does not provide full or in-depth information regarding a phenomenon or subject. It also does not provide solutions to complex issues.

3.3.3 Mixed Methods Data

Pragmatism is commonly seen as the philosophical underpinning for mixed methods. It offers a cluster of beliefs regarding knowledge and inquiry which differentiates mixed methods from merely quantitative methods (rooted in a philosophy of positivism and post-positivism) and also from solely qualitative methods (stemming from interpretivism or constructivism). Pragmatism gives a foundation for employing mixed methods, terming it a *'third alternative'*, which is available to scholars of social sciences if they decide that using quantitative or qualitative methods alone cannot offer sufficient results for that specific research aim. Pragmatism is also viewed as a new convention established on the premise that it is not only legitimate to combine methods from different paradigms of research, but it is actually very ideal as professional social research looking to obtain accurate and comprehensive results will inevitably require both qualitative and quantitative data (Denscombe, 2008).

Pragmatism endeavours to combine the normative and interpretative outlooks in social sciences. It tries to assist in finding what works in a given context and does not get overly involved with whether research portrays a reality which is socially constructed, involves multiple realities, or a single reality. Pragmatism posits that reality can have singular or multiple forms. It can be objective/subjective and also humanistic/scientific (Almuhanna, 2018). This infers that pragmatism encompasses,

> "*Accepting the limitations of a realist perspective of the world by maintaining that such knowledge is provisional and revisable, but nevertheless seeking to establish as consistent a picture as is possible with the tools available, and crucially requiring a critical or reflexive approach to adopted by the research"* (Al Gahtani, 2011, p. 105- 106).

This research will adopt a mixed method consisting of pre/post-tests, questionnaires (quantitative method), plus interviews (qualitative method). This method creates a more comprehensive account of the topic under study compared to quantitative or qualitative methods. It utilizes a merging of quantitative and qualitative methods, so a fuller picture is obtained. Throughout this process of combining two methods, validity is enhanced via verifying the results from one method with the other. Torrance (2012, p. 113) affirms that using a variety of methods helps generate different sorts of data which means,

> "*no single method is likely to afford a comprehensive account of the phenomenon under investigation; thus, two or more methods are employed to bring to bear different intellectual tools on the task at hand*".

Generally, the aim of mixed methods is to get the advantages of qualitative and quantitative methods of data collection and analysis, but reduce their disadvantages. To elaborate further, when quantitative and qualitative methods are combined within different branches of social science and humanities, the reliability of data is reinforced, the validity of findings are fortified, recommendations are enhanced, the comprehension of the phenomenon at hand is improved, and how the context of the research impacts it is better understood. This approach provides for an improved comprehension of the complicated and intricate nature of social occurrences due to employing multiple means and techniques of understanding, by way of interpretive philosophy (Greene, 2008).

Conceptually, there are various justifications for using a type of mixed methods in this research referred to as '*convergent parallel mixed methods'*. The first justification for using convergent parallel mixed methods is the concept of triangulation, which improves the validity and reliability of results by offering a comparison between data attained from diverse methods of data collection such as matching answers from questionnaires with what the researcher notices openly in interviews. When evaluations from different angles join and align, the validity and reliability of conclusions or interpretations are heightened. If different assessments are not in alignment, the researcher investigates more to recognize the reason for these discrepancies. Within the context of this research, triangulation will help to compare the results obtained from questionnaires and interviews from students at Majmaah University. If the results are dissimilar, it gives cause for further investigation and if they are aligned, it means that results are accurate. It must be noted that triangulation can also be done where this method is not employed. However, the benefit of comparing and contrasting dissimilar methods in order to investigate

discrepancies would not exist.

The second justification is actually the one mostly affiliated with convergent parallel mixed methods; complementarity, as it enhances the completeness of results through findings from various methods which act to widen and extend the understanding grasped. If only a questionnaire is used, results would be obtained. However, when these results are considered in congruity with interview results, a more comprehensive picture comes out from the students of Majmaah University regarding their experience and attitudes using Hybrid MOOCs.

The concept of initiation is a third reason why convergent parallel mixed methods are appropriate for this research as it can offer new perceptions into results through findings from methods that differ and therefore require correlation by additional scrutiny, reframing, or an alteration in viewpoint. Within the context of Majmaah University, two perspectives of gaining insight into students' experiences using Hybrid MOOCs are used which offer diversity in evaluation. This method offers help in inspecting the connections between the multifaceted and varying contextual influences that can impact the research. It helps to outline and understand dynamics that may impact the research. Diverse methodologies are vital to calculate these forces (Bamberger, 2012). Within this research, this method is appropriate for grasping, as much as possible, the forces that shape student experience and attitudes towards a new teaching method since students have a right to express their sentiments in questionnaires and then elaborate in interviews.

The fourth justification for convergent parallel mixed methods in this research is connected to the third and is the concept of increased scope. At times, numerous processes, phenomena, and beliefs are hard to discern, or sometimes even to be aware of their existence. This is predominantly significant when it comes to doing research in culturally sensitive areas of the world such as this research done in Saudi Arabia. This method offers a wider lens in order to detect more intangible issues.

Overall, convergent parallel mixed methods (as depicted in Figure 7) have many benefits, from developing conclusions from quantitative and qualitative outcomes, to focusing on why certain conclusions did or did not happen, from adjusting results that are noteworthy, to offering easier follow up on fallouts, from producing better explanations and manifestations, to more enrichment and illumination of the results, from enabling generalizability of data, to discovering different dimensions of the same occurrence, from placing new light on conclusions, to ensuring

validity of findings, and from cultivating a theory and amending it, to testing a new hypothesis (Collins, Onwuegbuzie and Sutton, 2006).

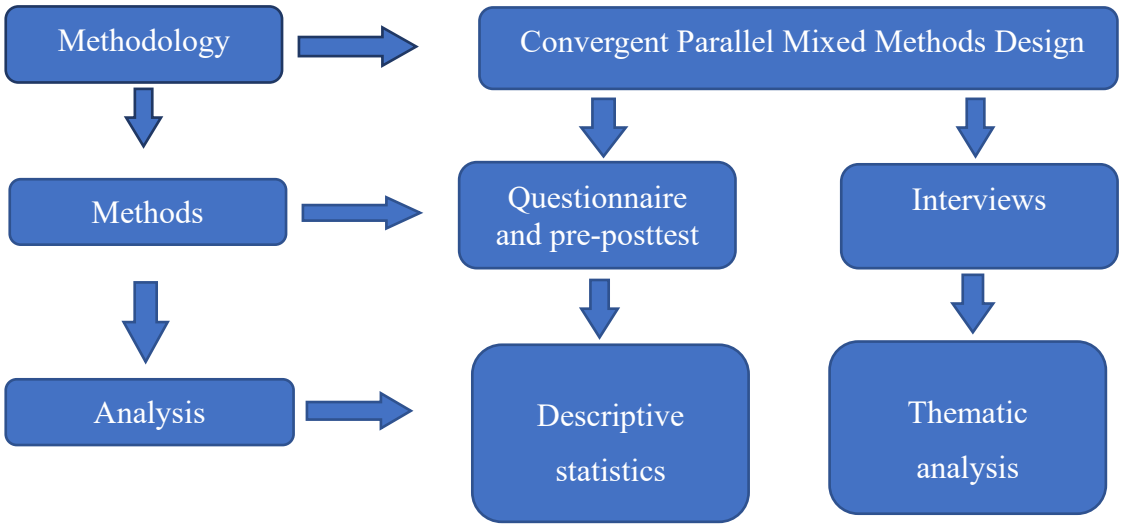

Figure 7: Methodological Design of Convergent Parallel Mixed Method

3.4 Research Design

Numerous researchers and educators in the education technology field have applied studies of experimental research designs, especially in higher education (Liyanagunawardena, Adams and Williams, 2013; Freihat and Zamil, 2014; Li *et al.*, 2014). The main purpose of these studies is to know or discover the causal links among independent and dependent variables when researchers try to utilise a new method of teaching (Gall, 1996). According to Mertens (1998, p. 60) *"The experimental method is the only method of research that can truly test hypotheses concerning cause-and–effect relationships*".

There are two main types of the experimental research design in educational research. They are true experimental and quasi-experimental designs (Green, Camilli and Elmore, 2006; Cohen *et al.*, 2011; Mertens, 2014). There exist several similarities and differences between the designs. In terms of similarities, students who are involved in the study, in both designs, are subjected to some type of condition or treatment. Also, the outcome or result from the instrument deployed is measured by using pre-test and post-test. In addition, the outcome of the study could be tested to see whether differences are related to treatment or not (Hartas, 2010). In terms of differences, in the true experiment, participants who are involved in the study should be randomly assigned and allocated by the researcher to the control and experimental groups. Whereas, participants who are in the quasi-experiment are not assigned randomly (Gall, 1996;

Hartas, 2010).

It should be noted that there are more kinds of research designs that come under experimental research such as, pre/post-test control group design, post-test-only control design, single-factor multiple-treatment designs and Solomon four group designs (Mertens, 1998; Gall, Gall and Borg, 2007; Hartas, 2010; Cohen *et al*., 2011) which are not under consideration here.

To serve the purpose of the current research, quasi-experimental design is employed. Two groups were created (as shown in Figure 8). One is the experimental group, and another is the control group. The control group has traditional treatment with a pre-test and post-test, while the experimental group has experimental treatment, a pre-test and post-test, a questionnaire and an interview. The following figure describes the research design for the current study.

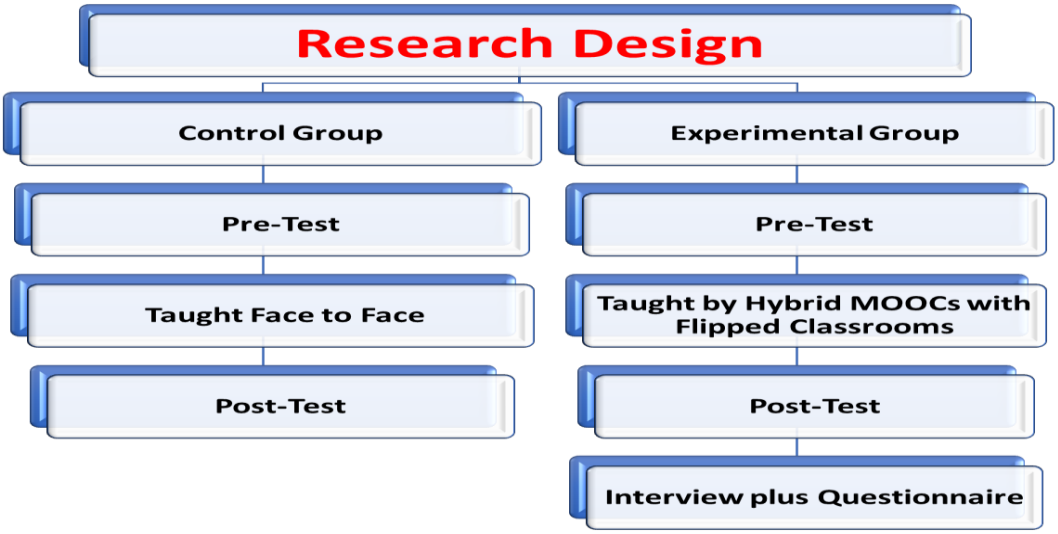

Figure 8: The Overall Research Design and Data Collection Procedure

3.5 Study Participants

Bryman (2016, p. 174) describes populations as, "*the universe of units from which the sample is to be selected*". In this research, the population of the study was all the students at Majmaah University who are studying 'Educational Technology and Communication Skills' module. This module is compulsory for all students studying in the Faculty of Education and is only offered in the first semester every year. This is the main reason for choosing students from the first semester of the academic year 2017/2018. The population consists of five classes. Students come from the three following departments within the Faculty of Education: Islamic Studies, Arabic Language, and English Language.

3.5.1 Quantitative Participant Size

According to Bryman (2016), Cohen *et al.* (2011) and Hartas (2010), there are many types of sampling which researchers can use when they conduct their study in social sciences such as simple random sampling, systematic sampling, stratified random sampling, convenience sampling, and cluster sampling. The target of the study is to compare the outcomes of students' achievements between the experimental and control groups in the 'Educational Technology and Communication Skills' module in Majmaah University. The research used "random selection" to select two out of the five groups, including one experimental group which will be taught by Hybrid MOOCs and one control group which was taught by face to face traditional pedagogy. Both groups will study the same curriculum.

As revealed in Table 2, the control group has 36 students. They attend class for two hours each week from eight to ten o'clock every Sunday. The experimental group has 45 students. They have attended class two hours each week from twelve o'clock to two o'clock on Monday. It must be noted that most students who participated in the study were from 18 to 23 years of age and full time. Moreover, all the students were from Majmaah city or the villages around it. The reason for the variation in the number of students within the control and experimental groups is that students had already registered on the 'Educational Technology and Communication Skills' module with each student having a different schedule of attendance. Consequently, students choose to attend the module in a day of the week which is most convenient for them and is a reason for the difference between the numbers within the control and experimental group. This difference will not hinder the research or make results inaccurate as the norm suggested by Gall, Gall and Borg (2007) and Hartas (2010) is that in the experimental and causal-comparative research, the minimum number of participants should be fifteen per group to be compared (they do not necessitate numbers within each group to be equal). It must be noted that although quantitative study usually aims to select large numbers of participants, this could vary from research to research based on research methods used.

Table 2: The Sample Size of Quantitative Method

Group	Number of students
Control Group	36
Experimental. Group	45

3.5.2 Qualitative Sample Size

The sample size of qualitative method is different from quantitative method. This difference could be related to the aim of the research and the nature of methods used in the study. For example, a quantitative method needs a large number of participants that allow generalization of outcomes to populations, while a qualitative method needs a small number of participants that help the researcher reach an in-depth understanding of the problems within the phenomena (Gall, Gall and Borg, 2007; Hartas, 2010). Gall, Gall and Borg (2007) state that the quantitative method is not more flexible than the qualitative method with respect to sampling techniques. Furthermore, he says that there are no possible ways in which the sample for the quantitative method could be selected with the number of participants being small.

In this study, the researcher has used purposive/purposeful sampling in qualitative research (Teddlie and Yu, 2007). The first reason for this choice could be that purposive sampling leads to a deep understanding of the phenomena compared with probability sampling that gives a breadth of information regarding the population (Patton, 2002). In addition, according to Teddlie and Yu (2007), the researcher can use purposive sampling to address specific purposes related to research questions. This may be helpful for the researcher to have a deep understanding of the students under study such as their experience, attitude, behaviour, and challenges.

Throughout the observation of students in the classroom and the Rwaq platform, the researcher asked ten of them to participate in an interview when they reached the end of the course. However, only eight out of the ten students agreed to partake in the interview. The researcher selected students for two reasons. The first reason was that those students were more active in the classroom and platform than others. Another reason was that the availability of these students and their willingness to participate was higher than the rest.

3.6 The Variables of the Study

In experimental research, there are two kinds of variables designated as independent and dependent variables (Punch, 2005; Creswell and Creswell, 2018). According to Gall, Gall and Borg (2007), Wiersma (2000) and Green, Camilli and Elmore, (2006), experimental research aims to discover the relationship between the independent and dependent variables. The independent variable is included in the treatment done to the experimental group (for cause) and the dependent variable is the outcome on the experimental group which is measured (for

effect).

3.6.1 The Independent Variable

For the aim of the current study, the independent variables are as follows:

- The use of Hybrid MOOCs for teaching the 'Educational Technology and Communication Skills' module at Majmaah University for undergraduate students in the Faculty of Education

- The use of traditional teaching method in the teaching of 'Educational Technology and Communication Skills' module at Majmaah University for undergraduate students in the Faculty of Education

3.6.2 The Dependent Variables

The dependent variables in this research are:

- The academic achievement of the students when they use Hybrid MOOCs and traditional teaching method in their education

3.6.3 Control of Extraneous Variables

One important issue which the researcher must take into account is the influence of extraneous variables when he/she is conducting the experiment. The reason being is that extraneous variables might influence the result or observed phenomenon under study. In this study, to control extraneous variables, the researcher has undertaken the following steps:

1. All the students who study in the control or experimental group have the same curriculum, and they have studied 10 chapters
2. The control and experimental group have the same teacher
3. All the students who are in the control and experimental group study from one book
4. The pre-test and post-test exams came from the very same book titled 'Educational Technology and Communication Skills' (This textbook has been appraised as the specialized reference for students of this module by departmental consensus)

3.7 Research Instruments and Materials

To serve the purpose of the current research, the researcher has used the following instruments and materials.

3.7.1 The Choice of the Textbook Used in the Module

Before conducting the experiment, the researcher has contacted the Faculty of Education at Majmaah University to select the course that he will teach the students. Moreover, advice from many staff members who have experience in the field of educational technology at Majmaah University and Taif University was obtained. Thus, the reasons why the 'Educational Technology and Communication Skills' module was selected were based on informed opinions and experience. In addition, this module includes theoretical and practical information regarding using technology in education. It is also very useful to teach students this module via Hybrid MOOCs because it is an education technology module itself. Finally, since all students within the Faculty of Education desire to be a teacher in their careers, this module can be quite beneficial.

This module is a compulsory core unit for the BSc Education degree in all Faculties of Education in Saudi Universities which gives it prominence. It also has a multi-dimensional approach when conveying information as it imparts knowledge to the students based on both a theoretical and practical basis. Being taught in the first semester suited this research very much since the researcher had already plans to travel to Saudi Arabia during this time. The fact that it is a prerequisite for many popular modules such as 'Educational Materials' and 'Using Computer in Education' makes this module one that many students must take seriously. Cooperation was a determining factor as well since a prominent faculty member teaching the module at Majmaah University stated his availability and willingness to participate. This made the researcher’s life very easy and it was motivating to see this much support. One additional element which made choosing this module technically familiar was the researcher's experience, which is more than ten years in fields closely related to teaching and designing materials for education.

3.7.2 The Content of the Module

The content of the 'Educational Technology and Communication Skills' module was determined based on the main reference which is 'Educational Technology and Communication Skills', by Mohamad Alqomaizy third edition, 2016. This book consists of fourteen chapters, from which the researcher and faculty member have selected ten chapters (due to time constraints). During the experiment, one chapter from the book was taught to students every week, whether they were in the experimental or control groups. Table 3 shows the ten chapters are from the textbook

used for this module:

Table 3: The Ten Chapters Used in the Module

Chapter	Name of Chapter	Subjects
First	Introduction to Communication	It presents an overview of the concept of communication, educational communication, the elements of communication process, the importance of communication, features of communication and difficulties of communication
Second	Communication Models	This is about the concept of communication models, benefits of communication models, types of communication models (linear/ interactive)
Third	Communication Skills	It encompasses types of communication and how to deal with them. For example, listening and speaking skills
Fourth	Communication and Educational Communication	It encompasses the concepts of communication and educational communication, their importance, features and difficulties
Fifth	Teaching Aids	This includes the developmental stages of teaching aids, difficulties in using teaching aids and the new roles in teaching aids
Sixth	Teaching Aids and their Classifications	This covers the concept and development of teaching aids, the importance of teaching aids, selection criteria of teaching aids, bases of designing and producing teaching aids and difficulties in using teaching aids
Seventh	Teaching Devices	It covers overhead projectors, visual presenter, slide projectors, electronic board and electronic platform
Eighth	Advanced Teaching Aids in Education	It includes how to use computers, e-books and web in teaching
Nine	Recent Directions in Educational Technology	It comprises e-learning, distance learning, virtual universities and educational platforms
Tenth	Social Media in Education	The concept of social media, the pros and cons of social media

3.7.3 Experimental Group

A. Rwaq platform

The teaching program designed for the experimental group was in the Rwaq platform. The Rwaq platform head office is located in Saudi Arabia and through its website, it provides for 11 different subjects. It offers more than 137 public courses serving a large number of educational institutions in Arab countries (Mutawa, 2017). It was established in 2013 by two Saudi businessmen, Fouad Alfarhan and Sami Alhussayen. A point of interest is that, during the same time of conducting this research at Majmaah University, they have established a new platform called A'nab platform. This platform is specialized in publishing resources and educational courses for Arab educators and teachers (A'nab, 2019).

Figure 9: Initial Background for Rwaq Platform when Accessing the Site

The Rwaq platform has been selected for many reasons to teach the experimental group including simplicity in use for students and not requiring a high level of computer skills. Furthermore, it provides students with an array of tools which facilitates their learning and interaction with course materials such as video, audio, discussion forums, quizzes, emails, and a space allocated for placing academic articles. The fact that it diminishes language barriers via using Arabic is a blessing for students, reducing much stress. Another issue which not only reduces stress and increases accessibility like the issue of utilizing Arabic language, is it being free of cost, allowing students from any economic background to register.

On maintenance issues, there is a degree of reliability, facilitating peace of mind for users, as the staff who work in the Rwaq platform give support for any technical problems. Other staff who work for the platform, but on administrative level, cooperate with the lecturer in terms of video production and providing locations for photography. In this manner, teachers are recognized and acknowledged which eases their involvement. This module has attracted 5821 learners from different Arabic Countries from different ages. It must be noted that the number of participant dropout was 364.

B. Learning Strategies

Personalized learning strategies are one of the important considerations that have to be taken into account when Flipped Classrooms are used together with Hybrid MOOCs. According to Wang *et al.* (2016), Johnston (2015), Parra (2016) and Griffiths *et al.* (2015), there are three stages to implementing Hybrid MOOCs with Flipped Classrooms. The three phases are before classroom, in classroom, and after classroom. According to Wang *et al.* (2016, p. 101), "*Design of personalized learning strategies is to not only meet the individual needs of learners, but also support the diverse participation and learning for learners*".

Prior to commencing the experiments, the following will transpire:

• Course materials were made available online

1. Video lectures: Each week, one or two video lectures will be held that discuss a topic. The video length is between 10 to 15 minutes in order to prevent boredom in students during watching times (as shown in Figures 10 and 11).

Figure 10: Video lectures - Arabic in the Rwaq Platform

Figure 11: Video Lectures - English

2. Reading: There will be several reading activities which will be made available online for students. The reading will include articles, book chapters, website links, and PowerPoint slides.

3. Assessment: After each video, an assessment will be held that includes a short quiz or questions directly associated with the contents of the video. It can include between four to five multiple-choice and true-false questions (as shown in Figures 12 and 13).

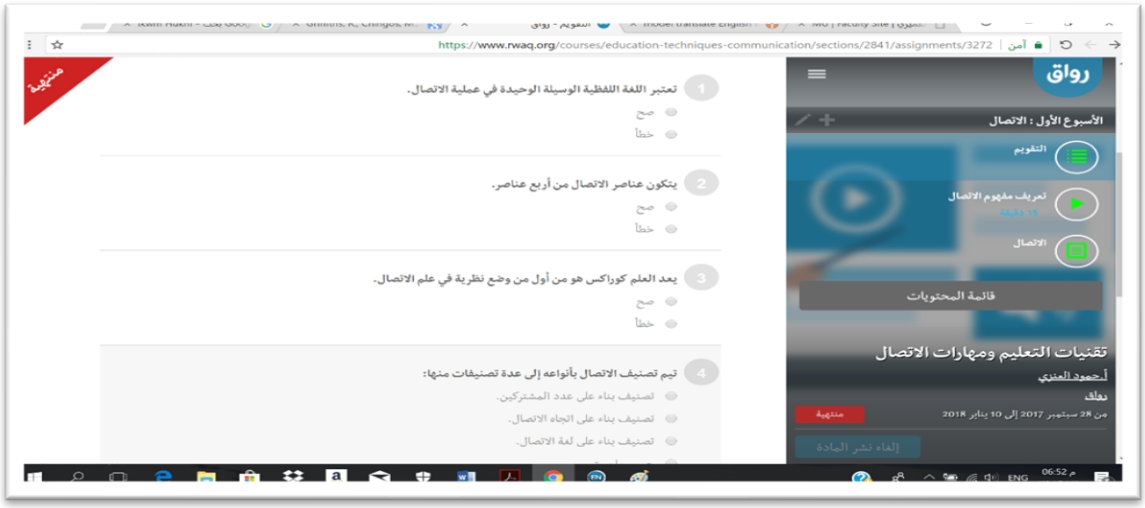

Figure 12: Assessment - Arabic

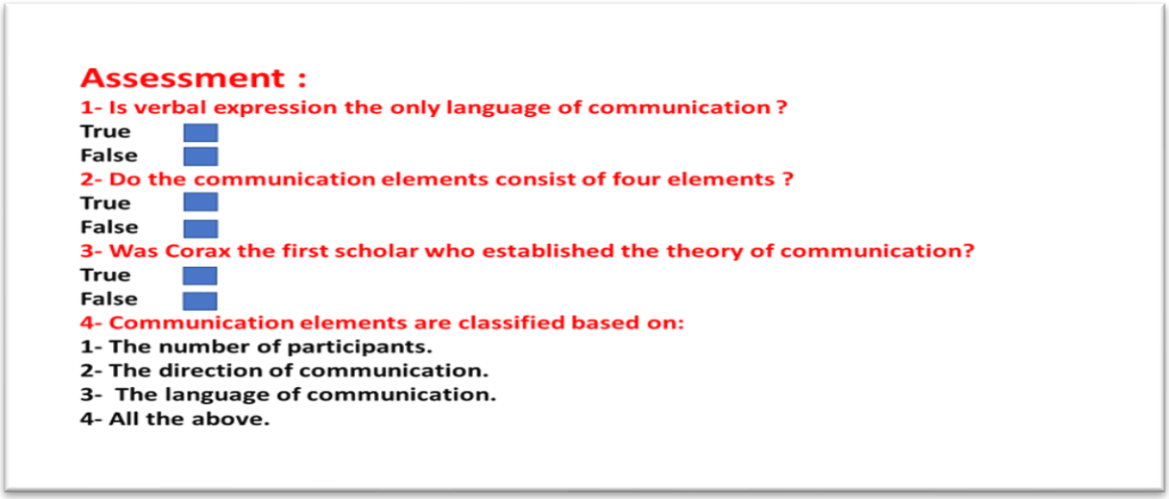

Figure 13: Assessment - English

During the first week of the experiment, students had a general introduction regarding the module in the classroom. Information such as aims, objectives, and assessment methods were offered as well. In addition, students had a one-hour induction session which trained them on topics such as registering in the Rwaq platform, how to use the Rwaq platform, and how to post their questions in discussion forums.

Before class, in the second week four days prior to attending the classroom, experimental group students had received an e-mail in their university account on how to access the platform. This was sent with basic steps for students which were easy to follow. For additional ease and simplicity, teaching methods in the platform were divided into four sections: Electronic courseware, video lectures, quizzes, and discussions. This classification was meant to increase clarity and transparency.

For the first task, students were formally asked to engage with contents and materials in the Rwaq platform. To get them started, they have been asked to watch a video lecture regarding a chapter and read an article. In order to collaborate with each other and ask any questions, learners have been requested to use discussion forums. An additional activity asked from students was to do an online quiz with automatic feedback.

In the class, after having worked on the MOOC sections before, the students will attend the Flipped Classroom for two hours. During the classroom time, students and the teacher interact with each other to clarify points of confusion, giving more individual guidance. In order to increase practical capability and understanding, learners receive practical training workshops

to design and produce some educational materials such as transparency papers, PowerPoint presentations, and educational boards. In addition, learners are required to give presentations regarding their work in the classroom. For the purpose of feedback to students, the teacher will summarize all activities at the end of class, giving students a full picture.

After the class, there was interactive online communication on the platform between students and the researcher regarding what the students learned in the class. Learners modified and improved their tasks and activities outside classrooms as well. Furthermore, the researcher uploaded learning resources onto the MOOC platform.

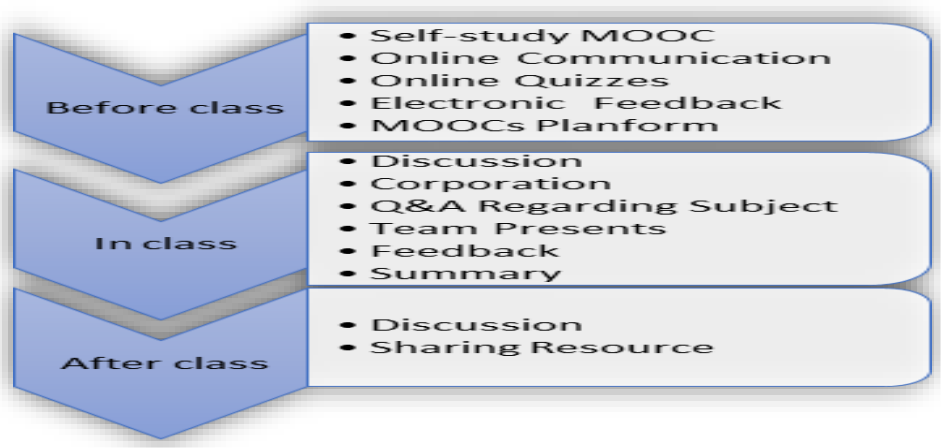

Figure 14: Teaching Based on Hybrid MOOCs

C. Curriculum Design

In this study, the module was taught chapter by chapter. Students studied one chapter each week for two hours. Frequently, chapters were divided into two units. Each unit was presented, usually via two video lectures (ten to fifteen minutes per video lecture) (Najafi, Evans and Federico, 2014; Griffiths *et al.*, 2015; Johnston, 2015; Parra, 2016). In addition, students had reading material supporting them on new knowledge or skills related to the unit. Moreover, there was a discussion forum which was used by students to discuss matters with information transferred between them.

As noted before, for the purpose of designing the teaching materials of this module, the ADDIE (*see* Appendix 1 and 2) model was deployed for many reasons. One reason for adoption is that according to Parra (2016) and Croxton and Chow (2015), the Instructional Design Model best fitted for MOOCs is ADDIE which includes five stages. The five phases are analysis, design,

development, implementation, and evaluation (Molenda, 2003; Crawford, 2004; Croxton and Chow, 2015). In addition, according to Parra (2016), ADDIE can help the instructor in creating the learning community, construction of collaborative experiences, and the use of formative assessments. Moreover, the use of the ADDIE model could improve students' engagement, motivation, and increase levels of their achievements through enabling compatibility of online and in-class components of MOOCs (Wang and Hsu, 2009; Parra, 2016).

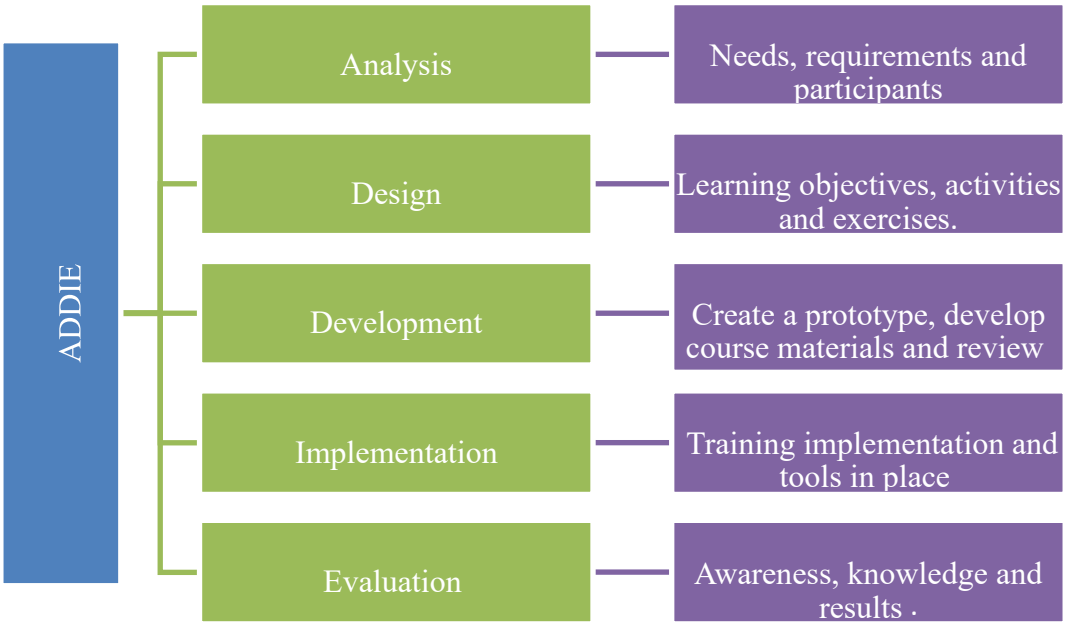

Figure 15: ADDIE Model

3.7.4 Control Group

The control group should attend 2 hours of class every week. They were taught using the existing face to face traditional pedagogy. In the class, the teacher offers a review of the previous lesson, in addition to an introduction of the lesson about to be taught. The teacher uses PowerPoint to teach the students the content of the module in a presentation style. Each week, students study one chapter from the book, 'Educational Technology and Communication Skills' during class time while the teacher offers verbal information and guidance. In this class, the students are passive and less discussion is conducted. These classes are conducted in a top-down format where the teacher explains the lesson and students are merely the receivers of information with very little if any autonomy. It is a one-way teaching method from instructor to pupil. In this setting, the teacher is the only source of guidance for the student and the students are merely followers with no input as to how the class functions. In these traditional classes, students study only from the book and attend exams, while in the experimental groups, students

have the chance of studying on the platform in addition to the textbook.

3.8 Data Collection Instruments

3.8.1 Pre-test and Post-test

A common method in educational research which is very apt for understanding innovations in teaching and learning is the pre/post-test technique. It is normally used when the researcher wants to discern changes in educational results due to an alteration in teaching and learning processes (Campbell and Stanley, 1963). Specifically, in the pre-test, participants are assessed for a characteristic prior to receiving the treatment of alteration in learning processes. Measuring the characteristic after the treatment has been given, or after students have been subjected to the teaching modification, is the post-test. The advantages of a pre/post-test is that it offers a clear comparable insight into how the modification in learning or treatment has been received by participants, but also has disadvantages such as being too time and energy-consuming, and influencing the participants' expectations and how they perceive the treatment since they already had a pre-test (Creswell, 2014). After discussing the pre/post-test design with the teacher of the 'Educational Technology and Communication Skills' module, it was decided that all the ten chapters of the book, 'Educational Technology and Communication Skills' book should be included in the pre/post-test. Due to educational regulations in Saudi higher education institutes, tests must be given in a manner to include several types of questions such as multiple-choice, true/false, and fill the blank. This is the reason why five kinds of questions have been included in the pre/post-tests. The first section has ten items based on a true/false format answer. The second section has five multiple choice questions. The third section has five fill-the-blank items. The fourth section has five questions which have to be answered in a bullet point concise manner. The fifth section has two questions which the student answers in essay format (*see* Appendix 3 for item of each section). The sections with the items in each, cover main subjects and principles of the textbook allocated for the module. The aim is to measure how much students have learned the teaching objectives of the module from the textbook, 'Educational Technology and Communication Skills'. The timing of the pre-test is during the second week of the first semester and the post-test is given in the thirteenth week of the first semester.

3.8.2 Questionnaires

There are many studies in the field of education which have used questionnaires as data collection tools since they are among the most important instruments in social science. Wiersma (1986, p. 179) defines questionnaires as follows:

> "*the questionnaire is a list of questions or statements to which the individual is asked to respond in writing; the response may range from a checkmark to an extensive written statement*".

Wiersma (2000) and Cohen *et al.* (2011) state that questionnaires have many formats such as open-ended questions, closed, short written responses, Likert-type responses, multiple-choice, and rank ordering. Each type has been used for specific goals in a situation. However, in the current study, the researcher has used closed questionnaires to receive student responses regarding their point of view about the experiment. A number of advantages from using closed questionnaires is that all questions can be easily answered by participants, they have more motivation for focusing on them, and less time needs to be consumed for filling them. Therefore, no data regarding any question will be missed. According to Griffith *et al.* (1999), there exists a high level of missing data in the open-ended questionnaire as compared to the closed questionnaire. Another benefit is that the researcher can gather a huge amount of information from many people with time efficiency.

When constructing the questionnaire for this research, four dimensions on how students responded to using Hybrid MOOCs were contemplated on. The goal was to create a questionnaire that would grasp students' experiences and perceptions regarding the use of this new teaching method in education.

The questionnaire started by asking demographic data, students' background regarding e-learning, familiarity with technology, acquaintance with MOOCs, and usage of social networks. The aim of this introductory section was to get a grasp of the background of students in the experimental group. After this section, the three dimensions relating to the students' overall perception of their new method of learning were presented.

The three dimensions were titled:

- Student experiences of Hybrid MOOCs
- Attitudes towards using Hybrid MOOCs
- Challenges in using Hybrid MOOCs

The first dimension focuses on experiences of students and has seven subsections asking students regarding, 'Which digital component within MOOC platform such as video, audio, discussion forums, or online interactive quizzes, are most/least favourite for students (5 items)', 'the flexibility of using Hybrid MOOC (4 items)', 'Quality of the content (8 items)', 'Self-Regulated Learning (7 items)', 'Networked Learning (21 items)', 'Instructional Design (5 items)', 'Assessment Design (6 items)'. Students are asked to tick their experiences on a 5-point Likert scale (*see* Appendix 7 English and 8 Arabic) except the first subsection which uses a 6-point Likert scale.

The second dimension aims to understand students' attitudes towards their new method of learning. It consists of 15 items and students are asked to tick boxes pertaining to the 5-point Likert scale regarding each item of enquiry.

The third dimension is where students express the challenges they had using this new method of learning. It consists of 10 items where students express their views 5-point Likert scale.

3.8.3 Interviews

Cohen *et al.* (2011, p. 409) state that, "*The interview is a flexible tool for data collection, enabling multi-sensory channels to be used: verbal, non-verbal, spoken and heard*". Interviews in social sciences have five types but all aim to understand the peoples' thoughts, beliefs, sentiments, and attitudes via questions. These five types are structured interviews, semi-structured interviews, non-directive interviews, focused interviews, and narrative interviews (Green, 2009; Cohen *et al.*, 2011).

The interview consists of three dimensions, namely: Students' experiences in the MOOC, attitudes they have towards the MOOC, challenges they face when studying via Hybrid MOOC. The interview starts with an opening where the researcher gets to know the participants, allows them to be relaxed and comfortable introducing themselves, assures confidentiality, and offers an introduction to the interview and its aims.

The first dimension has seven questions about students' experiences when learning via Hybrid MOOC. The second dimension has two questions regarding attitudes towards Hybrid MOOCs in education. The third dimension has two questions allowing room for the students to express the challenges they faced in the Hybrid MOOC with Flipped Classroom. At the end, students were given freedom to add any thoughts or views they might have in a comfortable informal manner (*see* Appendix 9 English and 10 Arabic).

3.9 Data Collection Procedures

In social research, data collection is one of the important phases that signifies an essential point in the project (Bryman, 2016). In other words, collecting data aims to gather information from the participants in the study. In this study, the researcher has used two instruments to collect quantitative data which are questionnaire and pre/post-test. The instrument used at the beginning is pre-test (2nd week) followed by the questionnaire (12th week) thereafter. At the end of the semester, before the final class, the researcher sent emails to the students regarding their participation in the questionnaire. In this email, the researcher offered the link to the questionnaire. Thereafter, the researcher and the teacher met students in the final class, giving them a general overview of the curriculum before the final exam. At the end of this class, students were asked to check their email and answer the questionnaire. In the current study, the researcher used Google Forms to design the questionnaire. Brace (2008, p. 32) believes that there are many ways to deliver a questionnaire. He has stated that,

> "*Most studies of how people respond to web-based questionnaires have found that they are completed more quickly than their equivalent telephone or face-to-face administered versions*".

It must be noted that Google Forms has many types of questions that the researcher can utilize easily such as open-ended questions, closed, short written responses, Likert-type responses, multiple-choice, and rank ordering. An advantage of Google Forms is that it allows a researcher to transfer the data to Excel and SPSS programs, with efficiency, saving the researcher time and effort. The link of the questionnaire was sent via email to students for ease and speed. Students could access the link, fill the form on Google Forms, and submit it electronically for the researcher to observe the results via Google Drive. Notably, the researcher has received 45 responses from all students who were in the experimental group.

The post-test to obtain quantitative data is done after the questionnaire in week 13. In this experiment, this was used to examine the change in marks or grades obtained from students who were in the experimental and control groups. The pre-test was in the 2nd week of the experiment, and the time of the test was one hour. However, before the pre-test, the teacher and researcher explained to students the aim of the pre-test which was to gather data regarding their level of knowledge in the module, and that there is no risk for them if they have a low mark. The purpose of this explanation was to keep students relaxed when they were doing their exams. The questions in the test were the same for both experimental and control groups.

Both groups (experimental and control groups) had a post-test that had the same criteria of the pre-test. However, there were several differences in terms of time and place. The time of the post-test was two hours. This was due to the regulations in the Faculty of Education which demand students must have two hours to do their exams. An additional requirement of the faculty was that all students who study the 'Educational Technology and Communication Skills' module must have their exams at the same time. In addition, the place of the exam was in the hall of the college.

A useful type of data collection for qualitative results is the interview (14^{th} week). The aim of using interviews is to have a deep understanding of the topic of research, especially exploring how Hybrid MOOCs can improve experiences, attitudes, challenges, and complications when they are used in student learning. In addition, interviewing has the quality of being able to assist the researcher to obtain a more complete representation of the experiences that the participants underwent (Walker-Gleaves, 2010). In this study, the researcher asked ten students of the experimental group to participate in the interview within the classroom, writing their name and email. Afterwards, the researcher sent a letter to their email, explaining the purpose of the interview, offering information regarding aims and questions of the study, notifying them that they have a right to participate in the interview or not without any negative consequences. Nevertheless, only eight out of ten agreed to be involved in the interview. Thereafter, the researcher sent the timetable for each student, stating the time and location for the interview.

The semi-structured interview was conducted in the 14^{th} week of the first semester which is the last week of the experiment. The interviews were done in the office of the teacher of the 'Educational Technology and Communication Skills' module on a private one to one face to

face basis. The researcher divided the interviews between two days. In the first day, four students were interviewed and in the second day, the same number of students were also interviewed. Interview duration was between 30 to 40 minutes.

In the interview, the researcher tried to establish a good relationship with the interviewees by welcoming and thanking them for coming to the office. In all eight interviews, students were asked for permission to record the interview. After finishing the interview with eight students, the researcher listened to the recordings carefully and transcribed them in Arabic language by Microsoft Word. Each recording was listened to three times to ensure no data was missing when they were being typed. Then, the transcription was sent to two of the eight students for the purpose of accuracy, who replied with no corrections. Afterwards, the researcher translated the transcripts from Arabic language to English during a long and tiresome process. When finishing translating the data, the transcriptions were sent to three students at the Department of Linguistics at Newcastle University, who are fluent in Arabic and English, to check the precision of the translations.

3.10 Data Analysis

For purposes of data analysis, the research has used both qualitative and quantitative instruments to answer the research questions. In order to answer the first, second, and third questions, the researcher used two qualitative instruments (semi-structured interviews and questionnaire) as seen in the table below. For answering the fourth question, only quantitative instruments were used (pre/post-test) as shown below.

Table 4: Research Questions and Corresponding Qualitative/Quantitative Instrument

Research Question	Quantitative	Qualitative
1- What are the students' experiences when they used Hybrid MOOCs?	Questionnaire	Semi-structured Interview
2- What are the students' attitudes towards using Hybrid MOOCs in their education?	Questionnaire	Semi-structured Interview
3- What are the challenges that students who study the 'Educational Technology and Communication Skills' module by means of Hybrid MOOCs face?	Questionnaire	Semi-structured Interview
4- What is the impact of using Hybrid MOOCs on students' academic achievement in the 'Educational Technology and Communication Skills' module?	Pre and Post-test	

3.10.1 Quantitative Data Analysis

The present study investigates the impact of Using Hybrid MOOCs on students' experiences, attitudes, challenges, and achievements within higher education in Saudi Arabia. It seeks to find out if there are any differences between students in the experimental group who were exposed to Hybrid MOOCs and students in the control group who were taught via normal face-to-face instruction in terms of academic achievement. In addition, the study sets out to investigate students' experiences, challenges and attitudes towards using Hybrid MOOCs in their education**.** The researcher performed the following steps to analyse the study data.

First, the questionnaire used in the present study yielded a 100% response rate, which has enhanced the questionnaire validity (Hair *et al*., 2014). The questionnaire data were first transferred to Excel 2013 and later exported to Statistical Package of Social Sciences (SPSS version 24). Each item in dimension 1 (students experiences), dimension 2 (attitude), and dimension 3 (challenges) was rated on a 5-point Likert scale representing five possible responses ranging from strongly agree to strongly disagree. Particularly, just the 1st subsection in dimension 1 (The Relative Importance of Each MOOC Component) was rated on a 6-point Likert scale ranging from “extremely favoured” to “extremely unfavoured”. The researcher calculated the frequencies for each item separately in each dimension of the questionnaire and the descriptive statistics will be presented in the next chapter.

Second, to find out the differences between the experimental group and the control group, the researcher conducted an Independent Sample t-test at both the pre-test and post-test.

According to the study goals and objectives, the following analysis tools were employed:

- Demographic analysis for respondents
- Descriptive analysis of the study's key variables (e.g. Frequency, Means, Median, Standard Deviation)
- Cronbach Alpha test for reliability analysis and internal consistency
- Paired sample t-test to investigate within-group differences in relation to time (pre-test vs. post-test) for each group
- Independent Sample t-test to investigate between-group differences (control vs. experiment) at each testing session
- One-way ANOVA to measure the effect size of the difference in group Mean at each

testing session

3.10.2 Qualitative Data Analysis

Patton (2002) views qualitative analysis as translating qualitative data to findings. Mertler (2008) views qualitative data analysis as a daunting task since scholars have to condense enormous volumes of data and examine it. Other scholars have pointed out that data analysis for qualitative research involves indicating, recognizing, and acknowledging trends/patterns within the data.

Scientists such as Creswell (2014) and Bryman (2012) note various ways of conducting qualitative data analysis, but generally, qualitative data analysis methods are grouped in three main domains: categorizing methods involving coding and thematic analysis, connecting methods involving narrative analysis and case studies, memos and displays (Coffey, 1996).

When a method attempts to detect, report, and analyse themes within data, thematic analysis has been used (Braun and Clarke, 2006). This technique is very useful when a comprehensive arranging and explaining of the data set is needed. It is also capable of interpreting various properties, dimensions, and features for the subject of the research (Boyatzis, 1998).

For the purpose of this study, semi-structured interviews were used in order to obtain qualitative data and the researcher utilized thematic analysis. The reasons for employing thematic analysis are explained below:

Firstly, a credible qualitative research must have the capability for allowing interpretations that are aligned with the data gathered. That said, thematic analysis is capable of indicating aspects or forces that affect matters raised by the participants. For this research, the way participants see the world surrounding them and how they perceive it, is critical to the current investigation which thematic analysis supports by considering their thought processes, behaviours, and sentiments (Hatch, 2002; Alhojailan, 2012).

Secondly, since the aim of the interviews is to clearly understand the points and implications within them, thematic analysis is useful since it allows for discerning patterns, categories, similarities, and links between them, in addition to allowing for the clear display of the themes from the interviews for further observation interpretation to make wider generalizations (Miles and Huberman, 2002; Braun and Clarke, 2006; Alhojailan, 2012).

Thirdly, this study intends to detect gaps within the Saudi education system and the researcher's own teaching practice. Therefore, identifying sentiments and views of participants is necessary to discern what is lacking and what is required based on the understandings of participants. Thematic analysis is befitting for this purpose as it offers an array of points referred to by the participants detailing their situation and settings clearly and precisely as they see it.

Although there is no one specific outline on how to conduct thematic analysis and coding (Bryman, 2012), the steps taken within the thematic analysis procedure inside this study are based on the model from Creswell (2014) which is aimed at validating the accuracy of the information within the data analysis of the qualitative research. This includes six phases. The first phase involves organizing and preparing the data obtained from the interviews. The researcher transcribed the data from the recordings and thereafter translated them from Arabic to English.

Afterwards, the transcriptions were thoroughly read and re-read in the second phase in order to understand and take in a general sense and meaning. The third phase involved arranging the data that was studied into categories, with a word or phrase labelling each category/theme. This word or phrase represented the theme/category and the process is called coding. It can be done in two ways: either codes emerge as the researcher reads the texts, or codes are pre-determined and data is placed into the categories that fit. This research used a 'combination of emerging and predetermined codes' (Creswell, 2014). For the purpose of this research, main codes were pre-determined as the coding was done using several codes under each interview question, to provide more clarity regarding what each category/theme entails. Thereafter, each theme was further divided into smaller sub-themes related to the main theme, for the purpose of more accuracy and detail, and these were coded from emerging information. In addition, next to each sub-theme, a concise example from the interviews in the form of a quotation was placed.

Within the fourth phase, the researcher offered a portrayal of each theme/category which describes the setting, participants, and events relating to the category. This description can be seen vividly by the 11 interview questions which represent each theme/category. It must be noted that the 11 interview questions which are used as the categories/themes have appeared from in-depth insight of the thesis's 3 research questions. Subsequently, the researcher devised, inductively, a qualitative narrative to show the results of the analysis in a fifth phase. This included discussions, chronology of the interviews, details of themes and sub-themes, various

viewpoints of the participants, quotes from participants, and finally linking them all in an account or narrative passage.

The final or sixth phase was interpreting the findings, obtaining the essence of what transpired. This interpretation would offer conclusions about students' learning journeys and how these learning journeys compare with previous literature. The discussion chapter will fully elaborate on the implications of these findings for Saudi education system.

3.11 Reliability and Validity of Quantitative Data

Many researchers in social sciences have concentrated on the concepts of reliability and validity to achieve high-quality standards for their research. Reliability is related to dependability (Cohen *et al.*, 2011). Validity, however, means the meaningfulness of the findings of the research and the overall value of the study (Hartas, 2010). Quantitative research can be reliable without being valid, but it cannot be valid without being reliable.

3.11.1 Validity

Validity in quantitative research refers to the instrument that the researcher utilizes to collect the data of the research. The instrument is expected to measure what it is constructed to measure (Cohen *et al.*, 2011; Bryman, 2016). According to Cohen *et al.* (2011) and Bryman (2016), there are many types of validity that can be used in social sciences, such as content validity, criterion validity, face validity, construct validity, internal validity and external validity. However, in the present study, the researcher focused on internal, external, and content validity as follows:

Internal validity

Internal validity is one of the most important criteria to examine the quality of quantitative research. It is concerned with whether the treatment applied affects the results of the experimental group (Christ, 2007; Cohen *et al.*, 2011). In other words, the aim of the experimental design is to investigate the relationship between the independent variable and the dependent variable. However, there are other extraneous variables that could influence the results of any research (Christ, 2007; Cohen *et al.*, 2011). In this study, the researcher took into consideration these extraneous variables that may affect the result of the study. For example, in this research, the researcher has determined all extraneous variables before starting the actual study, such as the teacher, the curriculum, the timing of the pre-test and the post-test.

Experimental mortality is one of the extraneous variables that may affect the results of the study. There were three incidents of participant drop-out in the experiment. Two participants in the control group and one participant in the experimental group who took the pre-test did not make it to the post-test and consequently, their data were excluded from the study to eliminate the threat of experimental mortality. Another variable is the selection where both experimental and control groups were equivalent, in terms of marks, at the beginning of the study as evidenced by the pre-test results.

The issue of sampling is an extraneous variable which could influence results, but this was prevented as participants in both groups were homogeneous in relation to age, educational background, gender and social and economic background. An added variable to consider but not for this study, was the element of maturation. Luckily, this threat does not apply to the present two-group study because if we assume that maturation happens, it will presumably affect both groups at the same rate. Therefore, it is not a threat to internal validity in the present study.

A final variable which must be considered is history. Fortunately for this study, it is not a threat as there are two groups and if any event happens at the time of the treatment, it will similarly impact both groups. As such, any difference between the two groups in the post-test would be the result of the treatment rather than the result of any history event.

External Validity

For considerations of external validity, many factors were contemplated. For instance, there was no multiple-treatment effect in the present study because only one treatment was provided for the experimental group, which enhanced the external validity of the study. In addition, testing is also not a threat to the present study design. Both groups performed the pre-test. So, any difference between the experimental and the control groups in the post-test is not caused by testing.

As far as considering the teacher for the module, both groups were taught by their usual module teacher. The researcher had no effect on participants' responses since his contact was only with the teacher to give instructions and guidelines on conducting the experiment. Therefore, the researcher effect was not a problem. A further issue which did not cause a problem as well, was the Hawthorne effect. Participants' performance in the present study was not modified/altered as a result of *'their awareness of being observed'* since they were attending their compulsory

classes as part of the academic year curriculum with no external observer, although they knew they were participating in an experiment.

Fortunately, the setting in which the present study was conducted imposed no threat to the external validity since it was the *'real world'* classroom environment as opposed to an artificial controlled research environment. Moreover, participants in this study are representative of the larger population of first year 'Educational Technology and Communicational Skills' students at university level which is a compulsory module in all Saudi Universities in the Education Faculty. Therefore, as far as the issue of participant characteristics, there was no threat to external validity.

Content Validity

Content validity is one of many types of validity that can be applied in educational research (Cohen *et al.*, 2011; Punch, 2014; Suen and Ary, 2014). Suen and Ary (2014) state that content validity focuses on the items of an instrument. These items should cover all important aspects related to the content of the study. In the present study, the researcher has attempted the following with the aim to maximize the content validity:

Firstly, the researcher has reviewed the literature pertinent to the question under investigation, focusing on the empirical studies on MOOCs, MOOCs' impact on teaching, MOOCs' influence on academic achievement, students' motivation with MOOCs, Flipping the classroom with MOOCs, using MOOCs for higher education, Self-Regulated Learning with MOOCs, and Blended MOOCs with achievement. Then, based on this extensive reading (Larsen, 2012; Owston *et al.*, 2013; Hood *et al.*, 2015; Ja'ashan, 2015; Yousef, 2015; Hone and El Said, 2016), the researcher gained insights into the relevant dimensions and items that serve the purpose of the present inquiry and created the questionnaire discussed earlier in this chapter.

Secondly, the researcher sent a first draft of the questionnaire to the project supervisors, got constructive feedback from them and revised the questionnaire accordingly. Moreover, the questionnaire was sent to and approved by six faculty members and experts in educational technology, curricula, and teaching methods at Taif and Majmaah Universities who have a good experience in higher education of Saudi Arabia.

Thirdly, the final draft of the questionnaire which was approved by the supervisory team was translated from English language to Arabic by the researcher and thereafter checked by two

PhD students in Linguistics at Newcastle University who were from Saudi Arabia and are well acquainted with the Saudi educational system.

3.11.2 Reliability

Reliability in quantitative research is concerned with the consistency of the results a certain research method produces. This means if one uses the same research instrument on more than one occasion to measure a certain construct, the obtained results from the two testing times should be similar, in order for the instrument to be reliable.

Pre and Post-tests

A number of methods have been proposed to calculate the interrater reliability in a certain research design ranging from the simple percentage of absolute agreement to more complex indexes such as Cohen's kappa, and the intra-class correlation coefficient (Dassa, 2009; Shweta *et al.*, 2015). The simplest of these methods is the percentage of absolute agreement which is obtained by simply calculating the number of times raters agree on a certain rating, then dividing them by the total number of ratings (both the agreement and the disagreement ratings) to get a percentage range of 0-100% (Shweta *et al.*, 2015). The researcher followed this method in calculating the interrater agreement for the pre-test and post-test scores.

A random sample of 25% of the pre-test data was independently marked by a second marker (the researcher) after the teacher of the 'Educational Technology and Communication Skills' module had marked the whole sample. Interrater reliability (IRR) using percent agreement method revealed an acceptable agreement percentage between the two raters (75%) (Mandrekar, 2011; Graham *et al.*, 2012). An equal sample from the post-test (25%) was also marked by a second rater using the same method and the percentage of IRR proved to be acceptable (70%) (Graham *et al.*, 2012).

Questionnaires

In order to ensure items are asked of students in a professional manner, various questionnaires from other scholars were studied and inspirations were gained. The items where students have to express a certain view were given in a concise easy to understand manner aimed to reduce boredom and increase interest in students. It was ensured that students can express and fill in the questionnaire with full autonomy and no external influences affect them.

Before sending the forms to students, the following were done: approval was obtained from the supervision team, the questionnaire was translated from English to Arabic by the researcher, it was later shown to two Arabic PhD Linguistics students at the University of Newcastle to ensure translation accuracy, the questionnaire was then sent to six lecturers in Education Studies within Saudi Universities including Taif and Majmaah to obtain professional feedback regarding how much the questionnaire captures the desired outcomes for this project.

The following tables show the results of reliability for each dimension of the questionnaire. In order to obtain the results below, Cronbach's Alpha test was used to measure the reliability of each dimension in the questionnaire.

Table 5: Reliability Results

No	Section	Number of Items	Cronbach's Alpha
1	The Relative Importance of Each MOOC Component	5	0.751
2	Flexibility of Using Hybrid MOOCs	4	0.709
3	The Quality of Content	8	0.788
4	Self-Regulated Learning	7	0.706
5	Networked Learning	21	0.893
6	Instructional Design	5	0.706
7	Assessment Design	6	0.777
8	Attitudes Towards Using Hybrid MOOCs with Flipped classroom	15	0.905
9	Challenges	10	0.790

As shown in Table 5, the result of reliability indicated that all variables scored Alpha results >0.7, which means that there is a consistency among each set of items (Hair *et al*., 2014).

3.12 Trustworthiness of Qualitative Data

There are different ways for qualitative researchers to check and judge the quality of their findings which are contrary to the quantitative method. In quantitative research, a researcher uses reliability and validity to assess the quality of the study, while in the qualitative research, the researcher can use other criteria of validity (Cohen *et al.*, 2011). According to Cohen *et al.* (2011) and Creswell (2014), there are two criteria to check the quality of qualitative findings which are noted as authenticity and trustworthiness. According to Cohen *et al.* (2011), Creswell (2014) and Graneheim and Lundman (2004), the trustworthiness of qualitative research is seen in concepts such as transferability, dependability, conformability and credibility. These key

criteria of qualitative research could be compared with the criteria of the validity in quantitative research (Lincoln and Guba, 1985, cited in Cohen, 2011).

Table 6: Qualitative vs Quantitative Research Quality Criteria

Qualitative research quality criteria	Quantitative research quality
Credibility	Internal Validity
Transferability	External Validity
Dependability	Reliability
Conformability	Objectivity

Credibility: In a qualitative study, credibility parallels with the internal validity in quantitative research (Shenton, 2004; Morrow, 2005). Credibility in qualitative research deals with the question of the research. Graneheim and Lundman (2004, p. 110) comment:

> "*The amount of data necessary to answer a research question in a credible way varies depending on the complexity of the phenomena under study and the data quality*".

To achieve credibility in this study, two kinds of sources have been utilized to answer the research question; questionnaires (quantitative method) and semi-structured interviews (qualitative method). In addition to achieving credibility within the qualitative part of the research, the researcher sent the transcripts to two out of the eight interviewees. Moreover, an established six-stage framework for data analysis (Creswell, 2014) was deployed to validate the accuracy of the information (refer to 3.10.2 Qualitative Data Analysis). The research instruments were also checked with colleagues and the supervision team at the beginning of the study.

Transferability: Transferability is similar to external validity in quantitative research (Shenton, 2004; Morrow, 2005). Transferability means, in qualitative research, the outcomes or findings of the study can be applied and generalized to the findings of a study in other situations or populations with small sample sizes (Graneheim and Lundman, 2004; Shenton, 2004; Morrow, 2005). However, in this study, the purpose of utilizing semi-structured interviews (qualitative method) was to gather data and information from the phenomena rather than generalize findings. The questions' order was also a competent instrument designed to give us a deeper understanding of the phenomenon. However, the research may not be transferable to routine educational contexts as the interviewees may have been biased by the fact that they knew this was a novel intervention which the entire department was talking about.

Dependability: The concept of dependability in the qualitative method is same as the concept of reliability in the quantitative method. This concept is related to the quality of the findings (Golafshani, 2003; Gasson, 2004). Gasson (2004, p. 94) comments on dependability: *"the way in which a study is conducted should be consistent across time, researchers, and analysis techniques"*. To ensure the dependability of research findings in the qualitative method, Gasson (2004) states that there are several aspects that can help the researcher to achieve dependability. First, a researcher should explain the procedures on how to collect the data and how it should be analysed. Second, these procedures should be recorded so that they are intelligible to others. To achieve dependability in this study, the researcher has described the data collection for this study accurately. He also describes all procedures when conducting the study and how data was analysed. In addition, the interviews with students were recorded.

Confirmability: Confirmability is the last criterion in qualitative research which means findings of a research should be objective (Shenton, 2004; Morrow, 2005). Gasson (2004, p. 93) comments on confirmability:

> "*findings should represent, as far as is (humanly) possible, the situation being researched rather than the beliefs, pet theories, or biases of the researcher*".

The point is that the findings of a researcher should be the present point of view of participants, not the researcher's point of view. Furthermore, according to Shenton (2004), using triangulation can reduce effects of investigator bias as well. In this research, the researcher has unitized two kinds of methods (questionnaire-quantitative method and semi-structured interviews-qualitative method). The researcher has been accepting of the fact that some interviewees were ambivalent about the intervention, even though he had expected everyone to be either strongly for or strongly against the intervention, and adapted conceptual frameworks accordingly.

3.13 Ethical Considerations

Ethical considerations are crucial concerns that the researcher must take into account while conducting research in social sciences, especially in educational research (Bryman, 2012). The first reason for that is because the research concerns people's lives in the social world. The second reason, which is related to the first, is due to the nature of the research in terms of the methods of data collection and procedures used (Cohen *et al.*, 2011).

According to McDonach *et al.* (2009) and Haggerty (2004), a researcher should have approval from the institute within which he/she conducts the research. The researcher takes into account ethical considerations and implications of MOOCs in all research stages as to avoid any possible harm to human subjects. The researcher has a duty of care not to exploit participants, obtain their consent, and respect their privacy, identity, and anonymity (Marshall, 2014).

Before conducting the research, the researcher obtained ethical approval from Newcastle University to conduct this project in the Kingdom of Saudi Arabia. Similarly, permission from the Saudi Arabian Cultural Bureau in the United Kingdom was attained. A further requirement for the project was receiving ethical approval from the Dean of Scientific Research at Majmaah University to conduct the project in the first semester of 2017-2018 (*see* Appendix 5). This was a bureaucratic task which was done with their cooperation. In order to gain approval from the Rwaq platform officials, their administration was contacted and they allowed for course materials intended for the module to be posted.

Since the research involves human subjects, certain ethical guidelines were followed as explained:

1. A participation information sheet was given to the experimental and control group explaining the purpose of the research, voluntary nature of the participation, their right to withdraw from the study anytime, what their participation demands, how privacy and confidentiality and anonymity are maintained, and who to contact if there are queries.
2. A consent form (*see* Appendix 11) was given to them to sign which is a statement of their agreement to participate willingly and without coercion in the research.
3. The entirety of the information obtained from participants in all parts of the research, including audio recordings of the experimental group's interviews, was kept safe and confidential in digital format which was password protected with a reference number that indicates a specific student. In this way, the pre- and post-tests, interviews, and questionnaire did not have the name of each individual assigned to them. The data was also encrypted as well and stored on the researcher's H drive of Newcastle University as a backup. Moreover, the information obtained by paper during the pre/post-tests and questionnaire was stored in a secure portfolio with access only open for the researcher.
4. In terms of implications for the participants, they appraised themselves in using technology for education, specifically Hybrid MOOCs. It was useful for the participants to assess how and with what level of efficiency they could adapt to the new teaching

method since most teaching in the country had been done via traditional methods. They could also judge themselves in the course under study, 'Educational Technology and Communication Skills' module in Majmaah University, and evaluate if, how, and why their results improved/declined. In addition, they understood the effectiveness of technology in their learning, including wider implications for their country's education system.

5. At the beginning of the research, the researcher described and clarified for both the teacher and students, the purposes and aims of the project. It was made clear that the participants had a right to withdraw from the experiment at any time without any negative consequences. In the first meeting with prospective participants at Majmaah University who studied the 'Educational Technology and Communication Skills' module, the researcher explained both situations of the control group, which were taught by traditional face to face pedagogy, and the experimental group, which were taught by Hybrid MOOCs. The differing characteristics of each condition were clearly and thoroughly explained and a Q&A took place for increased clarity.
6. The research used "random selection" to select two out of the five groups, including one experimental group which will be taught by Hybrid MOOCs and one control group which was taught by face to face traditional pedagogy.
7. Later on, the students of the experimental group and control group were notified of their grades. They were also assured that responses offered, records of the research, and information collected will be held confidential, safe and private. For ease of understanding and efficiency, the researcher translated the consent form from English to Arabic for the participants, and the participants signed this form in Arabic. The students were firmly informed that the responsibility for marks obtained via the 'Traditional Pedagogy' or 'Hybrid MOOCs', lies completely with them as the conductors of this experiment knew not which educational method yields best results in terms of academic achievement.
8. In terms of the ethical considerations for the experimental research, it must be noted that students were informed that in the control and experimental group, they receive different variations of instructions. This can affect their academic achievement differently

3.14 Limitations of the Research Design and Methodology

There were restrictions and limitations within the methodology and research design as any education research. First, it would have been beneficial if the study had been done in more than one institution and different geographical areas of the Kingdom of Saudi Arabia for generalizability concerns. However, this was difficult as universities in Saudi Arabia are located far away from one another, making transportation difficult, timely, and costly. This study was done in a small university within a small city, making it challenging to consider it representative of the whole educational system of the country. Moreover, due to differences with other towns and small universities within the country, it can be also problematic to generalise it to them as each have their own unique features. Since the locality used for this research is a town relatively isolated in the country, there may be complications when comparing the results of the research to other localities which are more connected and modern.

Second, the issue of gender comes to mind as another limitation because this study focused on male students only. Although the researcher respected local rules of behaviour completely, this issue restricted the research much as investigating the reactions of female students in Majmaah University came with its own challenges due to many legal and traditional barriers. The fact that in Majmaah University, the Faculty of Education was separate for male and female students in two distinct buildings, it could cause the results of this study to be different than other universities in the world where this faculty has both genders studying and cooperating on projects.

Third, the issue of which semester the participating students were from is notable as within this study, they were not from different levels, but studying in the first semester of their undergraduate degrees in the Faculty of Education. That is why their abilities and reactions to MOOCs, in particular, or even to any intervention in general might not be the same compared to students who have matured and progressed in various levels of their study.

Fourth, the research only considered the one module, 'Educational Technology and Communication Skills'. This limits the scope of the research as the academic achievement within other modules is not investigated and would require substantial resources.

Fifth, in this research, a quasi-experimental design was employed to randomly select two groups (classes), control and experiment, out of five available classes with the following details: students had already registered on 'Educational Technology and Communication Skills' module

in their convenient time in disproportional numbers from the various departments of the Faculty of Education, all students were from the Faculty of Education (including Arabic Language Department, Islamic Studies Department, English Language Department) in the first semester of studies doing the same module, and the size of the control group was 36 and experimental group was 45. Since all students within this study are from subjects of 'Humanities and Social Sciences', they might be less comfortable with technical and technological measures in education. Therefore, the results of this study might not be applicable to students of 'Natural, Pure, Engineering, and Medical Sciences'.

With the aforementioned details on how the control and experimental groups were established, there is a question on how much the two groups can be representative of the wider body of students in the Faculty of Education in Majmaah University or any institution in Saudi Arabia. Regarding the purposive sampling used for the qualitative dimension of the study in which 8 out of 45 experimental group students were chosen from, it must be noted that the proportion is %17.8 in terms of being representative of the experimental group. The 8 students chosen were from different departments of the Faculty of Education (Arabic Language-1, English Language-3, Islamic Studies-4), having different age (range 18-21), but same gender (male) (*see* Table 29, Chapter 5). The 8 students chosen for the qualitative dimension of the study had the following characteristics: They were more active online in the Rwaq platform, more active in the classroom, had higher willingness to participate in interviews, and had more availability for partaking in the qualitative dimension of the study.

Sixth, there is a concern from contamination between the control and experimental group (Rhoads, 2011) as it would be challenging to physically separate them due to the following possibilities: students in both groups meeting each other in other modules as they are in the same level and faculty, and control group students having anonymous accounts on the same platform which the experimental group students are learning from (as the course is accessible online on the Rwaq platform for anyone).

It must be emphasized that every effort was made that the mentioned six points do not reduce the value of the study through identifying them, acknowledging them, and ensuring all available measures have been considered to reduce their impact.

3.15 Conclusion

This chapter explained the pragmatic paradigm approach employed, which led the researcher to use mixed methods (qualitative/quantitative, questionnaire/interview, pre/post-test), particularly ‘convergent parallel mixed methods’. This research adopted quasi-experimental design which contains one experimental group and one control group. The experimental group was taught by using Hybrid MOOCs while the control group was taught via traditional face to face teaching method. This study took 14 weeks in the Faculty of Education within Majmaah University, Saudi Arabia. In order to obtain the results, the researcher used a questionnaire which contained four dimensions. The first dimension was students' experiences when using the Hybrid MOOC, while the second dimension focused on students' attitudes towards using the Hybrid MOOC. The third dimension allowed students to express the challenges they faced when learning under Hybrid MOOCs. The fourth dimension concentrated on student academic achievement. As for the interview, purposive sampling was used to interview 8 students out of the 45 who completed the questionnaires. The interview contained 11 questions asking the students to elaborate on the same 4 dimensions of the questionnaire. In terms of pre/post-test, the researcher used the same test for both control and experimental groups, ensuring that the difference between their marks is noticeable. The next two chapters will offer the results of the methods discussed in this chapter, in order to compare and contrast the results from the qualitative and quantitative dimensions of the study.

Chapter Four: Quantitative Results

4.1 Introduction

The aim of this chapter is to present the results obtained from the quantitative dimension of the study. It will offer the quantitative results including pre/post-test and questionnaire. The first section of the results will describe the demographic information of the participants in detail. The second section presents student responses regarding their experience when they used Hybrid MOOCs. Moreover, the third section provides the results of students' attitudes toward using Hybrid MOOCs in their education. Furthermore, the fourth section provides information about the challenges that students faced when they were studying with the Hybrid MOOC. The fifth section offers results from examining how Hybrid MOOCs would impact students' academic achievement with regards to the 'Educational Technology and Communication Skills' module in Majmaah University, in terms of marks or grades obtained, compared to the traditional face-to-face learning method. Finally, in the sixth section, a conclusion in the form of a summary of the chapter with significant points is offered at the end.

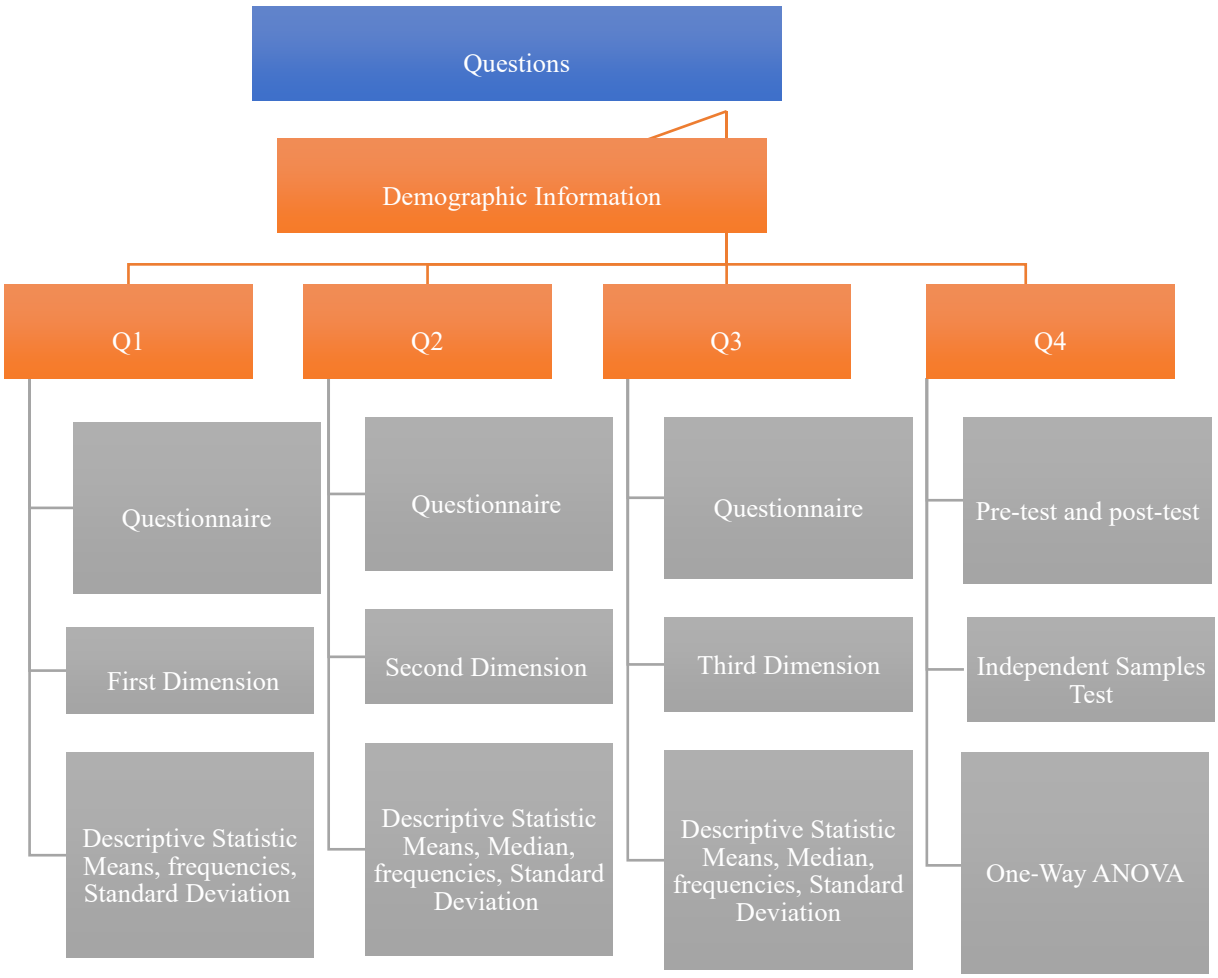

Figure 16: Analysis Procedures Used in this Research

4.2 Experimental Group Characteristics

The questionnaire of the experimental group was conducted on 45 respondents. It included demographic questions that were used to collect information about each respondent's profile. Basic information including age, familiarity with e-learning, electrical devices used, MOOCs and social networks used, were collected to obtain the demographic characteristics of respondents. Table 11 presents the demographic information of the experimental group, and a summary of the characteristics of respondents.

In terms of the age of students in the experimental group, as shown in Table 7, students are grouped as follows: 66.7% are between 18-19 years old, 28.9% were between 20-21 years old, 2.2% were between 22-23 years old, and 2.2% were above 23 years old. The results show that the age group which has the majority, is between 18 to 20 years old, which typically represents the age of students at Majmaah University who are studying the 'Educational Technology and Communication Skills' module.

Table 7: Demographic Characteristics of Experimental Group - Age

Age	Frequency	Percent
18-19	30	66.7%
20-21	13	28.9%
22-23	1	2.2%
Above 23	1	2.2%
Total	45	100%

The results of the question regarding familiarity with e-learning, the questionnaire reveals that all are acquainted with it. Moreover, in terms of electrical devices used, Table 8 shows students rarely rely on one device. They rather rely on a number of devices. For example, 64.4% are using laptops and smartphones. Only 24.4% use smartphones solely. It can be noted that no student in the experimental group uses a desktop computer.

Table 8: Demographic Characteristics of Experimental Group - Electrical Devices

Electrical devices used	Frequency	Percent
Laptop	1	2.2%
Smartphone	11	24.4%
iPad	2	4.4%
Laptop and Smartphone	29	64.4%
Laptop, Smartphone and iPad	2	4.4%
Desktop	0	0%
Total	45	100%

With regards to the experimental group's previous experience with MOOCs, the results indicate that none of the students have ever taken a MOOC. However, 95.6% of students have joined courses that utilize Social Networks (SN) as presented in Table 9.

Table 9: Demographic Characteristics of Experimental Group - Social Network Courses

Have you ever studied courses that utilize Social Networks?	Frequency	Percent
NO	2	4.4%
Yes	43	95.6%
Total	45	100%

In terms of the type of social media, 48.9% of students have used only WhatsApp in their educational life, while 24.4% are using all kinds of social media. Only 4.4% are non-social media users. Moreover, we conclude that the majority of participants have used social networks on their former courses and WhatsApp was found to be the most popular social network used in students' former studies.

Table 10: Demographic Characteristics of Experimental Group - Types of Social Network

Type of Social Network	Frequency	Percent
NONE	2	4.4%
WhatsApp	22	48.9%
WhatsApp and Twitter	5	11.1%
WhatsApp, Twitter and Facebook	1	2.2%
All Social Media	11	24.4%
WhatsApp and Instagram	1	2.2%
WhatsApp and Telegram	1	2.2%
WhatsApp and Other	1	2.2%
Twitter	1	2.2%
Total	45	100%

4.2.1 Summary of Demographic Information

Table 11 summarizes the demographic information of the respondents followed by a detailed presentation of the overall student characteristics. Majority of students are between 18-19 years old; all students are familiar with E-learning, and more than half of students are using laptops and Smartphones as main electrical devices. More than 90% of students have utilized social networks in courses while almost half of the sample is using WhatsApp as their main type of social media application.

Table 11: Summarizes the Demographic Information of the Experimental Group

Demographics	Categories	Frequency	Percent
Age	18-19	30	66.7%
	20-21	13	28.9%
	22-23	1	2.2%
	Above 23	1	2.2%
Are you familiar with e-learning?	No	0	0
	Yes	45	100%
Which of the following electrical devices do you own?	Laptop	1	2.2%
	Smartphone	11	24.4%
	iPad	2	4.4%
	Laptop and Smartphone	29	64.4%
	Laptop, Smartphone and iPad	2	4.4%
	Desktop	0	0%
Have you ever studied courses that utilize social networks?	NO	2	4.4%
	Yes	43	95.6%
Types of social network	NONE	2	4.4%
	WhatsApp	22	48.9%
	WhatsApp and Twitter	5	11.1%
	WhatsApp, Twitter and Facebook	1	2.2%
	All Social Media	11	24.4%
	WhatsApp and Instagram	1	2.2%
	WhatsApp and Telegram	1	2.2%
	WhatsApp and Other	1	2.2%
	Twitter	1	2.2%
	Total	45	100%

4.3 Descriptive Statistics for the First Question (Dimension I): What are the students' Experiences when they Used Hybrid MOOCs?

4.3.1 Descriptive Analysis for Dimension I. A: Which Digital Component within MOOC's Platform such as Video, Audio, Discussion Forums, or Online Interactive Quizzes, are most/least Favourite for Students?

Table 12 contains the descriptive statistics for the key variables of dimension one (Favourite MOOCs components), using a 6-point Likert scale where 6= Extremely Favoured, 5= Very

Favoured, 4= Somewhat Favoured, 3= Somewhat Unfavoured, 2= Very Unfavoured,1= Extremely Unfavoured. The relative favour of each component is described in the following manner: 6-5 indicates the high favour of components, while a value between 4-3 indicates average favour. Values ranging between 2 to 1 indicate very low favour.

Table 12: Descriptive Analysis for Dimension I.A. Relative Favour of each MOOCs Component

N	Categories	N	Min	Max	Mean	Median	Std. Deviation
1	Video Lectures	45	1	6	5.24	5.00	1.004
2	Associated Journal Resources and Articles	45	1	6	4.00	4.00	1.206
3	Discussion Forums	45	1	6	4.27	5.00	1.338
4	Quizzes	45	3	6	5.18	5.00	0.936
5	E-mails	45	1	6	4.51	5.00	1.325

As presented in Table 12, students gave status to video lectures (Mean=5.24, S. D=1.004) and quizzes (Mean=5.18, S.D=0.936) in the range of between extremely favoured and very favoured, while they gave somewhat favoured status to associated journal resources and articles (Mean 4.00, S.D=1.206). However, compared to all other components, associated journal resources and articles have the lowest status.

In continuing to explore students' experiences within section Dimension I/section 4.3 above of the questionnaire, the following six elements were investigated using a 5-point Likert scale (contrary to section 4.3.1 above/Dimension I.A., where a 6-point Likert scale was used) where 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree:

4.3.2 Flexibility of Using Hybrid MOOCs, 4.3.3 The Quality of Content, 4.3.4 Self-Regulated Learning, 4.3.5 Networked Learning, 4.3.6 Instructional Design, 4.3.7 Assessment Design.

Therefore, the closer the values to 5 indicate more agreement towards the components while values closer to 1 indicate low agreement. Mean ranging between 2.5 to 3.5 indicates moderate/medium agreement.

4.3.2 Flexibility of Using Hybrid MOOCs (Dimension I.B)

Table 13: Descriptive Analysis for Dimension I.B.: Flexibility of Using Hybrid MOOCs

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	I can access the learning activities any time.	45	3	5	4.49	5.00	0.695
2	I can access the learning activities at any place.	45	3	5	4.42	5.00	0.657
3	I can access the learning activities without much difficulty.	45	2	5	4.04	4.00	0.903
4	I can access and use the platform in my own personal devices.	45	2	5	4.38	5.00	0.806

As presented in Table 13, the Mean of the four statements used to measure the flexibility ranged between 4.49 to 4.04, which indicates overall high agreement to the flexibility of using Hybrid MOOCs. Among the four statements used, students gave high agreement to '*I access the learning activities any time*" (Mean=4.49, S.D=0.695) and "*I can access the learning activities at any place*" (Mean=4.42, S.D=0.657). The lowest agreement was to "*I can access the learning activities without much difficulty*" (Mean=4.04, S.D=0.903). The results indicate that student experiences signalled a high flexibility of using Hybrid MOOCs which is expected to affect their usage and attitude towards them.

4.3.3 Quality of Course Content (Dimension I.C.)

Table 14: Descriptive Analysis for Dimension I.C.: Quality of Content

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	The contents of this course were clear.	45	2	5	4.58	5.00	0.723
2	The contents of this course were stated within each lesson.	45	2	5	4.31	4.00	0.701
3	The contents of this course were contributing towards learning.	45	2	5	4.42	5.00	0.723
4	The contents of this course were presented logically.	45	3	5	4.38	5.00	0.716
5	The contents of this course were relevant to the subject.	45	3	5	4.38	4.00	0.650
6	The contents of this course were up to date with the subject.	45	2	5	4.38	4.00	0.684
7	The contents of this course helped me to think in-depth about the subject.	45	2	5	4.20	4.00	0.894
8	The contents of this course improved my understanding of the key concepts.	45	2	5	4.36	4.00	0.743

As presented in Table 14, the Mean of the eight statements used to measure the quality of content ranged between 4.58 to 4.20, which indicates an overall high agreement to the quality of content. Among the eight statements, "*The contents of this course were clear*" scored the highest average (Mean=4.58, S.D=0. 0.723) while the lowest agreement was to statement "*The contents of this course helped me to think in depth about the subject*" (Mean=4.20, S.D=0. 894).

4.3.4 Self-Regulated Learning (Dimension I.D)

Table 15: Descriptive Analysis for Dimension I.D.: Self-Regulated Learning

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	I can set goals for myself in order to direct my activities in each study period.	45	3	5	4.11	4.00	0.647
2	I can organize my own learning activities.	45	3	5	4.16	4.00	0.706
3	I can learn in my own style.	45	3	5	4.24	4.00	0.743
4	I can learn independently from my teacher.	45	2	5	3.91	4.00	0.973
5	I can decide how much I want to learn in a given time period.	45	2	5	4.04	4.00	0.878
6	I am allowed to work at my own pace to achieve my learning objective.	45	3	5	4.16	4.00	0.737
7	I am able to control my progress as I move through the material.	45	2	5	4.22	4.00	0.795

As presented in Table 15, the Mean of the seven statements used to measure Self-Regulated Learning ranged between 4.24 to 3.91, which indicates overall high agreement to the Self-Regulated Learning. Among the seven items used, the statement "*I can learn in my own style*" scored the highest average (Mean=4.24, S.D=0. 743) while the lowest agreement was to statement "*I can learn independently from my teacher*" (Mean=3.91, S.D=0.973). The conclusion of descriptive analysis hence, indicates a high Self-Regulated Learning.

4.3.5 Networked Learning (Dimension I.E.)

Table 16: Descriptive Analysis for Dimension I.E.: Networked Learning

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	I can interact with other students and teachers inside or outside of the learning environment when working **online.**	45	2	5	4.49	5	0.727
2	I can interact with other students and teachers inside or outside of the learning environment when working **face to face**.	45	3	5	4.32	5.00	0.668
3	I feel free to ask questions in this course when working **online.**	45	2	5	4.18	4.00	0.806
4	I feel free to ask questions in this course when working **face to face.**	45	3	5	4.04	4.00	0.706
5	I can collaborate with other students in the group projects when working **online**.	45	2	5	4.16	4.00	0.796
6	I can collaborate with other students in the group projects when working **face to face**.	45	3	5	4.16	4.00	0.673
7	The communication tools enhanced my interaction and collaboration with my classmates when working **online**.	45	3	5	4.40	5.00	0.688
8	Within Hybrid MOOCs with Flipped Classrooms, **online** feedback from students and teachers had a substantial impact.	45	2	5	4.16	4.00	0.796
9	Within Hybrid MOOCs with Flipped Classrooms, **face to face** feedback from students and teachers had a substantial impact.	45	2	5	4.07	4.00	0.837
10	Within Hybrid MOOCs with Flipped Classrooms, adequate **online** support was received from students and teachers.	45	2	5	4.02	4.00	0.839
11	Within Hybrid MOOCs with Flipped Classrooms, adequate **face**	45	2	5	4.13	4.00	0.815

	to face support was received from students and teachers.						
12	I can collaborate with other students to complete assignments when working **online**.	45	3	5	4.27	4.00	0.688
13	I can collaborate with other students to complete assignments when working **face to face**.	45	2	5	4.18	4.00	0.834
14	I can ask the teacher to clarify concepts, I do not understand well when working **online**.	45	2	5	4.27	4.00	0.780
15	I can ask the teacher to clarify concepts, I do not understand well when working **face to face**.	45	3	5	4.18	4.00	0.747
16	When I do not understand the **online** materials in this course, I can ask my classmates for help.	45	2	5	4.18	4.00	0.834
17	When I do not understand the materials in the **face to face** part of this course, I can ask my classmates for help.	45	2	5	4.22	4.00	0.876
18	I can share the course materials with other students inside or outside of the learning environment when working **online**.	45	3	5	4.29	4.00	0.695
19	I can share the course materials with other students inside or outside of the learning environment when working **face to face**	45	3	5	4.22	4.00	0.636
20	The teacher provides timely feedback on assignments, exams, and projects, **online**.	45	2	5	4.18	4.00	0.777
21	The teacher provides timely feedback on assignments, exams, and projects, **face to face**.	45	3	5	4.36	5.00	0.773

As presented in Table 16, the Mean of the twenty-one statements used to measure Networked Learning ranged between 4.49 to 4.02, which indicates overall high agreement to the Networked Learning capability of Hybrid MOOCs. Among the twenty-one statements used, the statement "*I can interact with other students and teachers inside or outside of the learning environment when working online*" (Mean= 4.49, S.D =0.727) scored the highest average, while the lowest agreement was to statement "*Within Hybrid MOOCs with Flipped Classrooms, adequate online*

support was received from students and teachers" (Mean=4.02, S.D=0. 839).

4.3.6 Instructional Design (Dimension I. F.)

Table 17: Descriptive Analysis for Dimension I.F.: Instructional Design

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	The online and face to face components enhanced each other (work well together).	45	3	5	4.51	5.00	0.589
2	The online and face to face components give me plenty of time to study.	45	3	5	4.31	4.00	0.633
3	Online and face to face activities encourage me to study from different resources.	45	3	5	4.33	5.00	0.769
4	The assessment in this course enhances my learning process.	45	3	5	4.40	4.00	0.654
5	This method takes into account individual differences.	45	3	5	4.44	5.00	0.624

As presented in Table 17, the Mean of the five statements used to measure Instructional Design ranged between 4.51 to 4.31, which indicates overall high agreement to the Instructional Design. Among the 5 items used, the statement "*The online and face to face components enhanced each other (work well together)"* scored the highest average (Mean=4.51, S.D=0.589) while the lowest agreement was to statement "*The online and face to face components give me plenty of time to study*" (Mean=4.31, S.D=0.633). In general, it can be concluded that all statements scored high agreement which reflects positive student experiences with regards to Instructional Design.

4.3.7 Assessment Design (Dimension I.G.)

Table 18: Descriptive Analysis for Dimension I.G.: Assessment Design (quizzes, exams, assignments, coursework, homework, tests, exercises, tasks)

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	The assessments taken from students in this course were clear.	45	3	5	4.49	5.00	0.661
2	The assessments were useful in evaluating my learning of the subject.	45	3	5	4.49	5.00	0.589
3	The assessments were related to the learning objectives.	45	3	5	4.38	4.00	0.614
4	The assessments were interesting and stimulating.	45	2	5	4.18	4.00	0.834
5	Assessments helped me understand difficult issues better.	45	3	5	4.11	4.00	0.573
6	Through the assessments, I became aware of where I am in the course, in terms of how much I have learned.	45	3	5	4.18	4.00	0.806

As presented in Table 18, the Mean of the six statements used to measure Assessment Design ranged between 4.49 to 4.11, which indicates overall high agreement towards the Assessment Design. Among the six items used, the statement "*The assessments taken from students in this course were clear*" scored the highest average (Mean=4.49, S.D=0.661) while the lowest agreement was wards statement "*Assessments helped me understand difficult issues better*" (Mean=4.11, S.D=0.573). In general, it may be concluded that all statements scored high agreement which reflects positive student's experiences with regards to Assessment Design.

4.4 Descriptive Statistics for the Second Question (Dimension II): What are the Students' Attitudes Towards Using Hybrid MOOCs in their Education?

Table 19: Descriptive Analysis for Dimension II: Attitudes Towards Using Hybrid MOOCs

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	This method of teaching gives me more room to express myself.	45	3	5	4.33	4.00	0.739
2	I would like other subjects to be taught by this method.	45	3	5	4.11	4.00	0.714
3	Using this method of teaching at university level is very helpful.	45	2	5	4.09	4.00	0.848
4	Using this method of teaching contributes to my personal development.	45	3	5	4.09	4.00	0.821
5	This method of teaching was interesting.	45	2	5	4.11	4.00	0.885
6	This method of teaching motivates me to succeed.	45	3	5	4.20	4.00	0.694
7	I would like to use this method of teaching when I become a teacher.	45	2	5	4.07	4.00	0.821
8	I think this method makes learning easy.	45	3	5	4.44	5.00	0.624
9	I think using this method is a positive idea.	45	3	5	4.20	4.00	0.757
10	I would recommend other students to use this method in their studies.	45	3	5	4.31	4.00	0.668
11	I enjoy learning from the face to face component of this course.	45	3	5	4.11	4.00	0.682
12	I enjoy learning from the online component of this course.	45	3	5	4.18	4.00	0.684
13	I think working within groups online is really useful.	45	2	5	4.24	4.00	0.773
14	I think working within groups face to face is really useful.	45	3	5	4.33	4.00	0.716
15	I am satisfied with using this method for my learning.	45	3	5	4.22	4.00	0.704

As presented in Table 19, the Mean of the fifteen statements used to measure attitudes toward using Hybrids MOCCs with Flipped Classroom ranged between 4.44 to 4.07, which indicates

overall high agreement towards using Hybrids MOOCs. Among the fifteen items used, the statement "*I think this method makes learning easy*" (Mean=4.44, S.D=0. 624)" and the statement "*This method of teaching gives me more room to express myself*" (Mean=4.33, S.D=0. 739) scored the highest average. While the lowest agreement was towards statement "*I would like to use this method of teaching when I become a teacher*" (Mean=4.07, S.D=0. 821). In general, it could be concluded that all statements scored high agreement which reflects positive student attitudes towards using Hybrid MOOCs.

4.5 Descriptive Statistics for the Third Question (Dimension III): What are the Challenges that Students who Study the 'Educational Technology and Communication Skills' Module by Means of Hybrid MOOCs Encounter?

It is important to clarify that the scale was re-arranged as follows for the 3rd Question/Dimension III: 1=strongly agree, while 5=strongly disagree. Therefore, the closer the values to 1, indicates more agreement toward the statements while values closer to 5 indicate low agreement.

Table 20: Descriptive Analysis for Dimension III - Challenges

N	Statements	N	Min	Max	Mean	Median	Std. Deviation
1	I didn't receive helpful feedback from my teacher.	45	1.00	5.00	4.24	4.00	0.857
2	It has often been hard to discover what is expected of me in this course.	45	3.00	5.00	4.13	4.00	0.726
3	There is a lot of pressure on me as a student in this course.	45	3.00	5.00	4.16	4.00	0.767
4	Sometimes I had difficulty in allocating time to participate in the **online** component of this course.	45	3.00	5.00	3.84	4.00	0.767
5	Sometimes I had difficulty in allocating time to participate in the **face to face** component of this course.	45	3.00	5.00	3.98	4.00	0.753
6	I didn't have technical support when I had problems.	45	3.00	5.00	4.20	4.00	0.757
7	Slow internet connectivity was an issue for me.	45	2.00	5.00	3.62	4.00	0.960

8	The materials for **online** learning were not well organized.	45	3.00	5.00	4.29	4.00	0.661
9	The materials for **face to face** learning were not well organized.	45	3.00	5.00	4.24	4.00	0.570
10	Online and face to face activities were not well coordinated.	45	3.00	5.00	4.33	4.00	0.674

As presented in Table 20, the Mean of the 10 statements used to measure challenges ranged between 4.33 to 3.62, which indicates overall low agreement to challenges toward using Hybrids MOOCs. Among the 10 statements used, the statement "*Slow internet connectivity was an issue for me*" (Mean=3.62, S.D=0.960) scored high agreement, which reveals some challenges to internet connectivity, followed by the statement "*Sometimes I had difficulty in allocating time to participate in the online component of this course*" (Mean=3.84, S.D=0.767). In contrast, the statement "*Online and face to face activities were not well coordinated*" (Mean=4.33, S.D=0.674) scored low agreement, which indicates a good coordination between online and face to face activities.

4.6 Pre/Post-test Results for the Fourth Question: What is the Impact of Using Hybrid MOOCs on Students' Academic Achievement in the 'Educational Technology and Communication Skills' Module?

4.6.1 Within-Group Differences

In order to test within-group differences to investigate time effect, the study used paired sample t-test for each group separately. Table 21 shows that participants in each group had a higher Mean score in the post-test (M = 45.44 for the experimental group, M= 42.92 for the control group) compared to the pre-test (M= 12.51 for the experimental group, M = 12.69 for the control group). It's noteworthy to know that the Standard Deviation in the pre-test was lower (S.D=1.984 for the experimental group, S.D= 2.867 for the control group) compared to the post-test (S.D= 8.438 for the experimental group, S.D=10.927 for the control group) which reveals homogeneity among students in each group in their pre-test as their grades were almost close to the Mean.

Table 22 indicates an association between the two tests with *r*=.368 for the experimental group, and *r*=.474 for the control group, which indicates a positive and medium relationship. This means that if the grades of pre-test would increase, the grades of post-test would also increase in the same direction.

Paired sample t-test results revealed statistically significant differences between the pre-test and the post-test for the experimental group and the control group as shown in Table 23 below. This indicates a significant time effect for each group. In other words, the results demonstrate that participants in each group significantly improved their scores from the pre-test to the post-test, which revealed a significant effect of time.

Table 21: Descriptive Statistics for Pre-test and Post-test in each Group

Paired Samples Statistics						
Group			Mean	N	Std. Deviation	Std. Error Mean
Exper.	Pair 1	Pre-test	12.51	45	1.984	.296
		Post-test	45.44	45	8.438	1.258
Cont.	Pair 1	Pre-test	12.69	36	2.867	.478
		Post-test	42.92	36	10.927	1.821

Table 22: Correlation between Pre-test and Post-test in each Group

Paired Samples Correlations					
Group			N	Correlation	Sig.
Exper.	Pair 1	Pre-test and Post-test	45	.368	.013
Cont.	Pair 1	Pre-test and Post-test	36	.474	.003

Table 23: Within-Group Differences in each Group

Paired Samples Test										
Group			Paired Differences					T	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
Exp	Pair 1	Pre/post-test	-32.933	7.927	1.182	-35.315	-30.552	-27.870	44	.000
Con	Pair 1	Pre/post-test	-30.222	9.894	1.649	-33.570	-26.875	-18.328	35	.000

4.6.2 Between-Group Differences

In order to compare the performance of the two groups, the study uses univariate analysis of variance. Table 24 shows summaries of the total number of students for both experimental and control group, which indicates a sufficient balance for comparison.

Table 24: Between-Subjects Factors

		Value Label	N
Group	1	Experimental group	45
	2	Control group	36

Table 25 displays the Mean for both Experimental group and Control group. In the pre-test, the experimental group had a Mean score of 12.51, while the control group had a Mean score of 12.69. However, in the post-test, the experimental group Mean score was 45.44 and the control group Mean score was 42.92.

Table 25: Descriptive Statistics for each Group in each Test

Group		N	Mean	Std. Deviation
Exper	Pre-test	45	12.51	1.984
	Post-test	45	45.44	8.438
	Valid N (listwise)	45		
Control	Pre-test	36	12.69	2.867
	Post-test	36	42.92	10.927
	Valid N (listwise)	36		

In order to investigate whether there is a difference in the Mean scores of the two groups at each testing time (the pre-test and the post-test), independent-sample t-tests were conducted. In the pre-test, the data was normally distributed as shown by box plot visual inspection of the data. Homogeneity was tested through Levene's test which revealed that the variances are significant between the two groups ($p = .044 < .05$). This means equal variances are not assumed. T-test results showed no statistically significant difference between the two groups at the time of the pre-test.

$$t\ (59.964) = -.326,\ p = .745 > .05$$

In the post-test, the data was normally distributed as shown by box plot visual inspection of the data. Levene's test indicates that the variances are not significant between the two groups

(p=.065 > .05) and hence equal variances are assumed. T-test results revealed no statistically significant difference between the two groups at the time of the post-test.

$$t\ (79) = 1.175,\ p = .244 > .05$$

Table 26: Between-Group Differences

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-test	Equal variances assumed	4.186	.044	-.339	79	.735	-.183	.540	-1.258	.892
	Equal variances not assumed			-.326	59.964	.745	-.183	.562	-1.307	.941
Post-test	Equal variances assumed	3.515	.065	1.175	79	.244	2.528	2.151	-1.754	6.810
	Equal variances not assumed			1.142	64.658	.258	2.528	2.213	-1.893	6.949

Effect size allows us to measure the magnitude of Mean differences among groups. This is usually calculated after rejecting the null hypothesis in a statistical test. If the null hypothesis is not rejected, effect size has little meaning. In our study, one-way ANOVAs were conducted, one for the pre-test and one for the post-test. In the pre-test, partial eta-squared value was .001 which indicates a small effect size for the difference between the two groups in the pre-test. Similarly, in the post-test, partial eta-squared value was .017 which is again a small effect size. The interpretation of the value of partial eta-squared followed the common guidelines for interpreting small effect size:

.02 = small effect size

.13 = medium effect size

.26 = large effect size

Table 27: Effect Size for Between-Group Differences in the Pre-test

Tests of Between-Subjects Effects						
Dependent Variable: Pertest						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.672[a]	1	.672	.115	.735	.001
Intercept	12706.401	1	12706.401	2178.004	.000	.965
Group	**.672**	**1**	**.672**	**.115**	**.735**	**.001**
Error	460.883	79	5.834			
Total	13306.000	81				
Corrected Total	461.556	80				
a. R Squared = .001 (Adjusted R Squared = -.011)						

Table 28: Effect Size for Between-Group Differences in the Post-test

Tests of Between-Subjects Effects						
Dependent Variable: Post-test						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	127.793[a]	1	127.793	1.381	.244	.017
Intercept	156153.719	1	156153.719	1687.141	.000	.955
Group	**127.793**	**1**	**127.793**	**1.381**	**.244**	**.017**
Error	7311.861	79	92.555			
Total	166552.000	81				
Corrected Total	7439.654	80				
a. R Squared = .017 (Adjusted R Squared = .005)						

This means that the groups scored almost similar results and hence there was a little effect size from using Hybrid MOOCs in this regard.

4.7 Conclusion

This chapter has shown the results of the quantitative approach within the study which has four essential questions. The first question is related to students' experience when using Hybrid MOOCs. Descriptive statistics was used to answer this question including Minimum, Maximum, Mean, Median, and Standard Deviation. The results revealed video lectures (Mean=5.24) and quizzes (Mean=5.18) have the highest importance for the students. In addition, this question, 'What are the students' experiences when they used Hybrid MOOCs', has 6 subsections such as Flexibility of Using Hybrid MOOCs, The Quality of Content, Self-Regulated Learning, Networked Learning, Instructional Design, Assessment Design to measure student's experiences. The results indicate that overall, the students have a positive experience in all six subsections. For example, Flexibility of Using Hybrid MOOCs has a Mean from 4.49 to 4.04. The Quality of Content's Mean ranges from 4.58 to 4.20. Self-Regulated Learning has a Mean between 4.24 to 3.91. Networked Learning has a Mean between 4.49 to 4.02. Instructional Design's Mean ranges from 4.51 to 4.31. The Mean of the final element, Assessment Design ranges between 4.49 to 4.11. The second question is regarding students' attitudes toward using Hybrid MOOCs. The outcomes illustrate that students have positive attitudes toward using this new teaching method. The third question found, students faced some challenges when they were studying under Hybrid MOOCs, such as poor internet connection and the fact that online/face to face activities were not well coordinated. Finally, the fourth question sought to find out if there were any differences between students in the experimental group who were exposed to Hybrid MOOCs and students in the control group who were taught via normal face-to-face instructions, in terms of academic achievement. T-test results revealed that there is no statistically significant difference between the two groups at the time of the post-test regarding their academic achievement. The next chapter will offer the results of the qualitative methods that consist of semi-structured interviews. To obtain deep information and understanding regarding students' experiences, attitudes, and difficulties when they were using Hybrid MOOCs, this qualitative component is useful.

Chapter Five: Qualitative Results

5.1 Introduction

Chapter 4 has presented findings from the quantitative approach of the study which used pre-test, post-test, and questionnaires regarding the phenomenon, 'Hybrid MOOCs'. However, the essential purpose of this chapter is to provide a deep understanding of students' experiences, attitudes, and challenges from another angle which is the qualitative approach. Chapter 5 will explore the students' views and perspectives from the 8 students who participated in the interviews, out of the 45 experimental group students who used the new teaching method implemented in higher education within the Kingdom of Saudi Arabia at Majmaah University. The data of this study was collected by semi-structured interviews that explored students' experiences, attitudes, and challenges when they were studying under a new teaching method.

The interviews, which this chapter provides results of, have been divided into four sections. The first section provides general information regarding participant demographics who took part in the interview such as age, etc. The second part provides results regarding the students' experiences while using Hybrid MOOCs. In addition, the third part presents the results in terms of students' attitudes under the new teaching method. Moreover, the fourth section of this interview asks questions about challenges towards using Hybrid MOOCs. The 2nd, 3rd, and 4th sections of the interviews include the main categories/themes, which have been coded according to the pre-determined assumptions behind the interview questions themselves, and sub-themes which were coded according to emerging information. The 2nd section of the interview findings includes 7 categories/themes related to student experiences while studying under Hybrid MOOCs (1st research question of the thesis), the 3rd section of the interview findings section includes 2 categories/themes related to the student attitudes towards using Hybrid MOOCs (2nd research question of the thesis), and the 4th section of the interview includes 2 categories/themes related to student challenges while using Hybrid MOOCs (3rd research question of the thesis). Overall, 11 categories/themes have been used to demonstrate students' beliefs regarding using Hybrid MOOCs and coding was done using the pre-determined assumptions behind interview questions themselves. However, all subthemes under the 13 main categories were based on new information that emerged from the data.

The chapter will end by offering a conclusion constituting a brief summary and significant points gained.

5.2 Demographic Information of the Participants

The sample of this study consists of 8 students at Majmaah University who are studying the 'Educational Technology and Communication Skills' module and were on the experimental group using Hybrid MOOCs, with their age ranging from 18-21 years. All students are male and in the first semester of the academic year 2017/2018. Table 29 shows the summary of the interviewee information which represents a good range of typical ages and departments for this module in the Faculty of Education.

Table 29: Interviewee Demographic Information

N	Participant names (Code)	Gender	Age	Specialised
1	Student 1	Male	20	Arabic language
2	Student 2	Male	21	English language
3	Student 3	Male	18	Islamic studies
4	Student 4	Male	20	Islamic studies
5	Student 5	Male	19	English language
6	Student 6	Male	18	English language
7	Student 7	Male	20	Islamic studies
8	Student 8	Male	19	Islamic studies

5.3 First Question: Student's Experiences

The 9 themes/categories in this section derive from the 1st research question of the thesis.

5.3.1 Most Favourite Components

To investigate aspects of students' experiences in regard to MOOC's components, the following question was addressed:

1) What are your favourite components (Video Lectures, Journals and Articles, Discussion forums, Quizzes, Email…) when you use the Hybrid MOOC? Why?

Main emerging sub-themes that were identified in the analysis of participants' responses to this question were issues of: flexibility, repeatability, availability, ability to review, accessibility, ease of usage, freedom to use, length, efficiency, preparedness, simplicity, attractiveness,

relevance to the curriculum, feedback on progress, self-assessment, time, clarity, language, individual differences, issues of electronic communication, and verification of posts by tutor.

5.3.1.1 Most Favourite Component-Video

Firstly, it appeared that flexibility and repeatability of the videos were valued features for all the interviewees. For example, Student 1 referred to flexibility as an advantage in using videos anytime, "*the videos are my favourite because they are always available, and students can get information at any time they wish.*". Student 1's statement must be seen in the light of Saudi education system's long-established routines of not using multimedia in education which could have possibly caused thrill in the student now.

Additionally, Student 8 pointed to the repeatability of videos as an asset, "*My favourite components are video lectures…. I like video lectures because you can see and listen through this component and if you don't understand or don't have time to watch, you can replay the video after downloading it in your computer and later you can summarize it…*". Repeatability, here, is valued as an exercise that student 8 can undertake independently, as opposed to before where in traditional classrooms, he had to ask the teacher which could cause them to be 'shy' and 'embarrassed'. In these two examples, the students had slightly different reasons for liking the videos, but they shared a sense of control over how they can study now.

Students 2, 3, 4 agreed with students 1 and 8. They similarly emphasized that this material can also be accessed at any time anywhere. To elaborate, Student 2 claims, *"Another good merit in the video lectures is that when I miss a lecture, I can see its objectives and watch it later."* This is followed up by similar appraisal from Student 3, "*The videos are easy to use as many times as I like…..I prefer video lectures because they are always available at any time of the day*". Student 4 agrees with students 2, 3, 4, 1, 8 but takes the point further by referring to video as a mode of overall study which offers autonomy, "*The videos are always available on the platform all times of the week. It gave me the freedom to study as I wish*…". Before, information access was only through the teacher and textbook, with the teacher being the main gatekeeper of knowledge. Therefore, accessibility was limited. The changes now mean, for example, students who did not attend the classroom for any reason, could access the platform, and they have the opportunity to watch the video at their convenient place and time. They will not miss the important information in lectures. They might not need to ask their classmates regarding what they studied in the classroom. The reason is that the videos are available to them on the platform.

Secondly, the length of the videos was short and efficient while they were very helpful when a student wanted to review the lecture after class or prepare for the lecture before class. Student 2 expressed this issue in the following, "*The videos are short and do not consume a lot of time. The videos range from ten to twenty minutes which is enough to get a good summary of the lessons and skip any unnecessary complications"*. This was embraced by students as they were used to having textbooks with no audio-visual summary aiding their education and offering the main points of the lesson.

Thirdly, students 2 and 5 mentioned that learning through video lectures made the learning process simpler and more attractive for learners, compared to other teaching methods. The reason is that it includes several elements such as audio, video, and movement. Student 5 elaborated this point, "*the students' visual and audio senses will be focused on the educational video content*". This helped with the added concentration of students towards lessons, as in the teacher dominated class this did not exist, and students were dependent on textbooks to study with no multi-media stimuli.

Fourthly, some students were very impressed with videos being helpful in student preparations. Student 1 expressed his liking towards videos in that, "*It helps me to learn more because I can listen to the content and watch the videos well before meeting the lecturer. I can positively participate in class and understand the questions raised and easily find answers to difficult questions*". It must be noted that in the traditional method of education, preparation before class was limited to lengthy textbooks that might not have easily appealed to students.

Fifthly, students 1, 2, 5, 6, and 7 state that the content of the videos is directly related to the curriculum. Student 1 says, "*It contains all I need from the curriculum and can be repeated as many times as I wish*". Student 7 supports Student 1 in saying that, "*They contain materials that are directly related to the curriculum and are simple for students to understand*". Alignment in various parts of the teaching method offers consistency which students espouse. This beneficial nature of the videos seems to be effective in helping set the students' minds at ease.

5.3.1.2 Second Most Favourite Component-Quizzes

The second most favourite component mentioned by students after videos was the quizzes, mentioned by Student 7, "*My favourite components are video lectures and quizzes*" and explained further by Student 3 who stated, "*I can receive electronic feedback from the platform when I did the quizzes*", elaborating the usefulness of quizzes in the platform and the electronic

feedback from them. It is useful for students to know their performance and hence they can improve their understanding and knowledge by repeating the quizzes.

Student 8 also expressed that quizzes in the MOOC have paramount importance, as he claimed, *"You can assess yourself and see if you are satisfied with yourself or not. You can discover your mistakes and your understanding in the particular course and which level you have reached".* Students can take quick quizzes, which enables them to review their understanding. The quizzes in MOOCs are generally multiple-choice and true/false questions. The results of the quizzes appear directly after completing the test, which shows the level of the students' understanding of the main points in the content of the videos.

To sum up, video lectures were the most favourite component in the MOOC's platform. This was due to their flexibility as they could be watched any time, while they also allowed students to repeat what they wanted to understand. In addition, they were quite short, efficient, and didn't take much of their study time. The videos also turned students' learning to be much simpler and attractive compared to traditional face to face teaching. It allowed them to prepare for lessons beforehand and one beneficial feature which was praised was their relevance to course materials. The second most favourite component was the quizzes as it provided electronic feedback to students, allowing them to know their progress and performance. In addition, students could repeat the quizzes to improve themselves with the added benefit that quizzes were directly related to the key topics of the course.

5.3.2 Least Favourite Components

To examine features of students' experiences in regard to MOOC's components, the following question was asked:

2) What are your least favourite components when you use Hybrid MOOCs? Can you explain why?

Emerging sub-themes that were identified in the analysis of participants' responses to this question were issues of: lengthy, lack of clarity, ambiguous terminology, lack of explanation, inconsiderate to individual differences, time consuming, difficulty using email, lack of teacher verification, and no time to participate.

5.3.2.1 Least Favourite Components-Articles

The result of the second interview question revealed that the least favourite components were the articles. Students thought that articles were not very clear or important regarding their course. Moreover, articles required much time to download and read. Emails were found to be the next least favourite component. In clarifying why articles were the least favourite component, students 1, 4, 5, 7 and 8 explained their perspectives and reasons.

Student 1 said, "*The articles are lengthy and not clear enough to understand the important points from them. There is not always enough time for reading such long pieces of information*". Avoiding reading was expected from students at the beginning, as the articles uploaded were long and students did not like spending too much time reading them. This also explains why students like videos as the most exciting component, as it gives them a summary of the main points in an interactive approach. In addition, students also have the textbook in the new method which reduces their inclination towards additional reading in the form of long articles.

Student 4 complained about difficulties regarding the articles in that, "*We often face ambiguous terminology without meaning or explanations"*. The videos are designed for the purpose of teaching this particular module, whereas the articles are written with various audiences in mind. Student 5 emphasized the point from Student 4, specifying that articles use words that may not be understood, and their vocabulary needed to be elaborated, "*The least popular component for me is the use of articles. In articles, they use words that may not be understood and has vocabulary that needs to be explained. Also, the articles are usually long and to get better understanding, you need to research for a long time. Articles do not take into consideration the individual differences between students and the benefit is very limited*." Being inconsiderate towards individual differences can overburden students with time and worry. In addition, using terminology that has no explanation may demotivate students towards learning.

Student 7 also believed that it was not simple to comprehend the content within the articles as he made similar claims such as students 4 and 5, "*The language is also difficult with highly specialized terminology that needs further research to understand. It consumes a lot of time*". Such difficulty with articles is something expected because they contain concepts and ideas using academic terminology which can confuse learners.

In addition, some words in the articles might not be directly related to the lessons and hence, students encounter difficulties in comprehending the articles. To overcome this difficulty,

students must spend more time, which they might not have or might wish to escape from. It is important to note that students have just graduated from high school and this counts as the first semester for them in higher education in which they use academic articles.

5.3.2.2 Second Least Favourite Component-Emails

As far as emails were concerned, they came in second place among the eight students of the experimental group, in terms of having the least popularity. Only articles were less favourable, as mentioned.

Students 2, 3, and 7 believed that emails were the least favourable component, although results of the quantitative analysis supported that there were few students who are incompetent in dealing with technology. Student 2 offered his views on email, "*Many students find it difficult to use the email and sometimes it is very difficult to deal with it"* while he further clarified the reasons for his statemen, *"Sometimes I forgot the username and the password"*. However, later he developed the basic skills in dealing with such problems which reduced the barriers in dealing with emails. It is noteworthy to mention that students who just graduated from high school may not be used to such electronic skills within the learning context due to its absence in the current educational system in Saudi Arabia, which explains why they avoid electronic mail, even though Saudi youth are known to be internet savvy. Student 3 seconded student 2 in terms of his thoughts on emails, "*My least favourable is the email. I found the email difficult to use*". In addition, student 7 who followed students 2 and 3, believed in the uselessness of the function of emails in this context as he said, *"you need the email just for registration at the beginning"*. Although Saudi youth have been known to be active online, the use of emails in education has irritated them, perhaps because of cultural differences in how email is used in Saudi Arabia.

5.3.2.3 Third Least Favourite Components-Discussion Forums

Students 2 and 6 agreed that discussion forums were the least favourite components. Student 6 refers to lack of verification in discussion forums as the reason, *"I do not agree with most of what students say. I think not everything said is right. Usually, the teacher does not verify the discussions on the forums to ensure they are according to the facts*". A useful point might be to explain to students that teaching their classmates helps strengthen their own capabilities, even if they learn nothing from them. Student 2 pointed to time constraints as being a reason for unpopularity with discussion forums, "*I did not have time to participate in the discussion*

forums". This might also explain the students' resistance to engage or share information during their first semester in the university which is expected. However, the teacher's role is pivotal in encouraging students to participate and share their ideas, thoughts, and information using the discussion forums. It is expected that not all students effectively use MOOCs during their first interaction, nor do all students participate in discussion forums. Hence, the researcher's role is to enforce the usage of discussion forums and support students' efforts in contributing to it. To carry out such a task, this requires the researcher to engage proactively in discussions, ask questions, review the status of students, and make comments on their sharing of ideas. The mistrust in the information provided in discussion forums leads to uncertainty in students. The teacher not considering their time availability for the forums can also reduce trust in students towards the teacher.

To sum up, it was witnessed that articles, emails, and discussion forums were least favoured by students in the order stated. This dislike was not equal towards these three components as articles were the least favoured due to being lengthy, and ambiguous which hindered student learning. In addition, these articles used advanced vocabulary and did not offer explanation as to their meanings which demotivated students. The time required for reading such long articles was also not sufficient. Finally, another reason why this component was least favoured was that it did not take into account the individual differences of learners.

In terms of the second least favourite item, emails, students were not very fond of this component as many saw it annoying to use in their studies. There were even some who claimed to forget usernames and passwords which created problems because they are not used to these practices in an educational setting. On the other hand, there were students who simply believed emails have limited usage, such as enrolling at the beginning of the course. The discussion forums which came after emails and were third least favourite, proved problematic for students in many ways. A lack of authentication by the researcher on the forum was a cause of irritation as students did not know whether to believe a claim made or not. They simply did not know the accuracy of the claim the researcher could have done more to help clarify. An additional issue was time and that students felt there wasn't sufficient time for participation in discussion forums.

It must be noted that articles, emails, and discussion forums were cited to be least favourite component by five (Students 1, 4, 5, 7, 8), three (Students 2, 3, 7), and two (Students 2 and 6) students respectively. Interestingly, Student 7 believed in articles and emails to be equally least

favourite and Student 2 viewed emails and discussion forums to be the equally least favourite component.

5.3.3 Instructional Design

To investigate aspects of Instructional Design, the following question with its follow up questions were addressed:

> 3) Are you satisfied with the Instructional Design for this course? Why? Can you give me an example of when you felt satisfied or when you were not satisfied?

Main sub-themes that emerged from the analysis of participants' responses were issues of clarity, ease, simplicity, cooperation, comprehensiveness, availability of online course materials, monitoring academic growth, efficiency, confidence, automatic updates, and individual differences.

All students agree that the Instructional Design was clear and easy to follow when they used Hybrid MOOCs. They refer to simplicity in design and the availability of online course materials, including videos and quizzes, which were found to be very important to students.

Students also explained how this teaching method improved their educational learning by showing them their academic advancement and growth. Student 4 said, "*I am satisfied with the curriculum design in the Hybrid MOOCs with Flipped Classrooms because I can see how much I progressed educationally. The objectives and instructions are very clear. I observe my development through the rise of my score after doing the assessments. I absolutely agree to and am satisfied with the curriculum design*." Before, students had to wait and ask for the teacher to give them their results which made them anxious but now, everything is posted online automatically after each lesson which gives students confidence.

Student 5 follows Student 4 in being happy with viewing his progress and adds, "*I am satisfied with the curriculum design in the MOOCs with Flipped Classrooms. I am totally satisfied with all the educational components' designs including the objectives, instructions, videos, discussions, and the assessments. I can see how much I progressed educationally. Also, all the components that the students needed to complete their study, were provided*". He states, "*The advantage of using the platform is that it is easy to use. It simplifies the information of the lessons and provides summaries in a way you get the gist of the lessons. Students can exchange experience and information and refine their skills*". Student 8 commented on the easiness of

using the platform in accord with Student 5, "*It is easy to get information by entering Rwaq platform and seeing the lecture's schedules and questions*".

Student 6 is similarly satisfied with curriculum design, comparable to students 4 and 5, but his viewpoint adds the features of efficiency and consideration of individual differences as the reason, "*The curriculum design is perfectly set and satisfying. It is designed in an efficient way for students' utmost benefit. The teaching design for this course was really useful for all students and takes into consideration the differences between the learners*".

To summarize and reflect, students are content with the Instructional Design of the Hybrid MOOC, as it gives the necessary information required to succeed, it is easy to understand, allows for knowing one's academic advancement, guidelines are clear and easy, it is efficient, and respectful of students' differences. The success of the Instructional Design was due to the researcher of this thesis and the module leader of the 'Educational Technology and Communications Skills' module at Majmaah University being directly involved in preparing and arranging all the material/components for the students within the platform and within the class. They considered many dimensions of students' needs such as their local language and learning habits when contemplating the Instructional Design. Moreover, the Instructional Design was developed in accordance with the main textbook of the module, 'Educational Technology and Communication Skills' book by Mohamad Alqomaizy, 2016 which makes the Instructional Design in alignment with the curriculum.

5.3.4 Self-Regulated Learning and Hybrid MOOCs

To investigate aspects of Self-Regulated Learning in the MOOC, the following question was addressed:

4) Has learning with Hybrid MOOCs facilitated your Self-Regulated Learning? How? Which component helped more in this regard?

Emerging sub-themes that were detected in the analysis of participants' responses were issues of time management, individual differences, customised learning, flexible study, study speed, acquiring new skills, motivation, ability to revise alone, convenience, self-evaluation, and self-knowledge.

The interview asked students if Hybrid MOOCs have improved their Self-Regulated Learning. The results indicated that Hybrid MOOCs have improved their skills and knowledge in that

regard. Students explained that using Hybrid MOOCs have enabled them to schedule their time in studying the modules. Moreover, Hybrid MOOCs consider individual differences in studying hours and time, enabling students to design a timetable that is suitable for them.

Student 1 supported the idea that the Hybrid MOOC helped him in regulating his learning as he said, "*I can study anywhere and anytime*". Similarly, Student 2 confirmed his views, "*students are free to log on at any time of the day. I learned a lot from the videos, discussions, and evaluations at my own speed easily and smoothly*". Before the new method was implemented, students had to study based on teachers' preferences, with less autonomy which could be why this new approach was attractive to them.

Students 3 and 4 believed that the Hybrid MOOC was useful in developing basic knowledge of how to be a Self-Regulated Learner, which takes into consideration individual differences and abilities. Student 4 said, "*Learning in this way takes into account the individual differences among students*". It is natural that one person controlling and teaching a class full of students can hardly consider their different intellects and learning speeds. This problem is what the new method fixed to a certain extent and could be why it was appealing to learners.

Students 6 and 7 expressed how they are happy in developing skills in self-regulating learning as Student 6 said, "*Using Hybrid MOOCs with Flipped Classrooms gives me the opportunity to refer to content more than once on my own*". As far as reviewing material, before the new method was applied, students had one source of study at home, 'the textbook'. In the new method, at home, they have the textbook plus the platform which offers a wealth of information in a multimedia format for them to review indefinite times which makes life easier for them.

Student 7 confirmed the view of Student 6 in explaining the opportunity to revise, *"Using Hybrid MOOCs with Flipped Classrooms gives me the opportunity to revise the video lectures which motivated me to continue studying on my own*". Student 8 explains the features of the platform which make Self-Regulated Learning possible, "*I can benefit when I enter the platform and learn by myself through downloading videos and using links of the platform"*.

To recapitulate, students felt that their Self-Regulated Learning has improved due to impact from Hybrid MOOCs. They emphasized the benefit of being able to study on their own at the time and place of their choosing. They added that they have the autonomy to work and freedom to log on to the system at their convenience. What was very noticeable is the matter of self-knowledge and that Hybrid MOOCs consider individual differences, allowing students to learn

autonomously, based on their abilities through downloading videos and using links to the platform.

5.3.5 Students' Experiences with Collaboration

To investigate aspects of student collaboration in MOOCs, the following question was addressed:

5) Did you feel that collaborating with others improved your knowledge or no? Why?

Emerging sub-themes that were discovered in the analysis of participants' responses were issues of communication skills, quick curriculum understanding, teamwork, acceptance of different views, sharing knowledge, making friends, engagement, self-assurance, openness to ask, self-development, and responsiveness.

The interview asked students whether interacting in Hybrid MOOCs enhances the collaboration among them. Various points from interviews have been grouped below:

Firstly, collaboration has increased students' communication skills in the platform and classroom. Student 1 confirmed this, referring to confidence and quick curriculum understanding as the benefits of this collaboration, **"***I feel that collaborating with others helped me a lot to improve my communication with colleagues. My discussion and asking questions with my classmates gave me quicker understanding of curriculum information and confidence*"**.** Similarly, Student 2 supported and exclaimed his communication skills had improved**,** **"***Collaborating with other students improved my communication skills".*

Not only did communication skills improve, but also Student 3 added that he has become more inclined towards teamwork and also flexible towards different views**, "***Yes, collaborating with others helped me a lot. It improved my communication skills and made me accept other opinions and thoughts. I am able to share different ideas and knowledge through discussions and by asking questions. I like group work now".*

Student 8 shared his experience, pointing not only to better communication with peers within the country, but also outside, "*Yes, for example, international students such as from Jordan, the United Arab Emirates, and so on communicate with me. I found questions with answers. Therefore, discovering everything was so easy. I also acquired the confidence to participate. I can gain friends to communicate with them regarding the course*". The possibility of

international students sharing ideas allows them not only to acquire the knowledge within the curriculum but also other related information.

Secondly, collaboration has led to students becoming more acquainted and feeling more comfortable with one another. Student 3 commented on more self-assurance in engaging with fellow classmates, which led to increased communication, "*I gained the courage and openness to ask questions*"**.**

Thirdly, collaboration has improved student knowledge and understanding through more engagement. Student 2 explained that, ***"****My asking questions and discussions with classmates raised my ability to understand the curriculum information and made me confident to answer any questions arising in the discussions*". He also held, *"We exchange experience and improved ourselves*", showing his satisfaction.

Student 5 approved of comments by Student 2 in this regard but looked at it from another angle, adding that, *"It created a positive social environment where students help each other for better understanding of the curriculum*". Student 7 liked the fast response of other students to his questions as he said, *"I find the answer on time*". Such responsiveness can improve students' knowledge and boosts their educational learning. Students can learn to appreciate that there are different sources of information with different advantages and disadvantages.

To outline the points indicated by students regarding the matter of collaboration, they have claimed Hybrid MOOCs have improved their communication skills. Some students regard it as a catalyst towards becoming more comfortable with one another, since it allows them to know each other in a friendly way compared to the traditional teaching method, in which students might feel shy and hesitate in establishing connections and relationships between each other. Students agree that such collaboration has boosted their performance during the course as they are voluntarily participating in discussion platforms, generating ideas, and sharing their thoughts. This collaboration has increased their knowledge regarding the modules. It was surprising that some students made connections with students who study outside the country. Hence, it can be concluded that Hybrid MOOCs have not only increased collaboration between students in the same class, but also to some extent, with students who are in very different university settings.

5.3.6 The Assessment of the Course

To investigate aspects of course assessment, the following question with its follow-ups were addressed:

6) What do you think of the MOOC's assessments? Were they suitable? Were they representative of your abilities? Did they give you the best opportunity to show what you know/can do?

Main sub-themes that showed themselves in the analysis of participants' responses were issues of the ability to follow up, self-monitoring, discerning educational level, ability to ask questions, immediate feedback, curriculum understanding, preparation for the final exam, correspondence with the learning materials, clarity, self-appraisal, and feedback.

The results indicated that all students agreed on the benefits of the assessments. The main reasons for their satisfaction were the ability to follow up on what they had learned. Student 1 explained his experience referring to assessments as instruments of self-monitoring academic development, "*I think the MOOCs assessments are good. After watching the videos, I can make self-assessment which gives me the chance to see how much I understood and how far I progressed. The quizzes within the platform clearly showed me my educational level. Students are able to ask questions and be involved in direct discussions with classmates and the lecturer, both in the classroom and outside*".

Similarly, Student 2 appreciates the assessments as being very suitable for learning, following from Student 1 in confirming the benefit in self-monitoring academic progress, "*The assessments are generally good, whether online or in classroom. Watching videos online and doing the evaluation tasks gives a clear picture of how much knowledge one has, and you top it up with the in-class discussions. In the exam, questions are easy to deal with because the multiple choices help you recall the correct or best answers and eventually get good scores. Also, I was given feedback immediately for the assessment by my teacher*".

Moreover, Student 4 reconfirmed what Student 1 has claimed and was confirmed by Student 2 in self-monitoring academic advancement, "*It helps me have self-assessment and improved my understanding of the curriculum. It shows me how far I progressed*".

Student 3 believes in the usefulness of assessments for final exams claiming, "*The assessments helped me in preparing for the final exam*". The new teaching method's way of having a short

assessment after each lesson has made students stronger on knowing the main ideas of the curriculum by getting acquainted with the likely type of questions for the final exam. In the old teaching method, they had to wait for the teacher to do assessments only in midterms and finals.

Student 5 talked about how questions were directly related to course content and how successful they were in measuring the main points of the lectures. He said, "*I think the assessments of MOOCs and the Flipped Classrooms were directly corresponding with the learning materials and measure the true educational level of the students. I agree with the assessment results of MOOCs and feel they reflect students' achieved knowledge. It improved my understanding of the curriculum*".

Student 6 follows up from Student 5 in praising the relevance of assessments to lectures and adds how they were useful to review the student's academic level. He said, "*The assessments available on the platforms of MOOCs and the Flipped Classrooms show me my real level and determine if I am eligible to move to the next level or not. The assessments were very clear and related to the contents of the curriculum*".

Student 7 agreed with Students 5 and 6 in assessments being representative of student academic level, "*The assessments accompanying the MOOCs with Flipped Classrooms are good and reflect the achievement of the students"*.

Student 8 emphasized that the assessments can help students discuss matters with the teacher and receive feedback on areas they need to work more on, "*It is easy to discuss with the teacher in the Hybrid MOOCs with Flipped Classrooms regarding my assessments when I need feedback*". In this way, he is in alignment with Student 2 on the benefits of feedback after assessments. The new teaching method has built a more informal relationship between teacher and student while before, the relationship was less equal and students were more anxious to enquire regarding their assessments.

To review, students had a positive view towards the role of assessments as they helped with self-appraisal, offering learners a chance to know their level and improvement. Furthermore, the questions in assessments were clear, especially the multiple-choice ones. They were directly related to course materials and instilled the content in students' minds. Moreover, they were a big help for the final exam. An interesting part related to the assessments but not necessarily part of it were the useful feedback students received after each assessment by the teacher which added to the benefit received by learners from assessments.

5.3.7 Students' General Experiences Using Hybrid MOOCs Compared to Traditional Face-to-Face Methods

To investigate aspects of student experiences with Hybrid MOOCs, the following question with its follow-ups were addressed:

7) What can you say about the educational experience you had learning under Hybrid MOOCs, compared to the traditional face to face methods used by your institution? Were there any specific aspects in either method you were more comfortable with?

Main sub-themes that emerged in the analysis of participants' responses were issues of support, confidence, acquiring information before class, forgetfulness, teacher attention, time, discussions, questioning, opportunity to learn twice, collaboration, group work, dynamism, exchange of ideas, integration, and direction of teaching method.

Students explain their experiences which were found to be positive and gave good indicators of how Hybrid MOOCs further supported their educational progress. They (students 1, 2, 5, and 8) also compared it with traditional learning and found that it is more useful and helpful. For example, Student 1 stated, "*It is my first experience to learn under Hybrid MOOCs with Flipped Classrooms and I think there is a big difference between it and the traditional face to face methods. In the traditional method, you come to classrooms without any idea of how the lesson is going to be like and what information one can get. Also, asking questions in the traditional method is difficult with students being shy to answer them. However, unlike the traditional methods, students come to Hybrid MOOCs with Flipped Classrooms having confidence because they take the information before they attend the class. When you attend the class with the information already in your mind, it is better and the students can ask questions and get quick answers*".

Similarly, in comparing the new and old method, Student 2 pointed out the issue of forgetfulness as a risk in the traditional method, "*My experience of learning under Hybrid MOOCs with Flipped Classrooms was comfortable. I found it much better than the traditional teaching where you forget a great deal of information as you leave the classroom*". He further added, "*Students of Hybrid MOOCs with Flipped Classrooms know the objectives and collect as much information as they require".*

Student 5 also compared the traditional method to the new, pointing to interesting facts

regarding how much attention the teacher gives students, "*There is a big difference between learning under Hybrid MOOCs with Flipped Classrooms and the traditional teaching method. The traditional teaching method takes a very long time and the lecturer may not give time for students to ask questions or sometimes discussions are not allowed. Besides, in traditional classes, the classrooms are overcrowded, and many students avoid asking questions in fear of committing mistakes*".

Student 8 offered the advantages of the new method in a different light, pointing to the fact that in the new method, students have an opportunity to learn twice; one time from platform and another in class. He exclaimed, "*This is the first time I learn from this modern method. I benefit from this learning more than the other face-to-face learning. Learners can use MOOCs with satisfied feeling compared to the traditional learning. This learning is a good way where we are taught two times from MOOCs and traditional learning. In terms of MOOCs, there is benefit from the collaborative method. The teacher gave three or four questions and we answered. I hope this method does apply to all courses. There is strong effect in learning two times. 80 percent of what I had learned for my exams was due to the benefits of this method.*"

Moreover, students explained how group work is more effective on the platform. Student 3 mentioned, "*The Flipped Classrooms are lively where we work in groups and have plenty of time to ask questions and clear doubts. We share and exchange ideas in Flipped Classrooms without students being shy and afraid to ask questions, as in traditional methods*".

Student 6 praised the fact that in the new method students know what the lecture is going to be similar to Student 1, but also pointed to flexibility, repetition, and accessibility which are added benefits compared to the traditional method, "*I can go access to the platform at any time and as many times as I want. Also, I know what I will study before the class time through watching the video lectures. In the traditional teaching method, I cannot guess what the subject is going to be, nor does it help me understand all contents*".

Furthermore, students also explained how the platform helped them to integrate and know each other which reduced psychological barriers. For example, Student 4 seconded Student 3's views saying, "*I think using the platform helps students to avoid the fear and uncertainties of participation and show initiative, opposed to traditional classes. In the platform, students are encouraged to ask and answer questions without fear of failure which normally occurs during traditional classrooms. Only after the first week, I felt happy with this experience and its*

benefits".

Student 7 supported students 4 and 3 in this area and said, "*In the traditional teaching method, you come to class with a blank idea about the lesson. The students feel embarrassed to ask questions or to answer a question they have no idea about. Sometimes the teacher did not give us an assessment of the lesson and did not give us feedback regarding an exam. The teaching method was one way and from one direction to the other which was from the teacher to students. However, in Hybrid MOOCs with Flipped Classrooms, I can go to the platform at any time and as many times as I want. I prepare myself for the coming class with good notes aiding my participation. I prefer learning by using Hybrid MOOCs with Flipped Classrooms. Using the platform enables me to participate effectively in the classroom*."

The results showed that students have positive experiences using Hybrid MOOCs with Flipped Classrooms compared to traditional teaching methods. This is because the new method enables students to understand the material before the actual class and this would enhance their effectiveness. The Hybrid MOOC with Flipped Classroom also reduced the anxiety and fear in students, allowing them to better interact with each other, building good relationships between students and teachers. Within the traditional method, students can forget what they learned in class, but in the new one, they do not have that problem as they can access materials at their convenience. Efficiency is another matter where the traditional method consumes more time and energy where the teacher might not offer a Q and A, but in the new method, this issue is remedied with added interaction online and offline. In addition, in the traditional method, sometimes classes have too many students which diminishes academic quality. There is a healthier flow of information in the new method and objectives are more apparent. One matter of difference between the old and new was the issue of learning twice in the Hybrid MOOC with Flipped Classrooms. This was seen as a huge advantage as it increased the effectiveness in learning where students are taught two times from the MOOC and traditional learning. Furthermore, in Hybrid MOOC with Flipped Classrooms, the teaching experience was not one way, from teacher to student, as in the traditional method.

5.4 Second Dimension: Student Attitudes

The third part of the interview asks two questions regarding student attitudes toward using Hybrid MOOCs. These themes/categories derive from the 2nd research question of the thesis.

5.4.1 Student Perspectives Towards Hybrid MOOCs

To investigate aspects of students' views towards Hybrid MOOCs, the following question was addressed:

8) How have your views changed towards Hybrid MOOCs before and after this course?

Main sub-themes that emerged from the analysis of participants' responses were as follows: the radical change of perception in terms of better clarity, ease, enjoyability, productivity, confidence, and implementation in other courses.

This educational method was found to be easier compared to the traditional teaching method. Student 1 held that, "*my views on the Hybrid MOOCs with Flipped Classrooms changed greatly. Before using it, I thought it is going to be tough and won't have benefit but after becoming used to it, I found learning easier*".

Student 3 had severely shifted his negative outlooks towards the new method and changed his perception, similar to Student 1, eventually saying, "*I thought classes are going to be complicated but soon that changed. It fulfils my need and becomes very useful*".

Student 6 concurred in a change of attitude similar to students 1 and 3, "*Before I use this new method of learning, I thought it will be complicated. However, when I use it, it became easy and made my learning enjoyable. In addition, it helps save time and effort*".

After explaining changes in his perception, Student 8 said, "*I hope this method is applied for the rest of the courses*." Additionally, Student 2 praised the new method's clarity of educational aims, "*I enjoyed learning and the clear objectives made my achievement great*".

To sum up, at the beginning, students feel they have difficulties in dealing with Hybrid MOOCs as it was their first educational experience. Students perceived Hybrid MOOCs as difficult, a waste of time, and complicated at the beginning of the course. There was also tension and fear of failure among students when initially exposed to Hybrid MOOCs. However, this perspective

has dramatically changed within the first few weeks. Students gained experience in dealing with the Hybrid MOOC which enabled them to acquire its benefits and advantages. Students mention that the Hybrid MOOC become enjoyable, easy, and has many benefits such as saving time and efforts. In addition, they have very clear aims and objectives which bring with it more academic achievements.

5.4.2 Reactions Towards Using Hybrid MOOCs as a Compulsory Part of the Curriculum at University Level

To investigate aspects of students' feedbacks towards making Hybrid MOOCs mandatory, the following question was addressed:

9) What do you think if Hybrid MOOCs were used as a compulsory part of your curriculum at university level?

Main sub-themes that were observed in the analysis of participants' responses were: good instructions, pre-class preparation, sustainable growth, deeper knowledge, geographic flexibility, individual differences, better revision, help in case of absence, academic performance, effective discussions, and decent guidance.

There was an overall positive view towards the inclusion of the new educational method as obligatory. On supporting how Hybrid MOOCs are an important part of education, Student 1 held that, "*it provides students with good instructions, pre-class preparation, and contributes to students' sustainable knowledge growth. It gives deeper educational knowledge and helps students to go back to lesson materials at any time they wish with good focus on the key materials*".

Student 2 followed up, saying, "*It helps students learn according to their abilities and circumstances. Of course, not all students have the same degree of ability to learn. So, I support making it compulsory at the university level*." Student 3 mentioned the benefit of not losing any lessons in the new method as, *"I do not miss any information in this method".* In the traditional method, students could lose the information they learned in class after they went home, but now, it is unlikely due to it all being available online with one click. It seems that Hybrid MOOCs with Flipped Classrooms, if implemented as compulsory, would reduce student worry.

Student 6 specified various reasons why the new method contribute to better academic performance compared to the traditional method, "*It is a way to make the student aware of what*

he will study and have a complete vision of the content of the lessons. It also enables students to discuss effectively and get good grades in tests with the least effort, unlike the traditional classrooms". Efficiency in studying has been made a clear wining factor of the new method over the old as before, they had to study a huge textbook, but now information is available concisely in videos.

Student 8 is in congruence with Student 6 as far as improved academic performance is concerned, explaining how this teaching method helped him in having good marks, recommending it as a necessary part of the curriculum, "*It is the first time with this method for me. I got a full mark with the module and the platform facilitated me. I can benefit from videos, assessments, etc. All students benefit from that. I totally agree to use Hybrid MOOCs with Flipped Classrooms as a necessary part of the curriculum at university level*."

Overall, students pointed to certain fundamental values which can make Hybrid MOOCs with Flipped Classrooms an integral part of their education. It offers reasonable guidance, trains students before attending classes, reduces forgetfulness as students can revise material anytime, considers individual differences in pupils, allows flexibility in where students learn, prevents students missing any information as it is available online, helps students discussing together, and leads to better academic grades in an efficient manner.

The fourth portion of the interview asks two questions regarding student challenges that were faced when they were using the Hybrid MOOC.

5.5 Third Dimension: Students' Challenges

These 2 themes/categories derive from the 3rd research question of the thesis.

5.5.1 Challenges Facing Students when Using the Online Component of MOOCs

To investigate aspects of students' challenges when using Hybrid MOOCs, the following question and its follow up were addressed:

10) Did you face any challenges when studying in the online component of this course? Why?

Main sub-themes that emerged from the analysis of participants' responses were as follows: difficulties with emails, internet connection, platform support team, teacher facilitation, trouble

registering and logging in, and lack of experience with platforms for education.

Regarding difficulties, the interviews revealed that the obstacles were not preventive in terms of demotivating or deterring students from using the new method in the long term. Student 1 said, "*At the beginning, I faced some difficulties, but later on, it gradually became easy for me to get online and study*." Similarly, Student 2 said, "*I never found it difficult to use Hybrid MOOCs, with the only exception of slight difficulties in using the emails at the beginning. Other than that, everything was very clear and simple including videos, instructions, assessments, and tests*", while Student 3 thought, "*I sometimes experienced poor internet connection due to my location. In general, it became easy for me after that*".

As explained earlier, such difficulties were overcome within a short period of time, where the Rwaq support team and class teacher were the main advisers who gave instructions and removed barriers between students and the platform. Student 5 referred to this support, "*As a beginner, I had trouble registering on the platform but soon I asked the platform management and teacher to help me solve the problem. I really extend my gratitude to them for their prompt response and handling of the situation*".

Similarly, Student 6 said, "*Only in the first day I had difficulty. I was unable to log in but soon after contacting the platform management, they promptly reacted and solved the problem*". It is known that several internet service providers are available in the area of Majmaah City. However, sometimes students experience poor internet connection when using the platform. This might be related to the signal strength of these companies which is something beyond university control. This is further explained in Student 3's comments, "*Only at the beginning, I faced some difficulties logging in because it was my first time to study online and use electronic platforms. I sometimes experienced poor internet connection due to my location. In general, it became easy for me after that."*

The results show no difficulties in using the online components of the platform due to clarity and simplicity, except in cases of students facing problems logging into the platform for the first time, as well as dealing with the online content as they were new to online educational materials. In addition, emails were a nuisance, bad internet quality, and registration problems were annoying. However, the majority of students thought that such difficulty becomes less and less as they go into the course, especially with the help of platform technician and managers who acted quickly to assist in students' enquiries.

5.5.2 Challenges Facing Students during Flipped Classrooms

11) Did you face any challenges when studying in the Flipped Classrooms? Why

The sub-themes emerging from the analysis of the interviewees' responses were as follows: familiarity with classmates, constructive discussions, correcting mistakes, fitting into new classroom environment, shyness, fear, and embarrassment.

Students found that at the beginning, it was difficult for them to fit in the environment of the flipped classroom. The reason for this could be that the higher education teaching in Saudi Arabia depends only on traditional teaching methods which are face-to-face. Students in this teaching method are regarded as passive, which creates a gap between students and teachers and students with their peers. Moreover, there is no activity that allows students to connect with each other except in the classroom discussions, which is carried out at a later stage of their educational progress. In addition, there is a lack of cooperative learning with students working separately for their exams and assignments.

Student 1 remembered these, "*I faced some problems such as getting to know my fellow classmates but after some time of sharing information with other students, watching videos, and cooperating with each other, the practice tends to become simple. We started helping each other through discussions and correcting mistakes*".

Student 2 similarly noted, "*The only normal difficulty at the beginning was to fit myself into a new classroom environment. However, it did not take long to adapt myself with the new situation".*

Another reason why students faced difficulties in merging with each other is a psychological one. Students are shy, hesitant, and fearful of participating in the class as they do not know each other. Student 5 declares, "*I had a problem the first week like the rest of the students. Everyone was shy, afraid, and embarrassed in front of the group. The main reason could be that all the students were in the first semester of university and didn't know each other. However, afterwards, the Flipped Classrooms went well*." In the same way, Student 7 reaffirmed student 5's considerations, "*It took me some time to introduce myself to other friends and vice versa. Later, I become familiar with the practice*".

The results showed that most students face difficulties only in integrating with their classmates at the beginning. This is because it is the first time for them to use such teaching methods, as

students state that they were not used to such educational experiences like Flipped Classrooms.

5.6 Conclusion

The aim of this chapter was to investigate the views and opinions of 8 students regarding a new teaching method that used Hybrid MOOCs. These views of students showed their favourite components, experiences, attitudes, and challenges when this method of teaching was implemented.

Within the findings of the first question, students confirmed that video lectures and quizzes were the most important components when they were studying in the MOOC platforms, although video lectures came in first place and quizzes second. It should be noted that articles were least favourite with emails and discussion forums coming after in second and third place respectively. Students were very fond of video lectures due to not being long, being available any time and place, students being able to repeat them, containing main points of the lesson, and being appealing for students to use. The results of the first question showed that students have positive experiences of using Hybrid MOOCs compared to traditional teaching methods of face to face in terms of the Instructional Design, Self-Relegated Learning, Networked Learning, and assessments design. The Instructional Design was seen to be easy to use and having sufficient clarity. Students' experiences revealed that Hybrid MOOCs supported autonomous learning based on their individual abilities, in addition to giving a chance to study inside or outside campus. The enhanced social interaction between students with each other and with their teacher, compared to the traditional method, proved to improve their communication skills. Furthermore, the opportunity for students and teachers to communicate outside class times was useful. Student experiences disclosed positive remarks regarding assessments in terms of, self-awareness of how much they progressed, and also, helping them prepare for the final exam.

Moreover, within the second question regarding students' attitudes toward using Hybrid MOOCs, the findings indicate that students are happy with the idea of using this new teaching method, and they see it more enjoyable and helpful to their education. Before starting with this new method, there was anxiety and even negativity towards Hybrid MOOCs as not all believed in its usefulness. Some even saw it as too complicated. However, after getting used to it, views drastically changed to the point that they wished this method to be included in their university curriculum for other courses.

As for the third question about the challenges that students faced when they were studying this module, they mentioned some obstacles within the MOOC platforms and the Flipped Classrooms. Students found difficulties when fitting in the environment of the Flipped Classroom. Moreover, the poor connection of the internet was one of the challenges that students faced in the platforms. However, much of the technical side of these challenges was resolved by the platform support team and teachers who were quick to respond. As for psychological challenges, after getting used to the new environment, students felt comfortable, as their discomfort at the beginning was due to being shy from one another.

The next chapter will attempt to offer the meaning and interpretation of results found in the quantitative and qualitative dimensions of the study and understand how they can be important to the educational world, particularly Saudi Arabia.

Chapter Six: Discussion

6.1 Introduction

Following Chapters 4 and 5 where the quantitative and qualitative results were gathered via questionnaires, pre/post-tests, and semi-structured interviews, this chapter aims to demonstrate how these results gained through convergent parallel mixed methods answer the research questions of the thesis. As outlined previously, Chapter 4 provided quantitative findings categorised around 5 dimensions related to the research questions, while Chapter 5 attempted to give a deeper awareness regarding students' attitudes, experiences, and challenges from the qualitative angle. Chapter 5 explored students' views from 8 interviewees who employed the new teaching method applied in Majmaah University, in the city of Majmaah within the Kingdom of Saudi Arabia.

This chapter attempts to evaluate and interpret the results from the quantitative and qualitative parts of the study, comparing it with the relevant literature, theories (TAM/TTF, Connectivism, Constructivist theories, Metacognition), followed by offering justifications to the likely reasons for the occurrence of the findings, and finishing it with a possible reflection on the total integration of all material investigated. The main theory that runs through this chapter is the TAM/TTF (Technology Acceptance Model/Task-Technology Fit) which describes technology acceptance and usage.

6.2 What are the Students' Experiences when they Used Hybrid MOOCs?

This question aims to explore the students' experiences while engaged in and learning via Hybrid MOOCs. It has been divided into six sections that point to various dimensions of student experience during learning with Hybrid MOOCs. It is important as to discern how students felt in regard to the flexibility when using Hybrid MOOCs, how students perceived the quality of the course offered, how they experienced Networked Learning, whether students were satisfied with the learning methodology and Instructional Design, and if the design of the assessments were viewed in a positive light.

6.2.1 What are Your Most/Least Favourite Components (video lectures, journal and articles, discussion forums, quizzes, email) when You Use the Hybrid MOOC?

This question intended to understand whether and why students in Majmaah University

preferred a certain online component when they used MOOC platforms. It is important as to discover which component gave more pleasure/usefulness during their learning.

The section will present findings of the questionnaires and semi-structured interviews, together with a comparison to related scholarship and theories, followed by a rationalization of why the findings happened and a short reflection of the total information compiled.

As a response to this question, students offered their views displayed in Chapter 4 Table 12. Students indicated that video lectures (Mean=5.24, S.D=1.004) were the first desired component, while quizzes (Mean=5.18, S.D=0.936) stood in second place. However, in terms of least favourite components, associated journal resources and articles (Mean 4.00, S. D=1.206) were noted although they are situated at No. 4 in the Likert scale, signifying 'above average favour' (1-6 by how favoured components are for students). Emails were found to be in third place as far as being preferred by students followed by Discussion forums.

The qualitative section of the study confirms some of these quantitative findings, especially in regard to students' preferring video lectures and placing quizzes in 2nd place. They stated articles were the least preferred followed by emails and discussion forums in 2nd and 3rd place respectively.

Videos Having 1st Preference

It appears that video lectures have a strong appeal to students, and students are fascinated by them when they use the MOOC platform. As evidenced, there is an overall general agreement between the students' responses in the interviews and questionnaires in popularity of video lectures as stated in the quantitative (Mean=5.24, S. D=1.004) and qualitative parts of the research, which was to be expected. Student 1 stated "*the videos are my favourite because they are always available, and students can get information at any time they wish.*".

Furthermore, previous scholarship in the area of identifying favourite components of MOOCs has also somewhat seconded these findings. The research done by Adham (2017) confirms that the majority of learners were inclined to learn via video lectures as compared to other components in MOOCs.

Moreover, many scholars give more weight to the central role of videos in learning with MOOCs as reasons for this inclination. Bralić and Divjak (2018), Bruff *et al.* (2013), Griffiths *et al.* (2015), Yousef *et al.* (2015ab), Najafi, Evans and Federico (2014), Ghadiri *et al.* (2013)

and Li *et al.* (2015) from western universities have together with Adham (2017) from Saudi Arabia, emphasized the importance of video lectures in MOOCs, their positive reception by learners, and their important impact on the learning process.

Bralić and Divjak (2018) however, offered more detailed explanations to the positive reception of videos by students. They found that students love the features in videos such as being able to pause them, rewind/fast forward them, or save them for a later time when it is convenient for their studies. These interactive features are supported by Yousef and Wosnitza (2014) who pointed out the interactive advantages for students of MOOC videos.

On the matter of easing the learning process, Bruff *et al.* (2013) consider videos being effective, lucid, enlightening and providing flexibility for self-paced learning. In the work conducted by Griffiths *et al.* (2015), Bruff *et al.* (2013) these findings were upheld in that it was found videos offer a better engaged and accessible means to convey technical knowledge for learners compared to textbooks like. Li *et al.* (2015) agreed with Griffiths *et al.* (2015) and Bruff *et al.* (2013) in viewing videos as a way of making learning interesting, and pointing to videos elevating student engagement, attentiveness, appreciation, and acceptance of the course materials. Ghadiri *et al.* (2013) gave other explanations why videos make learning more fun and easier, stating that when learners watch video lectures prior to attending class, their in-class learning would be better, because students had already received a background on the materials and then committed to active study and group work with the teacher present.

All the above research can be seen as evidence for why Najafi, Evans and Federico (2014) discovered academic marks becoming higher when students learn via video lectures in addition to face to face classes, compared to those have only had face to face learning.

An overall assessment of elements which make video lectures beneficial can be seen as follows:

> "*Since MOOC provides us the opportunity to upload our instructional video, we use it and upload our instructional video and students can watch it before the face-to-face classroom session. MOOC enables students to access and revisit learning videos as much as they want and this provides the opportunity to students to be reflective and the flexibility to students to engage in learning activities*" (Wong *et al*., 2015, p. 384).

The TAM/TTF model can confirm the above points made in interviews, questionnaires, and by educational scholars. This model explains why the video component of Hybrid MOOCs used in Majmaah University has been accepted positively by students through pointing to videos being fit for the purpose of Hybrid MOOCs (Griffiths *et al*., 2015) which is facilitating the 'Educational Technology and Communication Skills' module and increasing student marks (Najafi, Evans and Federico, 2014), having a high perceived usefulness as videos can assist learning due to features such as pause and replay (Bralić and Divjak, 2018), and an acceptable perceived ease of use for the students through their flexibility (Bruff *et al*., 2013). The statement by Davis (1989, p. 320) is in this regard, "*The degree to which a person believes that using a particular system would be free of efforts*" is considered the main point of 'perceived ease of use'. The model may also point to Hybrid MOOCs being fit with student capabilities, as Saudi students are technology savvy (Mansoor, 2002).

In addition to TAM/TTF, other theories underline the usage of videos in education as well: behaviourist concepts support the benefits of videos as the video dimension of MOOCs offers a channel for close-to-real-world simulation course materials or usage of materials learned for the real world. The repetitive capability of videos is also helpful for the student learning process (Atkins, 1993). Constructivist theories claim that the theoretical learning of school can be linked to practical learning via videos (Atkins, 1993; Bada and Olusegun, 2015). Videos allow for collaborative learning when integrated via telecommunications and also permit learners to learn from far away. In addition, they encourage the various types of representation of information to students via video and audio (Atkins, 1993). Attitude studies provide evidence of students having high motivation to learn with multimedia devices (Atkins, 1993). Connectivism is another theory in education which believes that in our digital world within distance learning contexts, the function of the tutor is one described by being positioned in a network. In this model, where the teacher is part of a network creating intersections with other teachers and students for purposes of training, digital resources, blogs, video conferencing, social networks, and more are necessary and helpful to the learning process (Banihashem and Aliabadi, 2017).

Regarding why videos have been the preferred component for students, there are nine justifications which can help explain it. First is that their interactive nature brings novelty and dynamism to an education that was otherwise boring and dull (*see* Li *et al.*, 2015). Saudi students have been studying via traditional teacher-dominated ways for a long time (*see* Krieger, 2007; Alfahad, 2012) and from all the components that the new teaching method brings

with it, videos are the most exciting (*see* Li *et al.*, 2015) and furthest away from their former learning method.

Second, it is also conveyed that student laziness in general, makes videos a very interesting learning tool, as they do not like to read books which are time-consuming (*see* Yousef, 2015) and require much more energy. However, because of the interesting nature of learning via videos, students can engage more with learning materials as they are not tedious anymore (*see* Abeer and Miri, 2014).

Third, videos make learning easier as well since they offer main points of the lesson without any hassle or extra exertion on the students' part (*see* Ross and Schulz, 1999; Adamopoulos, 2013; Kellogg, 2013; Conole, 2016).

Fourth, it must not be forgotten that learning from videos makes use of the students' audio-visual senses in a different way than before (*see* Ross and Schulz, 1999; Kolb and Kolb, 2005; Adamopoulos, 2013; Kellogg, 2013; Conole, 2016).

Fifth, videos help the students with their independent study, therefore, students are active and valued as a contributing participant in the learning process. In this manner, their self-esteem increases as compared to sitting in class and being merely the receiver of knowledge form the teacher in a passive way (Berk, 2009).

Sixth, videos stay in student memory longer, as students can almost witness the learning material as if they were there (*see* Berk, 2009). With regards to memory, because students can repeat the videos, the material stays with them in their mind longer (*see* Mok, 2014).

Seventh, videos are a useful aid when students are absent from class. Students can be less anxious in this way as if they miss lessons, they can access the videos and learn. Peace of mind is an added value of videos and the results confirm this (*see* Tucker, 2012).

Eighth, videos help in respecting individual differences as different students have different capabilities and the teacher cannot allocate that much time for slower learners. However, videos offer a chance for the slower learners to address their questions more in a way that a teacher simply cannot do as he/she has responsibility for a whole class. Videos allow students to pause a certain section of the lesson for more concentration and emphasis, but in normal classes, the teacher cannot pause just for one student and the class continues (*see* Renz *et al.*, 2015).

Ninth, when students want to revise for their final exams, the teacher is not there to remind them and revise with them, or to explain and elucidate difficult points. Without videos, students have a harder time revising and reviewing materials, but with video lectures, students can have assistance prior to examinations by just accessing the MOOC's platform to prepare for the exam (*see* Wang and Baker, 2015).

Quizzes Having 2nd Preference

It seems that quizzes also have a strong appeal to students, and students do enjoy them when learning via MOOC's platform. However, quizzes were second to videos in terms of preference or being favourite for students.

As confirmed in the questionnaires (Mean=5.18, S. D=0.936) and interviews, quizzes were in second place as far as popularity with students. Student 8 mentioned, "*You can assess yourself and see if you are satisfied with yourself or not. You can discover your mistakes and your understanding of the particular course and which level you have reached*"

Available literature was in alignment with the qualitative and quantitative findings of this study in terms of the popularity of quizzes. Woodgate *et al.* (2015) point to the popularity of quizzes, having the second position after videos among MOOCs' components.

Ghadiri *et al.* (2013), Asiri (2014), Woodgate *et al.* (2015) Bruff *et al.* (2013), and Chauhan and Goel (2016) view quizzes being positive for students while Najafi, Evans and Federico (2014) offered reasons for that positivity, considering quizzes as a way students can pass courses without any contact with the physical educational setting (From this angle, quizzes could be potentially detrimental to students as they can pass courses without any personal contact with an educational environment or teacher).

Adham (2017) gives another reason why quizzes are positive for students, pointing to quizzes being an essential part of learning for Saudi students working with MOOCs. Chauhan and Goel (2016, p. 317) elaborate on the aforementioned view, that quizzes are a fundamental part of learning in the MOOC platform:

> "*Quiz is one of the key components of assessment in MOOC…the inclusion of quiz has positive impact over certain learning related factors, such as, attentiveness of the learners and learning outcomes*".

The following three researchers show reasons for Adham (2017) and Chauhan and Goel (2016)'s views on the significant role of quizzes in learning: Bruff *et al.* (2013) understood from students that immediate feedback from quizzes was very helpful to their learning, while Asiri (2014) pointed to added focus while watching the lecture as a different dimension of the usefulness of quizzes, and Ghadiri *et al.* (2013) established that quizzes done in groups can actually assist in collaborative learning among learners.

In regards to theory, the TAM/TTF model also supports the statements and findings given by interviews, questionnaires, and literature. This model can describe why the quizzes in Hybrid MOOCs used by Majmaah University have been adopted well by students as quizzes are suitable for the purpose of Hybrid MOOCs by enabling students to know their progress (*see* Student 8 above) in the 'Educational Technology and Communication Skills' module. The model also can refer to quizzes as having high perceived usefulness due to increasing students' attentiveness and learning outcomes (Chauhan and Goel, 2016). Davis (1989, p. 320) refers to "*the degree to which a person believes that using a particular system would enhance his/her job performance*" as perceived usefulness. As for perceived ease of use of quizzes, the model can refer to the quizzes having the option of being done online in the platform (e.g. smartphone, tablet, home desktop, laptop,…) without need to come into a university setting or presence of teacher (Ghadiri *et al*., 2013).

Besides TAM/TTF, quizzes in MOOCs can be underpinned by other firm theoretical foundations. Metacognition is the student capability to be aware of his/her level in a specific course and also track this level to see if it has risen or vice versa. Metacognition is a concept that strongly supports the quiz element in MOOCs as this theory is the ability of a student to recognise his/her gaps to see if his/her learning is sufficient or not with respect to his/her expectations (Bransford *et al*., 2000; Redish, 2003; Henderson and Harper, 2009). This concept leads to the popularity of quizzes among learners since they find out their flaws, without which they cannot improve themselves and pass a course. Personal epistemology is another concept concerning student assumptions about learning having an important impact on their attitudes towards educational results. Students who take quizzes can associate their results to quality of books, their university environment, teacher's communication abilities, or their own weakness.

Quizzes are very helpful in that regard to give an indication to students as to what is the reason for getting the specific grade (Redish, Saul and Steinberg, 1998; Elby, 1999; Henderson and Harper, 2009). This concept supports quizzes in MOOCs as it is a chance for students to reflect on their understanding and the causes of their success or failure. With it, students can become aware of the basis for their grades, allowing them to put more emphasis on that specific cause to continue getting high marks, making quizzes favourable. Another concept in favour of using quizzes is the very simple notion of learners understanding different things from a lesson than that which was intended. The concept of hermeneutics, which is the study of interpretation, when applied in the educational context indicates that quizzes are a very effective way to understand whether students understood from the course that was meant to be understood or not. If they have taken something different from the course, quizzes can offer an indication to them. Quizzes are highly favourable to students as without them, students can misconstrue their knowledge of course material, giving them false confidence and ultimately leading to their failure in the course (Kerdeman, 1998; Redish, 2003; Henderson and Harper, 2009).

The position of quizzes for Saudi students being the second most favourite component could have been due to 5 possible reasons (*see* Woodgate *et al.*, 2015; Adham, 2017). First, students' anxiety was witnessed during interaction with the new learning method and how students desperately wanted to see their results. Quizzes provided a chance for nervous students to see how they learned under this unknown method. Since these students used videos much more than articles and discussion forums as their primary source of learning (i.e. they were interesting), this caused them to be passionate about discovering how much learning via videos has affected their marks and quizzes gave them that answer.

Second, quizzes in MOOCs are true/false (*see* Chauhan and Goel, 2016) and also by multiple-choice questions (*see* Admiraal, Huisman and Pill, 2015; Hakami, 2018). This made taking them easy, which led to students liking them.

Third, the quick speed that quizzes have on giving feedback made them popular with students, as they did not have to wait for meeting the teacher to receive marks of the quizzes. The results of the quizzes were given automatically after they were finished to students, who could assess themselves much more efficiently (*see* Howland and Moore, 2002; Bruff *et al.*, 2013; Adham, 2017).

Fourth, the matter of shyness is an added point of consideration for quizzes when automated assessments are done such as this study in Majmaah University, where other students do not get to see the results and only the student who took the quiz has access to it (*see* Chauhan and Goel, 2016). However, in the traditional methods of teaching, results could have been put on school boards, teachers could have shouted or discussed the bad result of a student in class, and students had a chance to overlook each other's papers and learn who failed.

Fifth, online quizzes offer a quick chance for students to understand their progress as opposed to paper quizzes in traditional classrooms because students do not have to travel to campus for them (Bruff *et al.*, 2013).

Articles Having the Last Preference

It was observed that articles had the least desirable position among MOOC components when Hybrid MOOCs were used by students studying in the 'Educational Technology and Communications Skills' module. Students working on the platform were not happy with articles and journals due to a variety of reasons which are explained below:

The quantitative (Mean 4.00, S.D=1.206) and qualitative dimensions of the research proved student dislike towards articles compared to the rest of the components. Student 5 emphatically articulated, "*The least popular component for me is the use of articles. In articles, they use words that may not be understood and has vocabulary that needs to be explained. Also, the articles are usually long and to get a better understanding, you need to research for a long time. Articles do not take into consideration the individual differences between students and the benefit is very limited*".

The findings of the research indicated what was not seen in the literature regarding articles and journals. The findings showed that students were negative towards articles and journals in MOOCs. However, the research by Liu, Zhang, and Zhang, (2015) indicated the opposite as students were very positive towards the reading materials in MOOCs due to their comprehensiveness, variety, helpfulness, and confidence they inspired in the students. This is in stark contrast to the results of this research. One of the students participating in the study by Liu *et al.* (2014, p.154) state

> "*I think the most effective part of the course was the overall structure of readings, video lectures and hands-on projects. The lectures and readings*

gave me the confidence to attempt the projects, and the projects then in turn reinforced the learning from the lectures and readings".

It can be understood from this quote that not only readings conveyed knowledge to students, but also, they have a psychological effect of improving students' confidence in the course. This is quite novel as readings have not been (to the best of the author's knowledge) influential in raising student self-assurance. The quote also points to the two-way relation between readings and projects assisting one another for students, which again is intriguing.

Asiri (2014) obtained mixed results compared to this thesis which were similar, in one way and different in another, to the results from Majmaah University students. Asiri's (2014) research declares journals and articles in MOOCs are seen as important by international students participating in his study, but having little importance described by American students. It appears that Saudi students at Majmaah University who participated in this research agreed more with American students of Asiri's (2014) study which is hard to explain in terms of their educational and linguistic background as we would expect the participants of the current study to be more in alignment with international students. Asiri (2014, p. 65) adds,

"*We can add that international students may find associated articles as a good opportunity to enhance their English proficiency skills, especially reading skills*".

However, students in Majmaah University disliked them as they were difficult to understand due to their scientific terminology, even though these articles were in Arabic language. Within Asiri's (2014) study, the reason international students liked articles was because they wanted to improve their academic reading skills in a new language.

The interaction of the TAM/TTF model with topics mentioned in interviews, questionnaires, and literature can be explained in light of why students in Majmaah University had trouble with articles in Hybrid MOOCs as articles did not consider individual differences. In terms of articles being appropriate for their task in assisting the module, they were not, as the terminology was not contributing to student learning due to being complex. The perceived ease of use by Majmaah University students was very low due to the articles being long, requiring much time and energy (*see* Student 5 above), and students already having their own allocated textbook for this module. Also, since exams are not based on the articles, the perceived usefulness of this component is low.

There are theories that support the educational impact of reading journal articles and can be helpful in determining why students do not prefer this component so much. Except For TAM/TTF, three theories are scrutinised below: schema theory, transactional theory, and motivation theory.

First, Schema Theory believes that there is a system in the learners' mind that when he reads, the new data is automatically compared with that pre-existing structure. Basically, it states that the knowledge the learner has on that specific subject decides how the reader interacts with the new data and how the learner accepts this new data, if any (Tovani, 2004; Alvermann, Unrau and Ruddell, 2013; Hodges *et al.*, 2016). This would suggest that learners who do not have much prior knowledge towards the reading materials in MOOCs (such as the students in Majmaah who didn't even know the technical words in the journals), might not accommodate this new material easily and reading will possibly become a tedious activity. However, since students had background knowledge in these articles, according to schema theory, they might have been inclined to read them, if the terminology wasn't so hard.

Second, Transactional Theory is another educational/learning theory that can help explain the results. Transactional Theory considers interactions between readers and journal articles as central to the meaning the reader takes from them. This theory believes that a piece of writing doesn't automatically give a meaning without the learner giving a perspective on it. It believes that the outlooks of readers and the ones who wrote the journal articles are not necessarily the same and this can cause confusion for the reader (Rosenblatt, 2013; Hodges *et al.*, 2016). It could be that when students at Majmaah University who were reading the articles, have different perspectives on what they were reading (especially since they have knowledge regarding them and would have outlooks towards them) than the writer and this dichotomy consumes energy on the part of the learner, making reading tiresome. However, if the reader outlook and writer outlook were in alignment, reading would not be so dull.

Third, Motivation Theory in reading can be considered as the internal elements within the learners' psyche such as opinions, standards, beliefs, desires, and anticipations. It can lead to students engaging more in the reading, being more persistent when they do not understand the reading, putting more effort into reading, having more interest in it, enjoying it more, and being more confident while reading. Curiosity, competitiveness, and feelings of accomplishment fuel motivation in learning (Wigfield and Guthrie, 1995; Hodges *et al.*, 2016). Since the journal articles on MOOCs are there as supplementary reading not core, it is not unusual that students

are not very motivated towards them. Furthermore, the articles are long which does not help student interest in them. The challenging nature of readings in MOOCs can increase motivation to some extent as students in Majmaah might become more competitive. Curiosity and interest in the articles is a factor which can increase student motivation. The need to accomplish something and be productive can lead to extra motivation on students' part to read articles with higher motivation as to learn the subject.

The implications of the low preference of journal articles in MOOCs are many. Diverse reasons can potentially contribute to this as follows:

- A shortcoming in reading skills among Saudi students (*see* Rajab and Al-Sadi, 2015)
- Teachers within the Saudi education system not teaching students proper reading techniques
- Articles not being questioned in the end of term exams (Al-Jarf, 2007)
- Students from many countries from various backgrounds see reading academic articles as an activity which does not generate interest
- The rise of the tech world in Saudi Arabia where instead of youth and adolescents reading, they spend more time on digital social networks which do not require strict academic reading skills (*see* Baker, 2016)
- The issue of entertainment is one to be considered as Saudi youth rarely read for pleasure. Moreover, the Saudi youth who are readers, are generally more inclined towards reading social media texts. Rajab and Al-Sadi (2015, p. 1) stated,

> "*Analysis of the data collected using descriptive statistical tools indicated several issues relating to the reading habits in general, including students' lack of interest as well as lack of motivation towards 'academic reading' in both L1 and L2. However, the analysis revealed a greater level of engagement in reading in social media contexts*."

One important point to consider is that the students at Majmaah University who underwent this study did have many other modules which required them to read conventional textbooks. It is then natural that they find less time for reading digital texts related to the 'Educational Technology and Communication Skills' module, especially since the module already has a textbook allocated to it. There was also a common perception that when technology joins

education, the outcome would be very entertaining and fun. Reading hours of digital articles contradicts that preconception. Reading digital articles requires much focus; a lot more than reading text messages on mobiles or messages on social networking sites (*see* Rajab and Al-Sadi, 2015). The extra focus can contribute to straining students' eyes, especially if they are not used to sitting and focusing deeply on a computer screen.

Naturally, education would be an activity which is promoted by elders in Saudi culture and society. However, the traditional society has not yet come to grasp with digital learning which makes youth not get the same level of encouragement from elders as they would if they were spending many hours reading conventional textbooks (*see* Chanchary and Islam, 2011; Al alhareth and McBride, 2014). This issue is not exclusive to Saudi Arabia as other neighbouring countries also face cultural challenges as new methods of learning, especially e-learning, arrive. The Sultanate of Oman, similar to the Kingdom of Saudi Arabia is embracing the digital age but has local customs and cultural norms which have to be observed and are not necessarily outright compatible with the new changes to the country's education system (Al-Musawi, 2010).

6.2.2 Flexibility of Using Hybrid MOOCs (Perceived Ease of Use {PEOU})

The study finds that students were quite pleased with the flexible nature of studying via Hybrid MOOCs in Majmaah University. These findings are obvious in the qualitative and quantitative findings below.

The quantitative side of the study within Table 13 of Chapter 4 shows the Mean of student views on Hybrid MOOC's flexibility lies from 4.49 to 4.04. Among the four statements used to measure flexibility, students gave the highest agreement to "*I access the learning activities any time*" (Mean=4.49, S.D.=0.695) and lowest agreement to "*I can access the learning activities without much difficulty*" (Mean=4.04, S.D.=0.903). These results reveal that students experienced high levels of flexibility in using the Hybrid MOOC. The qualitative section of the research affirms the statistical numbers as Student 6 commends the flexibility of Hybrid MOOCs, "*I can go access to the platform at any time and as many times as I want.*"

A considerable portion of the scholarship available agrees with the results of the quantitative and qualitative parts of the current study regarding flexibility when students use Hybrid MOOCs. Yousef *et al.* (2015ab), Bruff *et al.* (2013), Griffiths *et al.* (2015), Ghadiri *et al.* (2013) and Li *et al.* (2015), all point to flexibility in using MOOCs as a benefit when students are

engaged with it, contributing to their positive experience.

Bruff *et al.* (2013) found that students saw the chief advantage of MOOCs compared to conventional classes was the added flexibility. Wild and Gimbrère (2017, p. 133) added to the aforementioned study claiming, "*The number of high level MOOCs produced by top universities can contribute to increasing flexibility in academia…*".

On the other hand, Wild and Gimbrère (2017) consider MOOC flexibility as hindering students who can't organize themselves and need supervision. Apparently, students of Majmaah University who participated in the current study, did not view flexibility as a barrier when learning the 'Educational Technology and Communications Skills' module which goes against claims made by Wild and Gimbrère (2017).

The theory of Technology Acceptance Model (TAM) contributes to the understanding of why Hybrid MOOCs were accepted well in Majmaah University. This model has a component, referred to as Perceived Ease of Use (PEOU) which confirms the interviews of students in Majmaah University (*see* Student 6 above) in terms of time and place not being an impediment when it comes to Hybrid MOOCs. The TAM model is also in alignment with the questionnaire as the item, "*I can access the learning activities without much difficul"*, in the flexibility section of the questionnaire, had the following descriptive statistics (Mean=4.04, S.D.=0.903), showing a high agreement towards PEOU which flexibility of Hybrid MOOCs helps. When TAM is applied to the specific case of Majmaah University, it can support the literature by Li *et al.* (2015) who claim flexibility of Hybrid MOOCs causes good experience for students leading to a higher Perceived Ease of Use. PEOU, in turn, can lead to positive attitudes and a continuance intention to use Hybrid MOOCs in Majmaah University for the future or other modules as Student 8 claimed, "*I hope this method is applied for the rest of the courses*" (*see* Chapter 5 Section 5.4.1). Moreover, PEOU can cause a higher PU as mentioned by Student 1 who indicates that ease of use of Hybrid MOOCs is related to its usefulness, "*the videos are my favourite because they are always available, and students can get information at any time they wish*".

Implications for flexibility in Hybrid MOOCs are clear. Students apparently enjoy having some autonomy and control in their studies. It must be remembered that these students have been studying under traditional teacher-dominated classes for a long time and this extra space for them to take charge of their learning can be interesting. The fact that they can use their laptops,

mobiles, and tablets outside campus might make learning easier for them when accessing the platform. There is an added option for students on the platform when they are accessing it via their laptops, mobiles, or tablets which allows the system to recognise who is accessing so students do not have to go through the irritating process of entering their credentials every time they are on the platform. This increases speed, ease of use, and flexibility in access. Students have freedom in learning from the platform at night or day if they wish to do so. This is in stark contrast with prior experiences where learning was only in class time during day. This flexibility is especially helpful if students are ill and miss classes at campus in the traditional method.

6.2.3 Quality of Course Content

Students participating in the current study from Majmaah University were satisfied with the quality and features of the course content, which is evidenced in the interviews and questionnaires below.

Table 14 of Chapter 4 describes how quality of content of the course offered via Hybrid MOOC affected students' experiences. The Mean of the eight statements used to determine the quality of content were between 4.58 and 4.20. The statement, "*The contents of this course were clear"* had highest Mean (Mean=4.58, S.D.=0. 0.723) whereas the lowest was to '*The contents of this course helped me to think in depth about the subject*' (Mean=4.20, S.D.=0. 894). This reveals that students had a positive experience when considering the quality of the content. The qualitative side of the research confirmed the statistical results achieved as Student 6 regarded Hybrid MOOCs in the following manner:

> *"It is a way to make the student aware of what he will study and have a complete vision of the content of the lessons. It also enables students to discuss effectively and get good grades in tests with the least effort, unlike the traditional classrooms*".

Academic writings also support the Majmaah students' views in course content of MOOCs being helpful for study. Joseph and Nath (2013), Al-Atabi and DeBoer (2014), Yousef and Wostnitza (2014) and Mamman *et al.* (2017) found that course content was seen as significant by students and it had improved via MOOCs. Mamman *et al.* (2017, p. 71) said,

> "*Blended MOOCs is believed to have improved students' retention rate and*

> *shorten time-to-degree and equally it improves quality of content and of the course*". Al-Atabi and DeBoer (2014, p. 263) stated, "*In general, a very high level of satisfaction with the quality of the learning materials were provided*".

On the other hand, Bruff *et al.* (2013) and Bralić and Divjak (2018), have investigated weakness in quality of content when students learn via Hybrid MOOCs. Bruff *et al.* (2013, p. 193) stated,

> "*The topics covered in class did not always line up with the material covered in the video lectures on a week-to-week basis. Students mentioned that they would have preferred a greater degree of alignment between online and on-campus offerings, so that the material in-class would more directly address, and expand upon, the topics covered online*".

In terms of theory, the Technology Acceptance Model (TAM) does provide insights as to the reasons why Hybrid MOOCs were embraced in Majmaah University. TAM includes a component termed, 'Perceived Usefulness' which the high quality of content in the Hybrid MOOCs applied in Majmaah University has contributed towards, as evidenced in the questionnaires (*see* above). In addition, TAM is also in alignment with the interviews as Student 6 (*see* above) has claimed the high quality of content has contributed to his good marks (PU) when he studies at Majmaah University via Hybrid MOOCs. This high PU as included in TAM can be influential in the adoption of Hybrid MOOCs in Majmaah University as Joseph and Nath (2013) have referred to as well.

The results convey that the students in Majmaah University observed a heightening of course content quality in the new method which resulted in their positive experience when using it in their education. Furthermore, the course content was in alignment with the materials offered in class and platform due to the researcher being an experienced teacher of this subject and being aware of student problems. The teacher of the module has also been teaching this module for years and is, like the researcher of this PhD, well acquainted with the curriculum. The material inside the class and on the platform was also taken from the module textbook which students are already familiar with and provides one source where all the online and in-class information came from. The online course content was designed by the researcher and teacher in an easy accessible language which helps with the experience students had with it.

6.2.4 Self-Regulated Learning

The current study postulates that students of the Majmaah University were in a better position to learn individually and independently when working with Hybrid MOOCs. The interviews and questionnaires evidence this.

Table 15 in Chapter 4 describes results of the quantitative dimension of the study, as Mean of seven statements for discerning student experiences regarding Self-Regulated Learning ranged from 4.24 to 3.91. From the 7 statements, "*I can learn in my own style*" had the highest average (Mean=4.24, S.D=0.743) with the lowest, "*I can learn independently from my teacher*" (Mean=3.91, S.D=0.973). This discloses that students had a relatively positive experience in terms of Self-Regulated Learning when using Hybrid MOOCs. In the qualitative side of the research, results were in alignment with the statistical findings on Self-Regulated Learning in that Student 8 stated, "I *can benefit when I enter the platform and learn by myself through downloading videos and using links of the platform*".

The academic writings relating to MOOCs concur with the students' responses that when learning via MOOCs, Self-Regulated Learning is easier. In fact, Littlejohn *et al.* (2016) saw MOOCs compelling students to utilise Self-Regulated Learning while Bruff *et al.* (2013) found that MOOCs encourage Self-Regulated Learning.

Furthermore, Israel (2015) who assessed the study done by Bruff *et al.* (2013) on MOOCs believed that MOOCs were appropriate learning tools for Self-Paced Learning. Bernacki, Aguilar and Byrnes (2011, p. 1) continue on that point enhancing it,

> "*Recent research suggests that technologically enhanced learning environments (TELEs) represent an opportunity for students to build their ability to self-regulate, and for some, leverage their ability to apply Self-Regulated Learning (SRL) to acquire knowledge*."

On marks and performance, while studying via MOOCs, Bernacki, Aguilar and Byrnes (2011) provide additional information by adding that students who experience Self-Regulated Learning score better in MOOCs. On the other hand, Kizilcec, Perez-Sanagustin and Maldonado (2016) contradict the aforementioned study in discovering that training students in Self-Regulated Learning does not guarantee better performance.

As how the TAM/TTF model relates to the qualitative, quatitative, and literature above, it is evident that Hybrid MOOCs used in Majmaah University to teach the 'Educational Technology and Communication Skills' module were suitable for students' abilities as, "*I can learn in my own style*" had high agreement in the questionnaires. Where there is concern for Hyrbid MOOCs being appropriate for teaching the module, Bernacki, Aguilar and Byrnes (2011) have claimed that through Hybrid MOOCs, students can elevate their marks due to the Self-Regulated Learning feature. As far as PEOU, students find that Self-Regulated Learning is easier through MOOCs which helps their knowledge acquisition as the statement "*I can learn independently from my teacher*" scored high in the questionnaires. In terms of PU, Student 8 (*see* above) points to the usefulness of Hybird MOOCs in the opinion of Majmaah University students.

It must not be forgotten that these students at Majmaah University had been mostly passive during most of their education in classes. Now, through this experiment, they have slowly become active and have a say in their learning. This new experience has been pleasing and helps them to manage their learning inside or outside the class. The extra motivation offered by this new kind of learning has been contributing to their increased positive energy in education. It seems their self-esteem has increased as they are taking a more active role in their learning, opposite to before where they were only the receiver of information. This new method has empowered these students and raised their confidence, contributing to a decent experience. It also causes a transformation from teacher-centred learning to student-centred learning where the student matters more. The issue of individual differences is respected much more in this new type of learning because Majmaah University students were used to the teacher moving at his pace without any specific regards for each individual learning ability within the class. Now, with the Self-Regulated Learning capacity of the new method, students may engage in Self-Paced Learning. Students within this new method are allowed to listen and view the course materials as many times as they like, opposite to the traditional class where the teacher can offer the lesson one or twice. Students also have the ability to learn from a wide array of resources such as videos, discussion forums, articles, teacher, textbook…, and choose which one they are more comfortable with. Contrarily, before, students had only the teacher and textbook to look forward to with little Self-Management Opportunity.

6.2.5 Networked Learning (Perceived Usefulness {PU})

The research posits that the Hybrid MOOC in Majmaah University has actually had a positive effect for Networked Learning of students as verified by their remarks when they were given chance to express themselves in the interviews and questionnaires below.

In terms of Networked Learning, the quantitative side of the research offers interesting results, as Table 16 in Chapter 4 shows the 21 statements for measuring Networked Learning had a Mean of 4.49-4.02, signifying high agreement towards it from students. "*I can interact with other students and teachers inside or outside of the learning environment when working online*" (Mean= 4.49, S.D=0.727) had highest agreement whereas the lowest was for, "*Within Hybrid MOOCs with Flipped Classrooms, adequate online support was received from students and teachers*" (Mean=4.02, S.D=0. 839). This indicates clearly that students had good experience as far as the Networked Learning element of the Hybrid MOOC was concerned. The qualitative dimension of the study somehow agrees with the quantitative findings as Student 3 pointed to issues surrounding network and collaborative learning:

> "*Yes, collaborating with others helped me a lot. It improved my communication skills and made me accept other opinions and thoughts. I am able to share different ideas and knowledge through discussions and by asking questions. I like group work now*".

Within the literature, there are many scholars who advocate the Networked Learning benefits of Hybrid MOOCs in line with our quantitative and qualitative aspects of the study. Anders (2015) found that Hybrid MOOCs help students in autonomous and Networked Learning.

Al-Atabi and DeBoer (2014), Wong *et al.* (2015), and Yousef *et al.* (2015a), all point to the network capability of Hybrid MOOCs to allow better collaboration between learners as a positive function in their learning experience. Bozkurt and Aydin (2015, p. 39) depict a much more sophisticated image of MOOCs facilitating Networked Learning:

> "*Hybrid MOOCs as networked learning spaces in which behaviourist, cognitive, constructivist and then connectivist pedagogies are applied and MOOCers, in their learning quest, traverse and cross-pollinate among multiple paths and layers of hybrid learning ecologies*".

Conversely, Li *et al.* (2015, p. 4) experimented with Blended MOOCs with Flipped Classrooms, finding that students were not satisfied with the collaborative and network side of MOOCs, mentioning, "*learner perceived interaction with others was not so satisfactory*". This is in contrast to the findings of this research.

Models such as TAM contribute significantly to the understanding of the acceptance of Hybrid MOOCs in Majmaah University. It was revealed through the questionnaires that the Networked Learning feature in Hybrid MOOCs was beneficial for students since agreement was high. This PU can lead to positive attitudes and continuance intention in Hybrid MOOCs for Majmaah University as Student 3 above claims and Al-Atabi and DeBoer (2014), Wong *et al*. (2015), and Yousef *et al*. (2015a) have all added towards. In fact, the study done by Yousef *et al*. (2015a) found that a considerable proportion of learners choosing to learn via MOOCs, were only to benefit from the Collaborative/Networked Learning. Some participants in the aforementioned study claimed their aims from learning via MOOCs were, *"working cooperatively in groups", "share goals, ideas, resources, activities" and "supporting each other"* (Yousef *et al*., 2015a, p. 86).

The conceivable reason that students in Majmaah University were able to enjoy their collaboration with teachers and students was the dynamic learning experience that this method brought with it. It was not boring when students had discussions regarding a topic. In addition, their learning moved from a rigid framework (previously) into a versatile one (after implementation of the Hybrid MOOC). One reason could be that Saudi students are very active on social media and now that they are allowed to work together in a new learning method, it pleases them. Collaboration allows students to check their mistakes and be respected as one having an opinion on matters. This collaboration also increases the sources of information students can have. Moreover, when students do not understand something, they can ask each other which is less embarrassing than asking the teacher in front of the whole class. The new method encourages group work with others, opposite to the traditional classes which did not have this aspect. With this new method, there are added ways to communicate with the teacher such as emails and discussion forums or even in-class, where before, only students had chance to communicate inside the class. In this method, students can develop academic social skills which they did not have. Students can make relationships that last, much easier with other students.

6.2.6 Instructional Design

A general consensus was observed in students' responses in terms of a positive overview of Instructional Design when learning via Hybrid MOOCs in the 'Educational Technology and Communication Skills' module. The data from interviews and questionnaires are testament to this.

Only 5 statements were applied to determine the agreement of students towards Instructional Design with their Mean ranging between 4.51 to 4.31 (*see* Chapter 4 Table 17). The statement, "*The online and face to face components enhanced each other (work well together)"* ranked the highest (Mean=4.51, S.D=0. 589) whereas the lowest agreement was for "*The online and face to face components give me plenty of time to study*" (Mean=4.31, S.D=0. 633). Overall, these findings reflect encouraging student experiences as far as the Instructional Design of MOOCs. The qualitative aspect of the research agreed to these statistical findings as Student 5 defended the Instructional Design of the Hybrid MOOC he engaged with, "*The electronic platform environment is very clear, and its instructions are straightforward. All instructions and guidelines are easy to use"*.

Within the literature, however, there are different remarks regarding Instructional Designs of various MOOCs which are divergent or in alignment with the students' responses. Brouns *et al.* (2014) found numerous MOOCs are created, installed, and implemented with no consultation with professionals specialising in online Instructional Designs. Margaryan, Bianco and Littlejohn (2015) found similar issues as the MOOCs they scrutinised had serious shortcomings in Instructional Design fundamentals. This is staggering as Instructional Design is a crucial part of any course, whether online of offline. The Instructional Design of this study was fortunately well received from students according to their experience.

Contrary to both mentioned studies where Instructional Designs were deemed negative for student learning or insufficiently attended to, Yousef *et al.* (2015b) who referred to Instructional Design as making Blended MOOCs more effective, observed their participants responding very well to it based on their learning experience as the Instructional Design was crafted professionally towards students. This is in agreement with the student responses from the participants of the Majmaah University.

The interviews show that the Instructional Design of Hybrid MOOCs applied in Majmaah University have a high PEOU as Student 5 above claims. In addition to PEOU, the other component of the TAM, PU is high as well which can be seen in the questionnaire results (*see* above) where students claim how the Instructional Design of the Hybrid MOOCs in Majmaah University has facilitated their learning process. Yousef *et al*. (2015b) second this as they found that professionally crafted Instructional Design contributes to effective MOOCs. The TAM model applied here can point to why this technology was accepted in Majmaah University.

The reason the Instructional Design was well received in Majmaah University is that the researcher and teacher of the module took time to not only to customise the Instructional Design based on students' characteristics, but also the ADDIE model which is a very well-known model for Instructional Design was used to ensure it is up to standard. In this process, the researcher being experienced in educational technology and the teacher being capable in this area helped. The Rwaq platform which is the world's biggest Arabic platform was utilised for producing aspects of the Instructional Design which helped the student experience. The Instructional Design was meant to have clarity in terms of the objectives of each lesson and be encouraging in terms of activities designed for each lesson (inside class or on platform).

6.2.7 Assessment Design

The data obtained from the students who participated in the current study would propose that the design of assessments in the Hybrid MOOCs for the 'Educational Technology and Communication Skills' module was seen in positive light and helpful to learning.

Six statements were employed to measure students' experiences towards Assessment Design in the quantitative part of the research. The Mean ranged 4.49 - 4.11(*see* Chapter 4 Table 18). The highest agreement was for "*The assessments taken from students in this course were clear*" (Mean=4.49, S.D=0.661) with the lowest for *"Assessments helped me understand difficult issues better"* (Mean=4.11, S.D=0.573). On the whole, it was observed that learners had an encouraging experience as to the Assessment Design of the Hybrid MOOCs in this research. Within the interviews, there were similar responses towards the assessments of the Hybrid MOOC in this research. The qualitative section of the study was in alignment with the statistical results in terms of student experiences towards assessments as Student 5 exclaimed,

> "*I think the assessments of MOOCs and the Flipped Classrooms were directly corresponding with the learning materials and measure the true*

educational level of the students. I agree with the assessment results of MOOCs and feel they reflect students' achieved knowledge. It improved my understanding of the curriculum". Student 8 also praised the assessments in Hybrid MOOCs of this study claiming*, "It is easy to discuss with the teacher in the Hybrid MOOCs with Flipped Classrooms regarding my assessments when I need feedback*".

The literature on MOOCs' assessments offers interesting insights complementing what the current study achieved. Confirming the results of this research, Glance, Forsey and Riley (2013) view MOOC assessments as a positive component, but referred to anxiety between some scholars regarding the credibility of peer-assessments. There is another concern found in the literature that automatic assessments do not offer feedback (Daradoumis *et al.*, 2013; Laverde *et al.*, 2015). Fortunately, in the current research, this was not the case as a Hybrid MOOC was used and feedback was given to students.

Moreover, issues of plagiarism (Almuhanna, 2018) and cheating (Daradoumis *et al.*, 2013) among students have alarmed educators when discussing automated assessments. Unfortunately, in these two areas, mechanisms for stopping cheating and plagiarism was not found, similar to what the literature states.

The acceptance of Hybrid MOOCs by students of Majmaah University can be explained through the Technology Acceptance Model (TAM) which has the following two components: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). Student 5 (*see* above) directly admits how the Assessment Designs of Hybrid MOOCs have been a beneficial aspect to learning (PU) with the questionnaires agreeing to this as the statement, "*Assessments helped me understand difficult issues better*" had high agreement (Mean=4.11, S.D=0.573). Regarding MOOCs' assessments, Sandeen (2013, p. 11) points to: "*assessment is less about compliance than about supporting student learning outcomes and ultimately student success and attainment—directly in the center as it should be*". Student 8 (*see* above) comments on how the assessments have made learning form Hybrid MOOCs in Majmaah University easier (PEOU) with Student 2 (*see* Chapter 5, p. 145) seconding this viewpoint: "*In the exam, questions are easy to deal with because the multiple choices help you recall the correct or best answers and eventually get good scores. Also, I was given feedback immediately for the assessment by my teacher".*

The reasons the assessments were seen positively by Majmaah University students were many. For instance, detailed feedback was given to students by the experienced teacher (in class) and researcher (platform) on top of the automatic feedback which put students' mind at ease. Due to the teacher of the module and researcher familiarising themselves with the students' capabilities, they were able to design the assessments in line with their level. In addition, the teacher has taught this module for years and was able to help in designing assessments in line with the course materials. The researcher also had experience in education technology which enabled him to contribute to assessments which were corresponding with course materials. Every effort was made to ensure the assessments capture the core objectives of each lesson. Students were also able to do the assessments at their convenience in the platform after they watched the video lectures, which reduces stress on them and contributed to a good experience with it. Since the assessments in the platform were multiple choice and true/false, they were easy and encouraging for students, shaping a productive experience. Furthermore, the design of the assessments was based on consideration of the whole class ability. Finally, the final written exam of this module contained diverse types of questions including multiple-choice, true/false, fill the blank, bullet point concise answering, and essay format which contributed to a versatile student experience in the exam.

6.3 What are the Students' Attitudes Towards Using Hybrid MOOCs in their Education? (Attitudes and Continuance Intention)

This question aims to understand the students' outlooks towards the new teaching method in Majmaah University and investigate how they view technology entering education, after they have finished the 'Educational Technology and Communication Skills' module. It is important to see whether they are satisfied with the new method or they still prefer the traditional face to face mode of learning. This question is important in regard to discerning how students' preconceptions changed after doing the course using educational technology.

The students' views, as the interviews and questionnaires indicate, are generally positive towards Hybrid MOOCs in their learning within the 'Educational Technology and Communication Skills' module. The many responses in this regard below are a demonstration of this and offer further elaboration.

As a response to this question, students offered their views displayed in Chapter 4, Table 19. As students responded to the questionnaires, it was seen that the Mean of the 15 statements

employed to understand attitudes towards using Hybrids MOOCs were from 4.44 to 4.07, which reveal a general high agreement concerning the usage of Hybrids MOOCs. The first statement from the 15 in terms of the highest agreement was, "*I think this method makes learning easy*" (Mean=4.44, S. D=0. 624) with the second-placed statement being, "*This method of teaching gives me more room to express myself*" (Mean=4.33, S. D=0. 739). On the other hand, the lowest agreement was towards, "*I would like to use this method of teaching when I become a teacher*" (Mean=4.07, S. D=0. 821) which still reveals a high agreement overall, but lowest in comparison with the rest of the statements. Generally, it was determined that all statements scored high agreement exposing positive attitudes from students to utilizing Hybrids MOOCs.

The qualitative segment of the research approves the aforementioned quantitative findings especially in some emphatic statements made in interviews. Student 1 stated, "*My views on the Hybrid MOOCs with Flipped Classrooms changed greatly, before using it, I thought it is going to be tough and won't have benefit but after becoming used to it, I found learning easier".* Student 3 added*, "I thought classes are going to be complicated but soon that changed. It fulfils my need and becomes very useful*".

Moreover, literature in the area of student attitudes and outlooks towards Hybrid MOOCs, somewhat completes the quantitative and qualitative results. Some authors have concluded that student attitudes towards MOOCs in education are positive, others have seen mixed results, some witnessed a change in attitudes before and after using MOOCs in education, and some scholars pointed to certain features which caused learners to be more inclined towards learning with MOOCs.

Studies done by Kulik and Kidimova (2017), Joseph and Nath (2013), Li *et al.* (2015), Aharony and Bar-Ilan (2016), and Holotescu *et al.* (2014) exposed a favourable outlook from students in regards to MOOCs in their education. Li *et al.* (2015) agreed with this and offered reasons as their study found that students were very favourable towards MOOCs due to being flexible, useful, and easy, increasing their satisfaction. This is precisely what was observed in the quantitative results of the current study which reveal that students of the Majmaah University studying the 'Educational Technology and Communication Skills' module, generally, have positive attitudes towards using Hybrid MOOCs for education.

However, not all studies were this one-sided as some such as the ones done by Fesol and Salam (2016) and Roshchina, Roshchin and Rudakov (2018) suggested a mixed result from students

towards MOOCs. Kulik and Kidimova (2017) also had mixed results from the National Research University Higher School of Economics in Moscow, finding that %71 of the participants in their study held high agreement in regard to MOOCs being implemented within their curriculum.

Interestingly, there was other research done which the attitudes of students changed from the way they regarded MOOCs before and after learning with them, similar to the current study's qualitative semi-structured interviews. Joseph and Nath (2013) conducted a pre/post survey regarding using MOOCs for their participants, asking the question, '*Do you plan to take MOOC course on a topic of interest in the near future*'. The change was monumental as the percentage of participants answering yes changed from 11% to 63% and the percentage saying no changed from 66% to 37% before the MOOCs started to after it was finished.

Aharony and Bar-Ilan (2016)'s research is in line with Joseph and Nath (2013) and found that uncertainty in students towards MOOCs was replaced with confidence after being acquainted with MOOCs. The study done by Holotescu *et al.* (2014) confirms this change of heart which Joseph and Nath (2013) and Aharony and Bar-Ilan (2016) had witnessed in their studies. Holotescu *et al.* (2014) conducted an experiment with participants to understand their attitudes towards MOOCs. 100% said they will follow MOOCs in their education after experiencing the course, up from 29% before doing the course. For instance, some students from the Majmaah University who participated in the current study, had also a change of heart, as seen in their interviews, with their views prior and after learning with Hybrid MOOCs becoming much more positive in line with Joseph and Nath (2013), Holotescu *et al.* (2014) and Aharony and Bar-Ilan (2016).

Judging from the qualitative and quantitative parts of the study (*see* above) it is clear that the views of the students towards Hybrid MOOCs are either positive, became positive, or became increasingly positive after learning the 'Educational Technology and Communication Skills' module in Majmaah University. Within the questionnaires, the item *'I think this method makes learning easy'* had highest agreement pointing to PEOU and the lowest item was '*I would like to use this method of teaching when I become a teacher*', pointing to PU, which itself is quite high as 5 was the maximum grade. Since the PU and PEOU are high for using Hybrid MOOCs in Majmaah University, consequently, attitudes can become positive towards it as well. This is in line with the research conducted by Fesol and Salam (2016) and Kulik and Kidimova (2017) who have referred to positive attitudes from students towards Hybrid MOOCs leading to their

continuance intention in the educational system.

From the 20th century onwards, various educational theories like Multiple Intelligence, Cognitivism, Behaviourism, and Constructivism have been laying the groundwork into the design and implementation of technology in education. Behaviourists consider exterior stimuli provoking learners' attitudes, views, and performance. Behaviourism has significantly encouraged the usage of programmatic instruction in education, endorsed computing assisted instruction in education, and design of educational technology which resounds with the current study's usage of Hybrid MOOCs in Majmaah University. Cognitive theory focuses on intellectual processes in the mind that cannot be seen. It is concerning the learners' thought process. These scientists believe in designing beneficial instructional programs according to learners' cognitive development requirements. This does resonate with the current study deploying the ADDIE Model in order to ensure that the Instructional Design and curriculum for the 'Educational Technology and Communication Skills' module are in alignment with student intellectual abilities. In the educational setting, this theory aims at developing learners' abilities in the areas of innovative thinking, data analysis, and problem-solving via computer-assisted instruction. Constructivist theory is in favour of allowing learners to form their unique outlook of the world they inhabit. It also stresses the learning initiative of students plus their contextual learning experiences. The heart of the theory is students discovering their learning and learning via doing. It links with the current research as implementing Hybrid MOOCs in Majmaah University did increase student autonomy, independence, and Self-Regulated Learning, facilitating students becoming more active in and out of the class (unlike traditional teaching method). The impact of this theory on the creation and application of technology in the educational arena is chiefly seen in the arrival of educational games, dynamic multimedia growth, and active online interactions (witnessed in the increased online collaboration of Majmaah University students on the discussion forums). The theory of multiple intelligences highlights all learners hold their particular strengths in intelligence. If the syllabus, instructional materials, methods, and learning atmosphere could adjust to every student's distinct intellect, education can have more impact. This theory has encouraged and directed positive usage of technology in educational settings to enhance customized instruction (Ouyang and Stanley, 2014). In terms of Majmaah University students, attention to individual differences increased after the Hybrid MOOCs were implemented as learners could work at their own time and pace, in accordance with their abilities and learning styles.

There were many factors influencing students' views towards MOOCs: experience with MOOCs, multiple channels of leaning, geographic mobility, flexibility, technological awareness, pleasure, novelty, and autonomy.

Experience with MOOCs had a lot to do with student attitudes towards it. Student preconceptions were not necessarily all positive, but with some experience with the new system, they changed and became optimistic (*see* Aharony and Bar-Ilan, 2016). Moreover, the multiple channels for learning (video, discussion, articles, quizzes…) had an influence on students' positive position towards MOOCs (*see* Raposo-Rivas *et al.*, 2015).

In addition, the fact that learners do not have to be physically present on campus was also well received. Furthermore, as Saudi Arabia is on the rise in terms of technology use among youth (Baker, 2016), the fact that students can use MOOCs on their mobiles' platforms can have a positive impact on their reception towards it.

Additionally, findings suggest that pleasure (*see* Davis *et al.*, 2014) in learning could be a factor turning students' views towards MOOCs in a positive direction as the traditional learning in the country of Saudi Arabia is quite rigid (*see* Elyas and Picard, 2012). Novelty is also another factor which might affect student perceptions towards MOOCs to be positive, as for centuries, the strong man teacher who had full control of the class was the head of educating students and now, his/her control is less (*see* Bingimlas, 2009; Alkhatnai, 2011; Abedalla *et al.*, 2014).

The implications of the findings are significant as not only do the findings of this study concur with previous research (*see* Kulik and Kidimova, 2017; Joseph and Nath, 2013; Li *et al.*, 2015; Aharony and Bar-Ilan, 2016; Holotescu *et al.*, 2014) done on student attitudes towards MOOCs, this time the same type of general attitudes were given in a society known as being quite traditional (*see* Elyas and Picard, 2012). This is important in terms of MOOCs' penetration in developing countries.

It was obvious that looking at the qualitative and quantitative findings, there is a sense of generalizability among students in terms of an overall belief in the viability of this new method for other subjects (*see* Najafi *et al.*, 2017).

A prominent issue was that although it was the first time for all students studying with Hybrid MOOCs, there was no negativity towards it. In addition, the students who studied under this new method came from various departments who had to pass one common module and this

diverse background did not in any way affect their positive perception of Hybrid MOOCs.

Moreover, contrary to the study done by Roshchina, Roshchin and Rudakov (2018) where only high performing students liked MOOCs, in this study, students with different academic performance all enjoyed the MOOC. Unlike the study done by Fesol and Salam (2016) where preconceptions towards MOOCs remained the same after being exposed to it (as students who were predisposed towards traditional learning were more against MOOCs and students who were more predisposed towards flexible online learning were positive towards MOOCs) in this study, majority of students regardless of their predispositions towards online learning or traditional learning, became positive after trying with it.

6.4 What are the Challenges that Students who Study the 'Educational Technology and Communication Skills' Module by Means of Hybrid MOOC Encounter?

This question aims to discover the difficulties learners encounter when they are exposed to the new teaching method in Majmaah University. It is necessary to uncover all barriers to the implementation of Hybrid MOOCs in Saudi society. This section gives an indication of the nature of problems faced by students and whether these issues can be dealt with.

The responses from students obtained in the interviews and questionnaires regarding challenges faced by them when learning via Hybrid MOOCs revealed that the obstacles were not significant and those were not necessarily related to the Hybrid MOOC itself, but conditions surrounding its implementation.

The quantitative dimension of the study responds to this question with students granting their observations exhibited in Chapter 4 Table 20. It is shown that the Mean of the 10 statements employed to rate challenges, stretched from 3.62 to 4.33. This specifies a low agreement to challenges when working with Hybrids MOOCs. From the 10 sentences utilised, the one stating '*Slow internet connectivity was an issue for me*' (Mean=3.62, S.D=0.960) rated high agreement, which discloses certain challenges caused by internet connection. After that, the sentence stating, '*Sometimes I had difficulty in allocating time to participate in the online component of this course*' (Mean=3.84, S.D=0.767) came in afterwards. Contrarily, the sentence, '*Online and face to face activities were not well coordinated*' (Mean=4.33, S.D=0.674) had the lowest agreement, with '*I didn't receive helpful feedback from my teacher*' (Mean=4.24, S.D=0.857) following after that. Overall, it can be judged that views towards challenges from students were relatively positive and serious challenges did not overwhelm them.

The qualitative section of this study generally supports the above-mentioned quantitative results as students only confronted challenges at the beginning before they got used to the new teaching method. Some of their statements are as follows: Student 3 commented that, "*Only at the beginning, I faced some difficulties logging in because it was my first time to study online and use electronic platforms. I sometimes experienced poor internet connection due to my location. In general, it became easy for me after that*". He also alleged, "*I sometimes experienced poor internet connection due to my location. In general, it became easy for me after that*".

Scholarship focusing on challenges faced by learners when working with Hybrid MOOCs, did not necessarily fully match the quantitative and qualitative outcomes of the study. Challenges existing for students include poor internet connection, non-alignment of online and face to face component of courses, lack of feedback, and language barriers.

First, Adham's (2017) study was one of the few done in Saudi Arabia and resonated with the current research findings, in that internet connection was a substantial challenge for students learning with MOOCs. Second, Bruff *et al.* (2013) and Bralić and Divjak (2018) conducted studies on MOOCs in education where they saw that there were significant problems for students when the online component and face to face component were not aligned. This was contrary to the findings of this thesis where there was very good alignment in this regard according to students who answered the questionnaires.

Third, results of the research by Holotescu *et al.* (2014) and Liu, Zhang and Zhang, (2015) indicated that feedback was a serious challenge for students as learners did not get direct feedback from the online instructor on the MOOCs. This is in contrary to this thesis where students indicated in the questionnaires that direct feedback for Majmaah students was very acceptable to them. However, another study by Al-Atabi and DeBoer (2014) found that more than 80% of students considered the feedback received in their MOOCs was satisfactory, resonating with the current research.

Fourth, other scholars focus on language as a barrier as most MOOCs are in English (Gulatee and Nilsook, 2016; Fini, 2009; Wu *et al.*, 2014; Engle, Mankoff and Carbrey, 2015). Gulatee and Nilsook (2016) state that although MOOCs are very famous for users from various parts of the world, there still exists a barrier which does not allow everyone to enjoy this technology in their education. Being proficient in English is something that has not yet been seriously dealt with by MOOC providers, especially for underdeveloped or developing countries who are

thrilled to use MOOCs. Wu *et al.* (2014, p. 354) agree with this concern and declare,

> "*Massive Open Online Courses are becoming popular educational vehicles through which universities reach out to non-traditional audiences. Many enrolees hail from other countries and cultures, and struggle to cope with the English language in which these courses are invariably offered*".

This, however, was not a barrier for students of the Majmaah University who participated in the current research as the Hybrid MOOC offered to them was in the local tongue (Arabic).

The questionnaires and interviews explicitly show why Hybrid MOOCs were easily accepted in Majmaah University as students exposed no serious problems with learning the 'Educational Technology and Communication Skills' module. In addition, most problems students faced, as mentioned, were not related to the Hybrid MOOCs (i.e. 'Slow internet connectivity was an issue for me' rated high agreement). This shows that a high PEOU (1st component of TAM) existed. The challenge of slow internet was also indicated by other scholars who worked with MOOCs in Saudi Arabia (Adham, 2017). Moreover, the questionnaires demonstrate that students received effective feedback for their queries and the online and face-to-face components of the Hybrid MOOCs were aligned (i.e. '*Online and face to face activities were not well coordinated*' had the lowest agreement) which makes them more helpful, therefore, increasing the PU (2nd component of TAM). Language not being a barrier in this research improved PU and PEOU as many scholars have pointed to English language being an obstacle to learning via MOOCs in non-English contexts (Gulatee and Nilsook, 2016; Fini, 2009; Wu *et al*., 2014; Engle, Mankoff and Carbrey, 2015).

There are various theories describing effective technology use in education which could be deliberated when contemplating challenges and barriers to effective MOOC usage for education (Phillips, 2015). However, for the current study, it would seem that the theory that grants a central role for teachers or seriously considers their position when technology is implemented, would be more appropriate due to the significant position the status of teacher has in Saudi culture.

'Diffusion of Innovations' (Rogers, 2013) is a perspective that appraises the effective implementation of technology in social systems while, 'TPACK (Technological Pedagogical and Content Knowledge)' (Mishra and Koehler, 2006) focuses on types of information and awareness instructors are required to have to use technologies such as MOOCs in education

(more fit for the current study as teachers have had a central role in education in Saudi education for long), and 'SAMR (Substitution, Augmentation, Modification, and Redefinition)'(Jude *et al.*, 2014) is a charter specialised in measuring the impact of technology implementation in educational tasks. TPACK is quite applicable for successful utilization of Hybrid MOOCs for Majmaah University due to the fact that evolution from traditional teacher dominated conventional lectures to digital MOOCs would not only require the approval of teachers, but also their competency.

Diffusion of Innovation tries to explain the processes influential in acceptance or rejection in the deployment of any innovation in the education curriculum, as social systems such as a group of students or a school can resist or be very open to this change. This theory investigates how new technology can permeate through a population and emphasizes the lines of communication, opinion leaders, and gate keepers when this is done (Rogers, 2003). This theory also expounds that certain innovations might be better accepted than others when exposed to various groups. In the current study, students were very open to new systems such as Hybrid MOOCs which would mean that this innovative method would diffuse (Rogers, 2003) in the Majmaah University with ease, as far as learners are concerned.

TPACK emphasises the importance of teachers' personal/professional characteristics on the integration of technologies in education. The theory also suggests teachers must be trained in three types of knowledge for effective technology integration into their classrooms: technological, pedagogical, and content knowledge (Mishra and Koehler, 2006). MOOCs, as a technological aid, are very useful for many academic subjects except subjects that require lab work, clinical involvement, or usage of heavy machinery (which MOOCs might still be helpful in, but to a lesser degree). It seems TPACK is very relevant for the effective usage of MOOCs for Saudi Arabia as the transition between traditional teacher dominated classes to digital MOOCs education still needs the facilitation of teachers, due to their long history of domination in classes and students being dependent on them.

SAMR is a theory attempting to assess the undertakings which integrate technology in education. The point this theory is trying to make is that there is a need to define and elaborate on what constitutes an effective or successful form of usage for that particular technology. If there is a clear definition in the way a certain technology can be most effective, then that way of implementing it can be used specifically (Jude *et al.*, 2014). For example, simulation software can be beneficial for game development but not for teaching history. Laboratory equipment is

suitable for teaching chemistry but not useful for art. Documentaries are amazing for teaching history but not for medicine. In this study, the MOOC is already being used in an appropriate manner which is for education of undergraduate students in the 'Educational Technology and Communication Skills' module. In addition, the Hybrid MOOC used is in Arabic language which adds to its suitable usage.

As this thesis sees it, challenges to MOOC adoption in education can be reduced if certain known impediments are dealt with. Issues which cause annoyance with students such as bad internet connection must be fixed. In addition, alignment must be seen between online and offline contents. It would be helpful if students get quick and complete feedback as well. Nevertheless, all these issues seem to be more a matter of management, to a matter of Hybrid MOOCs themselves as MOOCs are very well accepted in the current context, i.e. at Majmaah University. The thesis showed that Hybrid MOOCs as a new method are accommodated well by participants of the study, but implementation strategies can be improved. The problems students mentioned as challenges in studying with Hybrid MOOCs do not represent students' disavowal of Hybrid MOOCs as a method, but their concerns related to the fact that basic steps can make the implementation of this innovation more effective. It appears that the theory of TPACK emphasizing teachers' understanding of the subject he/she is teaching, his/her proficiency in pedagogy in general, and his/her adeptness with Hybrid MOOCs is very helpful in facilitating the implementation processes of Hybrid MOOCs. The technical staff of the education facility MOOCs are being implemented can also help in internet speed. According to students' answers in the questionnaires and interviews, once students get used to this new method, it becomes much easier. The teacher plays a critical role in how fast and easy students get used to this new technology. Finally, the qualitative and quantitative findings of this thesis point to a potentially bright prospect for the long term usage of Hybrid MOOCs in the Kingdom of Saudi Arabia.

6.6 The Pedagogical Significance of what was Observed in this Thesis in Relation to Wider Movements in Arab Countries and in KSA

In terms of the significance that Hybrid MOOCs can have on the educational movements in the wider Arab world and Saudi Arabia in particular, there is a possibility that this new mode of learning may be seen as countering the more teacher dominated structure of the classroom, taking away the prominent and central role of the teacher, and offering more room for expression in a conservative society that is hierarchical. In this way, there might be resistance

towards it from the senior teachers who probably have little exposure to digital learning.

As far as students and younger teachers, Hybrid MOOCs can be perceived as the beginning of the internationalisation and modernization of Saudi education which along with the Kingdom's Vision 2030 development plan, is aligning KSA with global norms.

As for the Arab world, it was mentioned that MOOCs have penetrated this part of the globe to an extent which was surprising, considering when MOOCs arrived in the West as a pedagogy which wasn't very far back. It appears that the Arab world is making every attempt in not falling behind.

The Ministry of Education and Ministry of Labour in Saudi Arabia, which have both received MOOCs very well, could have many obstacles to deal with in terms of implementing MOOCs. These challenges may well be financial and cultural, and both ministries might have to liaise with local communities to show the usefulness of MOOCs for higher education and professional learning. The kingdom could perhaps still need reform in terms of cultural acceptance of this new pedagogy and there might be a necessity to supervise implementation of such endeavours in educational environments, not to mention a nationwide training for all teachers will have to be conducted.

6.5 What is the Impact of Using Hybrid MOOCs on Students' Academic Achievement in the 'Educational Technology and Communication Skills' Module?

This question is a fundamental one in this study which the thesis has been slowly building towards after the other three questions investigating experience, attitudes, and challenges as the three mentioned issues are actually influential in academic achievement. The whole thesis revolves around the potential benefits of using Hybrid MOOCs for students' marks. That is why a pre-test and post-test was done to compare results from students at Majmaah University studying under traditional and the new teaching method.

It seems that the results obtained from the pre/post-test of the Majmaah students' academic achievement from both control and experimental groups who studied the 'Educational Technology and Communication Skills' module revealed that no significant difference exists between them (although the experimental group had a slight advantage in marks). To elaborate, the experimental group and control group had similar marks in both the pre-test and post-tests. What was important for the purpose of the thesis however, was that significant improvements

in marks were achieved when the experimental group was taught via Hybrid MOOCs as can be observed in the difference between Mean marks of their pre-test and post-test.

81 students from various subjects in the Faculty of Education at Majmaah University participated in the study. 36 were allocated to the control group and 45 to the experimental group. All 81 participants were given a pre-test to examine their knowledge in the 'Educational Technology and Communication Skills' module. Thereafter, the 36-member control group studied this module via traditional face to face teaching for 14 weeks, while the 45-member experimental group studied the same module for 14 weeks via Hybrid MOOCs.

Chapter 4, Table 21 shows the results of the pre/post-tests of the control and experimental groups. For the pre-test, the Mean for the experimental group was 12.51 with a Standard Deviation of 1.984. The Mean pre-test for the control group was 12.69 with a Standard Deviation of 2.867. T-test result reveals no statistically significant difference between the experimental group and the control group in the pre-test.

Table 21, Chapter 4 also shows the results of the post-test. The Mean for the experimental group was 45.44 with a Standard Deviation of 8.438. As for the control group, the Mean was 42.92 with a Standard Deviation of 10.927. T-test result indicates that although there is a significant improvement for both groups between the post-test, however, there is not a major statistically significant difference between the control and experimental group within the post-test.

The literature in this area is mixed with only one study exactly resonating with the results of this research. Griffiths *et al.* (2015) found that there were no significant differences in academic achievement between Blended MOOC students and students of traditional learning, in line with the current study.

However, Ghadiri *et al.* (2013) and Freihat and Zamil (2014) compared Blended (Hybrid, Integrated) MOOCs with traditional learning and found that students studying with Blended MOOCs had significantly better academic achievement, different to the results of the current study which showed only slight improvement in academic achievement of the Hybrid MOOCs over traditional teaching.

The results of this thesis only agreed with the study of Griffiths *et al*. (2015) (seeing a slight increase in academic achievement due to Blended MOOCs). Freihat and Zamil (2014) did not use an authentic MOOC but they improvised a MOOC like setting that was very different than

this thesis which used an authentic MOOC on Rwaq.

What is astounding regarding the findings of this thesis is that Hybrid MOOCs actually did improve grades for the experimental group substantially as can be seen in the difference between the Mean marks of the experimental group in the pre-test and post-test. Indeed, the Hybrid MOOC used in this thesis was effective in that experimental group students did improve their learning significantly. Although the improvement in marks when comparing the control and experimental group were approximately similar in both pre-test and post-tests, showing that learning via face to face was equal to learning via Hybrid MOOCs in terms of academic achievement, the results indicated that learning via Hybrid MOOC was successful.

The conceptual side of this section can be assessed via certain components of the TAM/TTF model as two elements, PU (TAM) & 'Suitability for task' (TTF), are relevant to the higher academic achievement that the experimental group experienced. This improvement in academic score suggests that the new teaching method was indeed beneficial to students and also appropriate for its task which was teaching the 'Educational Technology and Communication Skills' module. Thus, it could be understood that the new technology/teaching method can be well accepted in Majmaah University and its use could be continued as the following two students claim. In that regard, Student 2 applauded the fact that it was possible to get good marks with the new method, *"I enjoyed learning and the clear objectives made my achievement great"* (Chapter 5, p. 150). Student 8 also agreed with Student 2 on attaining better marks with Hybrid MOOCs, *"It is the first time with this method for me. I got a full mark with the module and the platform facilitated me. I can benefit from videos, assessments, etc. All students benefit from that. I totally agree to use Hybrid MOOCs with Flipped Classrooms as a necessary part of the curriculum at university level."*

The implications for using Hybrid MOOCs in higher education in Saudi Arabia are that Hybrid MOOCs can offer a novel method which reaches many people from different demographics (*see* Van der Merwe, 2011; Yuan and Powell, 2013), and also as far as increasing scores, it was seen that Hybrid MOOC increased scores significantly for the experimental group.

In terms of academic achievement relating to language, since this study utilized the native tongue of the students (Arabic), they had no trouble in using the new method and it did not cause a deterioration in marks (*see* Bralić and Divjak, 2018).

6.7 The Curricular Significance of how this will Reflect Widespread Cultural Changes in the Way that Institutions are Structured, the way that Female Students are Taught and the Way that Teachers are Trained

The national curriculum in Saudi Arabia is set by the Ministry of Education and submitted down to individual educational institutions. With the arrival of MOOCs in the kingdom, there will possibly be added flexibility in terms of how the curriculum is offered to students, but not the content of the curriculum. Therefore, students will have the same curriculum, but study in a fashion which offers them more autonomy. Consequently, students could be passing modules in an established curriculum far from campus if they wish which can result in non-attendance in universities.

There is a possibility that as a reaction to this, movements might emerge that resist this change, as attendance has traditionally been an intrinsic part of education in the country and this increased flexibility MOOCs offer, although does not affect the curriculum, could possibly affect the manner this curriculum is adhered to.

As far as females entering education, Saudi females are usually facing more obstacles for their education in terms of geographic location. Families might not be prepared for their young female daughters to travel alone without a male guardian, which could potentially inhibit the learning opportunities these bright students have. MOOCs can remedy this by providing the same modules or courses in distant locations so female students can be educated in various parts of a curriculum, or the whole curriculum in the environment of their homes.

Unfortunately, some students who are accepted in universities where there are natural disasters or security concerns, may not be able to attend their campuses. However, with the arrival of MOOCs, students who have to attend universities in areas of concern, can complete modules of their curriculum online in complete safety and security.

Currently, whenever there is a shortage of female staff for modules that have female-only students in a curriculum, video conferencing is used where a male professor teaches the female students though digital means. This creates difficulty in learning, especially when students have questions, but through MOOCs, students can study the same module online beforehand so when they arrive to class, they already have a background of that specific subject. Through MOOCs, these students can also interact much better with each other and the teacher.

In terms of teacher training, there are many centres across the country where junior teachers attend to learn. However, this requires high amount of resources and the quality of every centre can be different, resulting in different competencies for future teachers. However, with MOOCs, resources are saved as not so many centres are required, and all teachers can get access to the same standard of teaching online with much more follow up support than before.

6.8 Conclusion

The chapter established how the findings attained via convergent parallel mixed methods answer the research questions of the dissertation. The chapter assessed and analysed the findings from the interviews and questionnaires. In the process of scrutinizing the results, relevant literature and educational theories were referred to, in addition to proposing explanations to the probable causes for the phenomena. All throughout the chapter, the TAM/TTF model was applied and compared with the interviews, questionnaires, educational theories, or literature. At times, a reflection on the incorporation of all issues inspected was given as well, when appropriate.

When reviewing the chapter, a constant practice that has been employed was breaking down the research questions into their constituent parts and seeing how the qualitative and quantitative findings relate to each component in detail, as well as how previous research and education theories correspond with them. The significance of the chapter was that it gave meaning to the findings in the light of current studies and frameworks available in education, distinguishing deviances with scholarship and alignment with frameworks. This chapter was the culmination of the dissertation journey, elucidating the value of the results for education practice and theory. The next chapter shall endeavour to offer a summary of the whole dissertation plus its implications for Saudi education.

Chapter Seven: Conclusion

7.1 Introduction

This chapter follows Chapter 6 where the results and findings of the research were discussed at length. During the previous chapter, the research questions were answered using the qualitative and quantitative findings and explored further by placing them amidst existing literature, linked to relevant educational theories, implications of the findings presented, and reflections on them offered.

This chapter will offer a summary and overview of the whole thesis. Additionally, it will discuss the implications and contributions of the whole thesis for knowledge, practice, and theory. Points regarding further and future research will be contemplated and possible recommendations given to relevant bodies.

7.2 Summary

This thesis attempted to understand the possible impact of Hybrid MOOCs on students' academic achievement. In addition, other important features such as student attitudes, experience, and challenges were also investigated. The study's location was the Majmaah University in Saudi Arabia where students of the 'Educational Technology and Communications Skills' module participated during the 1st semester of 2017/2018 from various departments of the Faculty of Education.

The reason this study was initiated was due to technology's penetration in the educational sphere and especially its influence in the education of developing countries. MOOCs were one of the various technologies that had shocked the educational world in recent years and made its way to the Kingdom of Saudi Arabia. Due to the kingdom being accustomed to traditional face to face learning for generations, studying the possible impact of Hybrid MOOCs in particular, and education technology in general, on the educational culture was intriguing.

Although MOOCs have infiltrated Saudi education and have quite a following among academics and students, they are still in their initial stages. The thesis was interested in a crucial point which would appraise the future contributions of traditional face to face classes and education technology for the Kingdom of Saudi Arabia. This point is whether the new pedagogy can improve marks, because if it can, the contribution of traditional classes might be questioned

as a reliable direction for future educational endeavours. Moreover, Hybrid MOOCs in particular, and education technology in general, could be seen in a brighter light as a reliable direction for the future of education. For the purpose of this thesis, only higher education institutes and how the Hybrid MOOC intervention might transform learning was of interest.

To elaborate further, the thesis employed a quasi-experimental design intending to assess whether 81 participants from the 'Educational Technology and Communication Skills' module placed in the control (traditional learning-36 pupils) and experimental group (learning via Hybrid MOOC-45 pupils) would increase their marks after a pre/post-test. Interviews and questionnaires were also employed as to understand their experiences, attitudes, and challenges during their study.

Although marks were a primary concern, this thesis did touch on other areas of interest to educational scholars. The experiences students had while learning via Hybrid MOOC such as preferences on various components and why were explored. Specific issues in students' experiences were investigated in seven items as follows: 'most and least favourite components', 'Flexibility of Using Hybrid MOOCs', 'Quality of Course Content', 'Self-Regulated Learning', 'Networked Learning', 'Instructional Design', and 'Assessment Design'. Learners' attitudes before and after working with Hybrid MOOCs in their education were obtained as well. The thesis also touched on a crucial factor in learning via a new method; obstacles and barriers to its adoption.

The findings of the pre/post-test, semi-structured interviews (qualitative) and questionnaires (quantitative) gave the impression that although there was not a statistically significant difference in academic achievement (marks) between the control and experimental group, students in both groups improved their learning. Moreover, participants in the experimental group were very positive towards this new mode of learning and their main concerns were mostly related to external factors which made learning in this method difficult such as internet speed.

Chapter 1 initiated by offering a context on the research being done, explaining the history of Saudi Arabian higher education. Afterwards, a background gave a short history of MOOCs, from their initiation in University of Manitoba in Canada to its reception in the Arab world, specifically, the Kingdom of Saudi Arabia. In this regard, the reasons why MOOCs did indeed penetrate the Arab world were discussed. The rationale for the study in terms of there being a

high number of literature on MOOCs in the western world, but very few in Saudi Arabia was mentioned. Likewise, the Saudi Vision 2030 development program and its relation to adoption of MOOCs in the Kingdom was placed under scrutiny. The significance of the research in terms of a transition from traditional to modern education was noted as well. This chapter intended to offer a glimpse of what was to come ahead in the research.

Chapter 2 followed with an analytical view of literature relevant to the project, offering a definition and a more detailed history of MOOCs. For this reason, the learning theories underpinning MOOCs were discussed such as 'Connectivism'. However, in order to give a theoretical framework for the project, other theories supporting MOOCs such as 'Cognitive Behaviourism' and 'Social Constructivism' were discussed as well. Thereafter, the chapter described different types of MOOCs: cMOOCs, xMOOCs, and Hybrid MOOCs, explaining their differences. Afterwards, in order to explain the Saudi platforms which are already existing prior to the start of the project, Rwaq, Mahara, Doroob, Zadi, A'nab were introduced to the reader with their functions and sponsoring organizations. The chapter followed by analysing literature from around the world focusing on student experiences with MOOCs in general, the concept of Self-Regulated Learning when working with MOOCs, Instructional Design, MOOCs' assessments, students' attitudes worldwide towards MOOCs entering education, and learners' challenges in using this new method. This chapter aimed to enlighten the reader regarding what previous research has been done on MOOCs and identifying a gap which was seen to be very few research papers on MOOCs in Saudi Arabia.

Chapter 3 continued showing the five paradigms of the research as follows: positivism, post-positivism, interpretivism, critical paradigm, and pragmatic paradigm. The chapter explained why the pragmatic paradigm was useful for this research. It explicated that a quasi-experimental design was chosen containing control and experimental groups along with qualitative semi-structured interviews and quantitative questionnaires for data collection. The quantitative data obtained was analysed via descriptive analysis, T-test, One-way Anova, while for analysing the qualitative data, thematic analysis was employed. For the quantitative findings, validity and reliability were discussed, while for the qualitative results, trustworthiness was contemplated.

Chapter 4 gave the demographic details of the 45 experimental group students participating in the questionnaire. Afterwards, it displayed the quantitative results in order of the research questions.

Chapter 5 offered findings from 8 of the 45 experimental group students who participated in the semi-structured interviews, showing qualitative results in order of the research questions.

Chapter 6 is a critical part of the thesis which combines the results from Chapter 4 and 5, linking them to the research in the literature review plus relevant educational, sociological, and psychological theories. The chapter aimed to understand the meaning and implications of the findings in this way, offering concluding interpretations and reflections of why the results were received the way they were and how they relate to education in general and Saudi Arabian education in particular. During the course of explaining why certain findings were obtained and their meaning for the wider world, quotes from Western and Arabic scholars, quotes from students participating in the interviews, statistics from questionnaires, concepts and theories explaining the likely occurrence of such results, and research into MOOCs from Western and Arabic sources were consulted and offered in an all-inclusive manner, leading to a more complete interpretation and reflection of the likely causes of the findings and their possible impact on Saudi education.

Chapter 7 offers the overall summary of what transpired in the dissertation plus fundamental implications arising from it together with possible contributions they offer.

7.3 Implications

This section attempts to identify who and how can be impacted by this study. The implications section which is of critical value to the project has been categorised in the following manner: Implications for knowledge, students, teachers, and for educational policymakers. The reason for this categorisation is to ensure all implications are seen in their relevant context.

7.3.1 Implications for Knowledge

This study discovered a serious lack of scholarship in MOOCs within non-western societies, especially the Arab world in general and Saudi Arabia in particular where few studies were found to the best of the author's knowledge. This important issue can hinder efforts for the Kingdom of Saudi Arabia who is attempting to integrate technology into education as part of its ambitious VISION 2030 development plan which is currently running. With the development program that the kingdom has undertaken, it arguably will necessitate indigenous scholarship and evidence-based practice as to support the transformation. Since not many local scientists explored the area of education technology in general and MOOCs in particular, it

might be difficult for the kingdom to ascertain if and how changes in education can possibly work. The kingdom might be compelled to confer with foreign sources which could perhaps bring its own problems as they can be context-specific. This thesis may aid the kingdom in that regard as it alludes to western and non-western scholarship, plus focuses on indigenous capabilities and the local context of the country.

Local Saudi intelligentsia in social sciences can make use of works such as this thesis as a stepping stone and impetus for investigating local factors influential in determining the progress of the implementation of new technology in education and its success. Saudi educational scholars can view this thesis as a gateway to recognising the need for scholarship which is context-specific in the Kingdom of Saudi Arabia.

7.3.2 Implications for Students

The study showed that the road to full implementation of technology in Saudi education such as Hybrid MOOCs can indeed be a smooth one, one that is well received, one that has a massive motivated student population awaiting it. Students showed passion towards the new teaching method, despite hardships such as low internet speed. These obstacles did not have an impact on demotivating learners, but were seen as necessary issues that have to be fixed for future full implementation of the new teaching method.

The study also revealed further points of importance for students. Firstly, Hybrid MOOCs' videos can be effective in instilling the course materials in students' minds longer, helping their memory. Secondly, laziness can be a threat from Hybrid MOOCs as students who do not like reading books, can use videos abundantly. Thirdly, when students have trouble in class because they learn at different speeds, Hybrid MOOCs could actually help them to catch up. Fourthly, quick feedback from quizzes in Hybrid MOOCs reduces stress in students waiting for exam results. This is a major benefit for Saudi students who usually had to wait a long time for feedback from teachers.

Fifthly, one issue causing anxiety for students that Hybrid MOOCs remedies is that when they do not learn in class or the teacher is not conveying the information well enough, they can rest assured that all information is waiting for them online with a top professor teaching it. This helps when students are absent from class as well. Sixthly, Networked Learning of Hybrid MOOCs fixes another problem for Saudi education: the lack of group work. This is because discussion forums allow learners to cooperate on academic matters and even help each other

anywhere, anytime without embarrassment to ask a question from the teacher.

Saudi students can use this study in acquainting themselves with benefits and challenges of studying via Hybrid MOOCs so when education technology in general and MOOCs, in particular, reach their educational establishments, depending on what part of Saudi Arabia they are from, they are mentally ready to accept and benefit from this transformation.

7.3.3 Implications for Saudi Teachers

Although teacher dominance did not negatively impact the acceptance of MOOCs in Majmaah University overall, unfortunately the researcher witnessed some resistance to it by academic staff during the field work due to various factors such as lack of training in new technology, fear of trying new things, the extra time and energy required to prepare education materials through technology, and difficulty in relinquishing control. Although the Saudi educational culture has been a traditional one with a strong teacher dominated classroom, this study showed that this 'centuries of dominance' had minimum effect on the acceptance of new teaching methods in Majmaah University.

There are implications for Saudi teachers who use MOOCs in their pedagogy as the course materials offered online must be easily understood by students, as well as completely be linked with in-class material. In addition, it is important for teachers to ensure they are prepared for designing the online content professionally. In this regard, they will have to be proactive and participate in workshops to obtain the required skills. MOOCs' quizzes can be utilized by teachers, so learners see their progression level at the end of each class. If this is adopted, students and teachers both know of learners' strengths and weaknesses as soon as possible, allowing them plenty of time to recap.

Although correct time management is the job of the student, however, teachers should be considerate when giving students tasks if they want students to participate in online activities. Students have a social life, domestic family commitments, jobs perhaps, and other modules. These all take their toll on students' energy and time. Therefore, it is the duty of the teacher to accommodate students in a manner which allows them to fully participate online.

Saudi teachers can use this study to acquaint themselves with this transformation of the old to the new, increase their confidence in confronting educational technology, highlight the benefits of Hybrid MOOCs, be more prepared for the changes it brings, get ideas for designing online

curriculum, understand how to exploit Hybrid MOOCs for their own convenience, and use this thesis when such a transformation is going to happen within their own educational institution.

7.3.4 Implications for Educational Policymakers

There are several recommendations for the Ministry of Education (MoE) in Saudi Arabia regarding how they might enforce the usage of education technology in general and Hybrid MOOCs in particular. If the country is to reach its VISION 2030 targets in relation to education, a quicker and more effective procedure could be mapped in the MoE and applied to all sectors, not only higher education. Senior lecturers would understandably be more resistant to new methods, especially ones requiring additional training. This thesis recommends that the MoE provides flexible training workshops as to integrate the high experience of these valuable members of staff to the newly adopted and modern technology.

While on site in Majmaah University, the researcher was informed that the Ministry of Education has indeed encouraged faculty members to espouse and embrace the new digital wave in education (i.e. MOOCs). However, the slight resistance in practice from some lecturers, especially more senior and older ones who were not so acquainted with technology and stuck in their old ways, proved that the Ministry of Education in the Kingdom of Saudi Arabia has to not only provide incentives for faculty members to adapt to change, but also carry out integration of technology into education (e.g. Hybrid MOOCs) through policy guidelines, offering compulsory workshops to train staff that grant certificates which in turn would motivate them to participate full-heartedly.

This study showed, through investigating students' views towards journal articles, that not only is reading underdeveloped among Saudi Arabian youth, but also it is not a preferred method for obtaining knowledge. This is a negative signal for Saudi educational policymakers as they have to ensure students' reading skills improves, but also provide diverse resources for learning in addition to books to stimulate student interest in education. Moreover, flexibility of MOOCs observed in this study has indicated that students do enjoy autonomy in their studies. However, teachers ought to be trained by authorities so they are prepared and equipped to accommodate this type of education, where students can simply use smartphones for accessing course materials. This can have implications for policymakers as to promote motivational packages for teachers so if they adopt technology in their pedagogy, they will receive benefits.

A probable barrier to MOOCs' implementation, which was the traditional culture of society, was seen to be not so detrimental in this study. This is a positive development for policymakers as Saudi youth demonstrated they are able to accommodate recent advances in education together with maintaining traditional norms. In terms of designing a new curriculum for Saudi education, this study indicates that policymakers can possibly have the burden of contemplating an innovative curriculum that is more student centred and relies on new/diverse resources of information, as well as a novel manner of conveying knowledge to students. In addition, top policymakers in the Ministry of Education might have to establish a department or centre within their institution to solely allocate its time on developing this new curriculum. This new centre must also be equipped to train teachers in the appropriate Instructional Design so they actively contribute to the promotion and implementation of Hybrid MOOCs themselves.

7.4 Contributions of this Research

The study offers 12 contributions on many dimensions and areas within scholarship as follows:

First, a topic which desperately needs attention, looking at the literature review, is that a major body of research focusing on MOOCs is limited to North America and also in developed countries (Liyanagunawardena, Adams and Williams, 2013). This is important as there are many factors that contribute to underdeveloped states having hardship in applying MOOCs effectively in their universities, as was elaborated in the Literature Review Chapter (section 2.6.2, 2.6.3) and Discussion Chapter (6.4) (Colas, Sloep and Garreta-Domingo, 2016). The literature review specified that the geographic spread of scholarship conducted on MOOCs is not fairly balanced as %80 of work (Veletsianos and Shepherdson, 2016) originates in North American (Liyanagunawardena, Adams and Williams , 2013) and European Institutions of higher education whereas within the Saudi Arabia, not much was found excluding Freihat and Zamil (2014) and Adham (2017). This research has been able to fill that gap to a certain extent and be an impetus for future Saudi researchers. In this manner, a taboo has been broken.

Second, the study by Freihat and Zamil (2014) was done employing a context similar to MOOCs, not an authentic MOOC (They used CDs, podcasts, videos, graphic novels, readings, pdfs to improvise a MOOC like setting for teaching the students) (Freihat and Zamil, 2014). Another study conducted by Adham (2017) in Saudi Arabia utilized a Learning Management System (Blackboard) to imitate a context similar to MOOCs. The significance of the results in the current dissertation is elevated owing to this shortage in research conducted in Saudi Arabia.

Actually, the current thesis is the only one of its kind in the country where a genuine Hybrid MOOC has been used, to the best of the author's knowledge. The noteworthy absence of research performed specifically on Hybrid MOOCs in Saudi Arabia (Veletsianos and Shepherdson, 2016) is what this dissertation relieves. The usage of a genuine MOOC in this thesis gives a clearer picture to foreign and local investors who intend to focus on this phenomenon, not to mention scholars.

Third, the only two pieces of scholarship conducted in the country were using female learners (Adham, 2017; Freihat and Zamil, 2014) which neglect the male student experience with MOOCs. Conversely, this dissertation works with males and enables the use of real MOOCs to understand their academic achievements, attitudes, experience, etc. Gender is a matter of consideration in all research with human subjects. This thesis has been able to investigate male learners' experience with the new educational phenomenon.

Fourth, Freihat and Zamil (2014) worked with classrooms in the duration of a portion of a semester (4 weeks) with 40 learners while Adham (2017) inspected 1 case study regarding Hybrid MOOCs with 25 learners in 3 weeks. Therefore, the two aforementioned studies cannot offer an accurate account of Saudi students using Hybrid MOOCs due to their short time frame and small number of participants. This research, however, experimented during a much longer time frame (in the course of an entire semester-14 weeks) with 81 participants which helps it being a better (not perfect) representation of Saudi students using MOOCs.

Fifth, no research on education technology, specifically Hybrid MOOCs, has been conducted in Majmaah University where this project is accomplished. This university is not one of the top universities in the country and is located in a small-sized city, not a cosmopolitan region. This adds value to the research done as one would assume students in more globally recognised universities in Saudi Arabia which are located in more international cities would be more receptive towards education technology whereas local universities in unknown towns would be expected to not be ready for Hybrid MOOCs. This study disproved the aforementioned notion. Although Majmaah University is a small local higher education institution and is located in an unknown part of the country which is less affected by global developments, studying with Hybrid MOOCs was well received overall. This is a strong indication that even developing countries, even small unknown cities and universities can be very accommodating towards the implementation of education technology, especially Hybrid MOOCs, and this phenomenon does not know any boundaries in that regard. This is a sign that the geographic dissemination

of the phenomenon of MOOCs can be much faster in the years to come than expected.

Sixth, the ADDIE model (to the best of the author's knowledge) hasn't been used in Saudi Arabia for its Instructional Design in MOOCs. This project operates the ADDIE model to design the course materials whereas the one done by Freihat and Zamil (2014) improvised the course materials using CDs and books. This is paramount as literature showed there was a lack of training in people who developed the Instructional Design in MOOCs. This thesis, however, learned from the past and used a notable model for this purpose.

Seventh, attitudes with respect to Hybrid MOOCs and difficulties students are confronted with when using it for male students, haven't been investigated to this degree previously for Saudi Arabia. This is significant as the issue of behaviour and attitude is very context-specific and dependant on cultural, religious, and linguistic factors. This thesis offers a detailed account of human reactions in a part of the world not explored much in regard to the entrance of technology into education and responses to it.

Eighth, a notable point absent in previous scholarships of Hybrid MOOCs in Saudi Arabia is implementing the Rwaq platform in congruence with Hybrid MOOCs at a university campus, which this study does. Rwaq platform is significant in the Arab world, has many subjects, the professors are from top Arab universities, the language in Arabic, and is public for anyone to use. The usage of an Arabic platform together with a new western method of education can be unique in its own right.

Ninth, Freihat and Zamil's (2014) work was performed on EFL pupils and Adham (2017) performed her project with learners from the English language faculty, whereas this research is conducted on university students of numerous departments. Therefore, a diversity of learners from various departments participated in the study. This shows that Hybrid MOOCs are not subject-specific and can be applied to various courses in higher education levels. This thesis demonstrated that variety in disciplines does not hinder MOOCs' contribution.

Tenth, the investigation of Freihat and Zamil (2014) and Adham (2017) employed English as the chief language of the MOOC, whereas this thesis employs the indigenous tongue (Arabic). This has never been done in Saudi Arabia and to the author's best knowledge, it is the first time in the Arab world, which increases its contribution since Arabic is the 7th most used language in the world (Sawahel, 2014). Using the indigenous language of an area when any change occurs, facilitates its implementation, progress, and sustaining.

Eleventh, Freihat and Zamil's (2014) investigation employed a single methodology (pre/post testing), whereas Adham (2017) utilised interviews and questionnaires. This project, on the other hand, deployed mixed method (pre/post testing, interviews, questionnaire) as mentioned. This increases the credibility of the results of this project, offering a more comprehensive outlook.

Twelfth, it must be noted that even though there was not a statistically significant difference between the experimental group and control group (i.e. the experimental group had slightly better academic achievement), this is a considerable contribution as change theories would seem to indicate resistance (Davis, 1989; Fishbein and Ajzen, 1975; Davis, Bagozzi and Warshaw, 1989) towards a new technique, technology, and method would potentially lower the academic achievements of the experimental group who learned via Hybrid MOOCs. One of these models which describes this phenomenon and was scrutinised before is the TAM/TTF model (Lee and Lehto, 2013; Iversen and Eierman, 2018; Thompson, 1995; Davis, 1989; Furneaux, 2012; Zigurs and Buckland, 1998; Zigurs and Khazanchi, 2008; Yu and Yu, 2010). This model can contribute towards a likely prediction of the successful and sustained implementation of Hybrid MOOCs in Saudi education in the case of Majmaah University plus explain the degree of acceptance/resistance towards it.

The first part of the model (TAM) (Adams, Nelson and Todd, 2010; Davis, Bagozzi and Warshaw, 1989) is based on the Perceived Usefulness (PU) of this new teaching method by Majmaah students and its Perceived Ease of Use (PEOU), which in turn shape students' attitudes towards adopting/resisting it, leading to their intention to carry on learning the 'Educational Technology and Communication Skills' module via Hybrid MOOCs. The perceived ease of use of Hybrid MOOCs for the participants from the Faculty of Education in Majmaah University could be considered high due to the digitally capable Saudi students being active online (Miliany, 2014; Brahimi and Sarirete, 2015; Mansoor, 2002; Fini, 2009; Woodgate *et al*., 2015). In addition, the perceived usefulness of education technology such as Hybrid MOOCs may be deemed sufficient among Majmaah students as well since the Saudi government has, for a long time, invested heavily in changing minds within the education sector towards introducing the benefits of innovative technologies in the country's education. This has included publicising the advantages of integrating education technology in education plus assisting its implementation (Al-Asmari and Rabb Khan, 2014; King Abdulaziz University, 2019; National Center for E-Learning, 2019). This high perceived ease of use and perceived usefulness could have shaped

attitudes of Majmaah University students to become positive in regards to adopting Hybrid MOOCs effectively with least resistance.

In addition, the fact that the ADDIE model was used by the researcher to ensure the online materials and in class content were in alignment (Wang and Hsu, 2009; Parra, 2016; Bruff *et al*., 2013; Bralić and Divjak, 2018) could have heightened the perceived usefulness of Hybrid MOOCs for Majmaah University students. Moreover, the fact that the researcher utilised the Arabic language for the Hybrid MOOCs implemented in Majmaah University might have increased perceived ease of use as if the language was English, it could have caused more resistance (Gulatee and Nilsook, 2016; Fini, 2009; Wu *et al*., 2014; Engle, Mankoff and Carbrey, 2015). The aforementioned reasons which elevate PU and PEOU among Majmaah University students within the Faculty of Education can result in a much more positive attitude towards this new educational method and its continuing usage, especially since Majmaah University is among the newer generation of Saudi higher education institutes which embrace change better, are positive towards innovation, and use younger lecturers.

The second part of the TAM/TTF model is TTF (Goodhue, Klein and March, 2000; Kim *et al*., 2010) which focuses on how much a new technology or method is fit with the abilities of Majmaah students (ITF) and how much it is suitable for its task (TTF) which is teaching the 'Educational Technology and Communication Skills' module. As far as being compatible with the abilities of Majmaah University students, it is highly likely that due to their adept digital, online, and computer skills, this will not be a difficulty (Miliany, 2014; Brahimi and Sarirete, 2015; Mansoor, 2002; Fini, 2009; Woodgate *et al*., 2015). Furthermore, as MOOCs in general and Hybrid MOOCs particularly have been considered a useful tool for teaching in educational contexts (Freihat and Zamil, 2014; Bralić and Divjak, 2018; Ghadiri *et al*., 2013; Magen-Nagar and Cohen, 2017), they are fit for their purpose. In addition, as mentioned above, the researcher designed the Hybrid MOOCs used in Majmaah University in Arabic language so it is more compatible with students' abilities and deployed the ADDIE model so the online component was in alignment with the textbook used in classes, increasing the new method's suitability for its task (i.e. 'Educational Technology and Communication Skills', 3rd Edition, 2016, which is the designated textbook for the module by Mohamad Alqomaizy).

What must not be forgotten is that the position of the teacher in Saudi culture has been one of absolute authority (teacher-centred learning) for long (Krieger, 2007; Alfahad, 2012; Miliany, 2014; Almulla, 2017; Alrabai, 2018; Farooq and Soomro, 2018) and the change towards more

flexibility, autonomy, and creativity for students (student-centred learning) is a radical shift which can be very attractive and quickly absorbed by Majmaah University students who are perhaps highly motivated towards change as local culture is an important factor for technology acceptance/rejection (Khosrow-Pour, 2003). This is in line with the Theory of 'Diffusion of Innovations' which assesses various factors in the spread of a new innovation in an institution or culture (Rogers, 2003). All the aforementioned factors have led to the 12th contribution which was the academic achievement of the experimental group having roughly same (slightly better) academic achievement compared to the control group, considering resistance to change.

7.5 Limitations

The current research does not go without shortcomings, some of which are as follows:

First, this study was conducted in one small university in a small city which may not be representative of the entire Saudi Educational system. In addition, responses to e-learning might be different in other cities of the country which are more global and have been exposed to educational technology more. Second, this study involved male students only without receiving feedback from any female student due to traditional rules in Saudi Higher Educational Establishments which make the study non-representative of the whole country as female students can have different reactions to e-learning. Third, this study focused on 1st semester undergraduate students who just graduated from high school and their responses might be different than other higher education students who have matured and been acquainted with various methods in education.

Fourth, the study's focus on only 'Educational Technology and Communication Skills' module will not offer results regarding how students of other modules will react and perform under educational technology, especially 'Hybrid MOOCs and Flipped Classrooms'. Fifth, quasi-experimental design was used to randomly select a control and experimental group (classes) from five classes studying the 'Educational Technology and Communication Skills' module. Since students previously registered on the module in different numbers from the three departments in the Faculty of Education, all came from the 1st semester, and all students were from humanities and social sciences only, it cannot be fully representative of Saudi Education. Sixth, the experiment may be affected by contamination due to contact between students of both groups as it is difficult to completely isolate them on and off campus.

It must be emphasized that every effort was made that the mentioned six points do not reduce

the value of the study by first identifying them, acknowledging them, and ensuring all available measures have been considered to reduce their impact.

7.6 Reflecting the Development of Hybrid MOOCs for the Study's Context

The process of creation, delivery, and organization of this new teaching method had many local and technical aspects involved. Through contemplation between the researcher and the 'Educational Technology and Communication Skills' module's teacher, only the 1st ten chapters were chosen from the available 14 chapters of the textbook 'Educational Technology and Communication Skills', by Mohamad Alqomaizy 3rd edition, 2016 which is the main resource within Majmaah University for this module. This was because of restrictions in time. There were 4 preliminary meetings at Majmaah University with the Dean of the Faculty of Education and the module's teacher for this decision. The researcher travelled 300miles each time for each meeting prior to the commencement of the course.

Prior to travelling to Saudi Arabia for the purpose of this experiment, the researcher had already contacted Rwaq platform officials and gained their permission for doing the module on their platform. The reasons for choosing Rwaq was that it is in local Arabic language, it is easily accessible by any device, it is free of charge, and offers numerous multimedia features. This platform facilitated the researcher placing the following features as course materials for the experimental students: videos created by the researcher (1 or 2 per week), readings (articles, book chapters, website links, and PowerPoint slides), assessments generated by the researcher (a quiz or questions related to the video), and discussion forums (online medium for students to interact and learn from one another). Moreover, the Rwaq platform offered the researcher a studio in the capital city of Riyadh for filming the lectures in high quality. The researcher travelled 6 times approximately 200km each time for this reason.

Moreover, the ADDIE model was chosen by the researcher for designing the course content in 5 phases: Analysis, Design, Development, Implementation, and Evaluation. The 1st phase involved considering the foundation for designing the course content. The goals of the module, students' capabilities, learning resources, teaching methods, and assessments were analysed by the researcher. The 2nd phase involved making the online materials (e.g. videos, articles, quizzes, etc.), face to face content (e.g. textbook), and the capabilities of Majmaah University students of the experimental group, compatible with each other. The 3rd phase involved testing/creating the designed course content, so it is fit for student use. The 4th phase comprised

the researcher implementing the new teaching method on experimental group students and the 5th phase encompassed the researcher evaluating the performance of Hybrid MOOCs with Flipped Classrooms.

In terms of delivery, there were 3 stages (before/in/after-class) for implementing the Hybrid MOOCs with Flipped Classrooms (Wang *et al*., 2016); Johnston, 2015); Parra, 2016); Griffiths *et al*., 2015). The teacher of the module was in charge of the in class stage, but the researcher did interact with students during the before/after-class stages on the discussion forums for 2 hours per day. The notion of Flipped classroom was utilized as it helped integrating the created online course materials with the face to face class. In the before class stage, students conducted activities such as watching the video lectures and doing quizzes from the videos in the Rwaq platform, in addition to having the consultation of the researcher online. During the in class stage (face to face stage), the students were divided into groups with tasks allocated to each group and the teacher interacted with them. Throughout the 'after class' stage, students interacted with each other and the researcher regarding what they learned in class with opportunity available for Q &A in the discussion forum.

Overall, the researcher's particular focus was on arranging course materials such as video lectures, articles, slides, and assessments, uploading them into the Rwaq platform. His tasks also included assisting students in the registration processes. The researcher also offered approximately 2 hours of Q&A per day on the discussion forums for experimental students during their course. In addition to the individual duties he performed, the researcher also collaborated with the teacher of the module in designing the course curriculum and combining the online content with the face to face. Finally, the researcher prepared students for learning via Hybrid MOOCs with Flipped Classrooms.

7.7 Further Research

This study can illuminate the path for western scholars and students to take a look to the East and educational developments there. However, further research is required in Saudi Arabia regarding the implementation of MOOCs in higher education. Saudi scholars have been behind their western counterparts in this area and studies such as this might inspire them to initiate new research. This kind of novel outlook in education scholarship might not only benefit the country and the developing world, but also demonstrate to western scholars how their ideas can be deployed in other contexts.

Furthermore, examining suitable Instructional Designs for Arabic MOOCs is required to increase their impact on students' academic achievement and compare which Instructional Design offers better marks in students. The same can be done to investigate which types of Instructional Designs can be created to accommodate students of diverse backgrounds. These newly generated Instructional Designs can be explored to check their effects on student motivation, attitudes, and experience.

In addition, this study can stimulate new educational thinking and theories in non-English language countries and remove the focus from developed nations. If scholars in developed nations can understand the difficulties of implementing education technology in developing countries, they can even implement the lessons for deprived and neglected areas in their own countries, not to mention learn how local culture and customs impact the implementation of education technology.

Moreover, this research was conducted in one Saudi University and in one module. Additional research is required in other universities and modules. Since this study only used male participants to monitor their academic achievement, more scholarship is required to see if and how Hybrid MOOCs would impact female academic achievement. New scholarship can also consider research such as this one, but outside higher education in primary schools, secondary schools, high schools, and even private and public corporations. Further research is also required in investigating motivational factors of learners' using Arabic platforms for MOOCs such as Rwaq, Mahara, etc.

Unfortunately, there is a lack of scholarship on using MOOCs for Special Education Needs (SEN). Researchers can contemplate this lack and engage with the topic. Finally, this study focuses on the challenges that students face when they were studying under Hybrid MOOCs. New studies could investigate the performance of teachers who apply Blended/Hybrid learning in their teaching to know the challenges and obstacles they face when they use new teaching methods, especially in non-western contexts.

References

A'nab (2017) Aanab Academy - Digital Training Platform for Arab Teachers. *Aanab Academy Blog*. [Online]. Available at: https://www.aanaab.com\articles. [Accessed: 1 August 2019].

Abedalla, R., Pinchot, J., Al-Masri, R., and Samrgandi, N. (2014) Saudi Students' Perceptions of Online Education versus On-ground Education in Saudi Arabia. In: *Proceedings of the Information Systems Educators Conference*. [Online]. 2014, Baltimore, Maryland USA: EDSIG & EDSIG, pp. 1-12. Available at: http://proc.edsig.org/2014/pdf/3045.pdf. [Accessed: 14 July 2019].

Abeer, W. and Miri, B. (2014) Students' preferences and views about learning in a MOOC, *Procedia-Social and Behavioral Sciences*, 152, pp. 318-323.

Abelson, H. (2008) The creation of OpenCourseWare at MIT, *Journal of Science Education and Technology*, 17(2), pp. 164-174.

Adams, D., Nelson, R. and Todd, P. (1992). Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication. *MIS Quarterly*, [online] 16(2), pp.227-247. Available at: https://www.jstor.org/stable/249577?seq=1#metadata_info_tab_contents [Accessed 15 Dec. 2019].

Adair, D., Alman, S.W., Budzick, D., Grisham, L.M., Mancini, M.E. and Thackaberry, A.S. (2014) Many shades of MOOCs, *Internet Learning Journal*, 3(1). pp.53- 72.

Adamopoulos, P. (2013) What Makes A Great MOOC? An Interdisciplinary Analysis of Student Retention in Online Courses. In: *Thirty Fourth International Conference on Information Systems*. [Online]. 2013, Milan: Breakthrough Ideas in IS, pp. 1-21. Available at: https://pdfs.semanticscholar.org/08b7/a89aafe1703e3b1d628d6e81b0791cfa867b.pdf. [Accessed: 14 July 2019].

Adham, R. (2017) *The use of Avatars in gender-segregated blended learning and MOOCs in Saudi Arabia*. PhD. University of Reading.

Adham, R.S. and Lundqvist, K.O. (2015) MOOCs as a method of distance education in the Arab world–A review paper, *European Journal of Open, Distance and E-Learning*, 18(1), pp. 123-138.

Admiraal, W., Huisman, B. and Pill, O. (2015,) Assessment in Massive Open Online Courses, *The Electronic Journal of e-Learning and Knowledge Society*, 13(4), pp. 207-216.

Aharony, N. and Bar-Ilan, J. (2016) Students' perceptions on MOOCs: An exploratory study, *Interdisciplinary Journal of e-Skills and Life Long Learning*, 12, pp. 145-162.

Al-Adwan, A., Al-Adwan, A. and Smedley, J. (2013). Exploring students acceptance of e-learning using Technology Acceptance Model in Jordanian universities. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, [online] 9(2), pp.4-18. Available at: https://www.researchgate.net/publication/284676003_Exploring_students_acceptance_of_e-learning_using_Technology_Acceptance_Model_in_Jordanian_universities [Accessed 29 Jan. 2020].

Al-Asmari, A.M. and Rabb Khan, M.S. (2014) E-learning in Saudi Arabia: Past, present and future, *Near and Middle Eastern Journal of Research in Education*, (2),pp. 2-11

Al-Atabi, M. and DeBoer, J. (2014) Teaching entrepreneurship using massive open online course (MOOC), *Technovation*, 34(4), pp. 261-264.

Al-Jarf, R. (2007) *Developing Reading and Literacy in Saudi Arabia*. Education Resources Information Center. [Online]. Riyadh, Saudi Arabia: King Saud University. Available at: https://eric.ed.gov/?id=ED497944. [Accessed: 14 July 2019].

Almomen, R.K., Kaufman, D., Alotaibi, H., Al-Rowais, N.A., Albeik, M. and Albattal, S.M., (2016). Applying the ADDIE—analysis, design, development, implementation and evaluation—instructional design model to continuing professional development for primary care physicians in Saudi Arabia. *Int J Clin Med*, *7*(08), pp.538-546.

Al-Musawi, A. (2010) E-Learning in Oman: E-learning from an Omani perspective, *E-learning Practices: Cases on Challenges Facing e-learning and National Development*, 2, pp. 603-626.

Al-Omran, A. (2013) Saudi MOOCs startup wants to "Disrupt" Arab education, *Wall Street Journal* (edn), Dec 17 Available at: https://blogs.wsj.com/middleeast/2013/12/17/saudi-mooc-startup-wants-to-disrupt-arab-education/ [Accessed: 27/5/2019].

Al-shammari, M. (2016) *Investigating Academic Staff Members' Perspectives Of The Effectiveness Of The Use Of E-learning Skills In Teaching In Saudi Arabia Universities*. PhD. Durham University.

Al alhareth, Y. and Mcbride, N. (2014) *E-learning in Saudi Higher Education*. [Online]. 2014. ResearchGate. Available at: http://file:///C:/Users/hp-pc/Downloads/E-LEARNINGINSAUDIHIGHEREDUCATION2%20(2).pdf. [Accessed: 14 July 2019].

Alamri, M. (2011) Higher education in Saudi Arabia, *Journal of higher education theory and practice*, 11(4), pp. 88- 91.

Alcorn, B., Christensen, G. and Kapur, D. (2015) Higher education and MOOCs in India and the Global South, *Change: The Magazine of Higher Learning*, 47(3), pp. 42-49.

Alfahad, F.N. (2012) Effectiveness of using information technology in higher education in Saudi Arabia, *Procedia-Social and Behavioral Sciences*, 46, pp. 1268-1278.

Al Gahtani, A. (2011) *Evaluating the Effectiveness of the E-learning Experience in Some Universities in Saudi Arabia from Male Students' Perceptions*. PhD. Durham University.

Alharbi, E.A.R. (2016) Higher education in Saudi Arabia: Challenges to achieving world-class recognition, *International of Journal of Culture and History*, 2(4), pp. 169-172.

Alhojailan, M.I. (2012) Thematic analysis: A critical review of its process and evaluation, *West East Journal of Social Sciences*, 1(1), pp. 39-47.

Aliyu, A., Bello, M., Kasim, R. and Martin, D. (2014) Positivist and Non-Positivist Paradigm in Social Science Research: Conflicting Paradigms or Perfect Partners?, *Journal of Management and Sustainability*, 4(3), pp. 79-79.

Alkhatnai, M. (2011) *Learning styles of EFL Saudi college-level students in on-line and traditional educational environments*. PhD. Indiana University of Pennsylvania.

Almuhanna, M. (2018) *Participants' Perceptions of MOOCs in Saudi Arabia*. PhD. University of Sheffield.

Almulla, M. (2017) *An investigation of Cooperative Learning in a Saudi high school: A case study on teachers' and students' perceptions and classroom practices*. PhD. University of Leicester.

Alqahtani, A. (2010). *The Effectiveness of Using E-learning, Blended Learning and Traditional Learning on Students' Achievement and Attitudes in a Course on Islamic Culture: an Experimental study*. PhD. Durham University.

Alrabai, F. (2018) Learning English in Saudi Arabia. In: Moskovsky, C. and Picard, M. (ed.). *English as a Foreign Language in Saudi Arabia*. London: Routledge, pp. 102-119.

Alraimi, K., Zo, H. and Ciganek, A. (2015). Understanding the MOOCs continuance: The role of openness and reputation. *Computers & Education*, [online] 80, pp.28-38. Available at: https://www.sciencedirect.com/science/article/pii/S0360131514001791 [Accessed 15 Dec. 2019].

Altbach, P.G. (2014) MOOCs as neocolonialism: who controls knowledge?, *International Higher Education*, (75), pp. 5-7.

Alvermann, D., Unrau, N. and Rudell, R. (2013) *Theoretical Models and Processes of Reading*. 6th edn. Newark, DE: International Reading Association.

Amaratunga, D., Baldry, D., Sarshar, M. and Newton, R. (2002) Quantitative and qualitative research in the built environment: application of "mixed" research approach, *Work Study*, 51(1), pp. 17-31.

Anders, A. (2015) Theories and applications of massive online open courses (MOOCs): The case for hybrid design, *The International Review of Research in Open and Distributed Learning*, 16(6). pp. 39 - 61.

Anderson, T. (2013) Promise and/or peril: MOOCs and open and distance education, *Commonwealth of learning*, 3, pp. 1-9.

Anderson, T. and Dron, J. (2011) Three generations of distance education pedagogy, *The International Review of Research in Open and Distributed Learning*, 12(3), pp. 80-97.

Annabi, C.A. and Muller, M. (2016) Learning from the adoption of MOOCs in two international branch campuses in the UAE, *Journal of Studies in International Education*, 20(3), pp. 260-281.

Asiri, O.I. (2014) *A comparison between international and us graduate students' attitudes and experiences using massive open online courses (MOOCs)*. Masters. Rochester Institute of Technology.

Atiaja, L.A. and Proenza, R. (2016) The MOOCs: origin, characterization, principal problems and challenges in Higher Education, *Journal of e-Learning and Knowledge Society*, 12(1). pp. 65-76.

Atkins, M.J. (1993) Theories of learning and multimedia applications: an overview, *Research Papers in Education*, 8(2), pp. 251-271.

Bada, S.O. and Olusegun, S. (2015) Constructivism learning theory: A paradigm for teaching and learning, *Journal of Research & Method in Education*, 5(6), pp. 66-70.

Baker, R. (2016) *Online social networks and Saudi youth participation in physical activity*. PhD. Brunel University.

Balfour, S.P. (2013) Assessing Writing in MOOCs: Automated Essay Scoring and Calibrated Peer Review™', *Research & Practice in Assessment*, 8, pp. 40-48.

Bamberger, M. (2012) Introduction to mixed methods in impact evaluation, *Impact Evaluation Notes*, 3(3), pp. 1-38.

Banihashem, S.K. and Aliabadi, K. (2017) Connectivism: implications for distance education, *Interdiscipl J Virt Learn Med Sci*, 8(3).pp. 2-7.

Baturay, M.H. (2015) An overview of the world of MOOCs, *Procedia-Social and Behavioral Sciences*, 174, pp. 427-433.

Beaven, T., Hauck, M., Comas-Quinn, A., Lewis, T. and de los Arcos, B. (2014) MOOCs: Striking the right balance between facilitation and self-determination, *MERLOT Journal of Online Learning and Teaching*, 10(1), pp. 31-43.

Belanger, Y. and Thornton, J. (2013) Bioelectricity: A quantitative approach--Duke University's first MOOC, *EducationXPress*, 2013(2), pp. 1-21.

Berk, R.A. (2009) Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom, *International Journal of Technology in Teaching & Learning*, 5(1). pp. 1-21.

Bernacki, M.L., Aguilar, A.C. and Byrnes, J.P. (2011) Self-Regulated Learning and technology-enhanced learning environments: An opportunity-propensity analysis, in Dettori, G. and Persico, D. (eds.) *Fostering Self-Regulated Learning through ICT*. Pennsylvania: IGI Global, pp. 1-26.

Bidarra, J. and Araújo, J. (2013) Personal learning environments (PLEs) in a distance learning course on mathematics applied to business, *European Journal of Open, Distance and E-learning*, 16(1).pp.141-152.

Billington, P.J. and Fronmueller, M.P. (2013) MOOCs and the future of higher education, *Journal of Higher Education Theory and Practice*, 13(3/4), pp. 36-43.

Bingimlas, K.A. (2009) Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature, *Eurasia journal of mathematics, science & technology education*, 5(3).pp. 235- 245.

Blumer, H. (1969) *Symbolic interactionism*: Perspective and method. New Jersey: Prentice-Hall.

Botturi, L. (2003) *Instructional design & learning technology standards*. [Online]. Available at: https://doc.rero.ch/record/5154/files/1_icefq09.pdf. [Accessed: 1 August 2019].

Bozkurt, A. and Aydin, C. (2015) Satisfaction, Preferences and Problems of a MOOC Participants. In: *The Annual Convention of the Association for Educational Communications and Technology*. [Online]. 2015, Indianapolis: Research and Theory Division And The Division of Instructional Design, pp. 27-41. Available at: https://files.eric.ed.gov/fulltext/ED570117.pdf#page=35. [Accessed: 1 August 2019].

Brace, I. (2008) *Questionnaire design: How to plan, structure and write survey material for effective market research*. 2nd edn. London & Philadelphia: Kogan Page.

Brahimi, T. and Sarirete, A. (2015) Learning outside the classroom through MOOCs, *Computers in Human Behavior*, 51, pp. 604-609.

Bralić, A. and Divjak, B. (2018) Integrating MOOCs in traditionally taught courses: achieving learning outcomes with blended learning, *International Journal of Educational Technology in Higher Education*, 15(1), pp. 1-26.

Bransford, J., Cocking, R., Brown, A., Donovan, M., and Pellegrino, J. (2000) How People Learn: Brain, Mind, Experience, and School: Expanded Edition. Washington D.C.: National academy press.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology, *Qualitative research in psychology*, 3(2), pp. 77-101.

Breslow, L., Pritchard, D.E., DeBoer, J., Stump, G.S., Ho, A.D. and Seaton, D.T. (2013) Studying learning in the worldwide classroom research into edX's first MOOC, *Research & Practice in Assessment*, 8, pp. 13-25.

Brouns, F., Mota, J., Morgado, L., Jansen, D., Fano, S., Silva, A. and Teixeira, A. (2014). A networked learning framework for effective MOOC design. The ECO project approach. In: *Challenges for research into open and distance learning: Doing things better-Doing better things*. [Online] Oxford: European distance and e-learning network (EDEN), pp.161-171. Available at: http://www.eden-online.org/nap_elgg/mod/file/download.php?file_guid=9950 [Accessed 18 Jul. 2019]

Brown, J.S., Collins, A. and Duguid, P. (1989) Situated cognition and the culture of learning, *Educational researcher*, 18(1), pp. 32-42.

Bruff, D.O., Fisher, D.H., McEwen, K.E. and Smith, B.E. (2013) Wrapping a MOOC: Student perceptions of an experiment in blended learning, *Journal of Online Learning and Teaching*, 9(2), pp. 187- 199.

Bryman, A. (1988) *Quantity and quality in social research*, London ; Boston: Unwin Hyman.

Bryman, A. (2012) *Social research methods*. 4th ed.. edn. Oxford: Oxford : Oxford University Press.

Bryman, A. (2016) *Social research methods*. 5th edn. Oxford: Oxford University Press.

Bunniss, S. and Kelly, D.R. (2010) Research paradigms in medical education research, *Medical Education*, 44(4), pp. 358-366.

Campbell, D. and Stanley, J. (1963) *Experimental and Quasi-experimental Designs for Research*. Boston: Houghton Mifflin Company.

Chang, R., Hung, Y. and Lin, C. (2015). Survey of learning experiences and influence of learning style preferences on user intentions regarding MOOCs. *British Journal of Educational Technology*, [online] 46(3), pp.528-541. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/bjet.12275 [Accessed 15 Dec. 2019].

Castillo, N.M., Lee, J., Zahra, F.T. and Wagner, D.A. (2015) MOOCS for development: Trends, challenges, and opportunities, *International Technologies & International Development*, 11(2), pp. 35- 42.

Caswell, T., Henson, S., Jensen, M. and Wiley, D. (2008) Open content and open educational resources: Enabling universal education, *The International Review of Research in Open and Distributed Learning*, 9(1). pp. 1-11.

Caulfield, M., Collier, A. and Halawa, S. (2013) Rethinking online community in MOOCs used for blended learning, *Educause Review*. [Online]. Available at : https://er.educause.edu/articles/2013/10/rethinking-online-community-in-moocs-used-for-blended-learning [Accessed: 2/7/2019].

Chanchary, F. and Islam, S. (2011) Is Saudi Arabia ready for e-Learning? A case study. In: *The 12th International Arab Conference on Information Technology*. [Online]. 2011, Riyadh: Naif Arab University for Security Studies, pp. 194-200. Available at: https://pdfs.semanticscholar.org/3877/dab7e918d3f1b769d73a57e50613fce5c46e.pdf. [Accessed: 18 July 2019].

Chauhan, J. and Goel, A. (2016) An analysis of quiz in MOOC. In: *Ninth International Conference on Contemporary Computing (IC3)*. [Online]. 2016, Noida: IEEEE, pp. 317-322. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7880245. [Accessed: 18 July 2019].

Christ, T.J. (2007) Experimental control and threats to internal validity of concurrent and nonconcurrent multiple baseline designs, *Psychology in the Schools*, 44(5), pp. 451-459.

The Communication and Information Technology Commission (CITC) (2016) *Annual Report*. [Online].Availableat:http://www.citc.gov.sa/en/mediacenter/annualreport/Documents/PR_REP_012Eng.pdf [Accessed: 25/5/2019].

Clarà, M. and Barberà, E. (2014) Three problems with the connectivist conception of learning, *Journal of Computer Assisted Learning*, 30(3), pp. 197-206.

Cohen, L., Manion, L. and Morrison, K. (2007) *Research methods in education*. 6th ed.. edn. London: Routledge.

Cohen, K., Manion, L., Morrison, L., Morrison, Keith & Manion, Lawrence (2011) Research methods in education. 7th ed.. London ; New York: Routledge

Colas, J.-F., Sloep, P.B. and Garreta-Domingo, M. (2016) The effect of multilingual facilitation on active participation in MOOCs, *The International Review of Research in Open and Distributed Learning*, 17(4).pp. 280- 314.

Collins, K.M., Onwuegbuzie, A.J. and Sutton, I.L. (2006) A model incorporating the rationale and purpose for conducting mixed methods research in special education and beyond, *Learning disabilities: a contemporary journal*, 4(1), pp. 67-100.

Combéfis, S., Bibal, A. and Van Roy, P. (2014) *Proceedings of the European MOOCs Stakeholders Summit*. Lausanne. uropean MOOCs Stakeholders Summit. [Online]. Available at: https://sites.uclouvain.be/csedl2/files/combefis-emoocs2014.pdf [Accessed: 30/5/2019].

Conole, G. (2014) A new classification schema for MOOCs, *The international journal for Innovation and Quality in Learning*, 2(3), pp. 65-77.

Conole, G. (2016) MOOCs as disruptive technologies: strategies for enhancing the learner experience and quality of MOOCs, *RED: Revista de Educacion a Distancia*, (50), pp. 1-18.

Corbetta, P. (2003) *Social research : theory, methods and techniques*. London ; Thousand Oaks, Calif.: SAGE Publications.

Crawford, C. (2004) Non-linear instructional design model: eternal, synergistic design and development, *British Journal of Educational Technology*, 35(4), pp. 413-420.

Creswell, J.W. (2012) *Educational research : planning, conducting, and evaluating quantitative and qualitative research*. 4th ed. Boston: Boston : Pearson.

Creswell, J.W. (2014) *Research design : qualitative, quantitative, and mixed methods approaches*. 4th ed, international student edition.. edn. Los Angeles, Calif. : SAGE.

Creswell, J.W. and Creswell, J.D. (2018) *Research design : qualitative, quantitative & mixed methods approaches*. 5th ed. international student edition.. edn. Los Angeles.

Creswell, J.W. and Plano Clark, V.L. (2011) *Designing and conducting mixed methods research*. 2nd ed. Los Angeles, Calif. ; London: SAGE.

Croxton, R.A. and Chow, A.S. (2015) Using ADDIE and Systems Thinking as the Framework for Developing a MOOC: A Case Study, *Quarterly Review of Distance Education*, 16(4), pp. 83-96.

Curley, N. (2013) *Saudi Arabia's Rwaq builds a online courseware platform for Middle East*. [Online]. Available at: http://www.wamda.com/2013/12/saudi-arabia-rwaqonline- [Accessed: 18/14 2014].

Daniel, J. (1996) *Mega-universities and knowledge media: Technology strategies for higher education*. London: Kogan Page.

Daniel, J. (2012) Making sense of MOOCs: Musings in a maze of myth, paradox and possibility, *Journal of interactive Media in education*.(3).pp. 1-20

Daniel, J., Vázquez Cano, E. and Gisbert Cervera, M. (2015) The Future of MOOCs: Adaptive Learning or Business Model?, *International Journal of Educational Technology in Higher Education*, 12(1), pp. 64-73.

Daradoumis, T., Caballé, S., Bassi, R., and Xhafa, F. (2013) A review on massive e-learning (MOOC) design, delivery and assessment. In: *2013 Eighth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing*. [Online]. 2013, Compiegne: IEEE, pp. 208-213. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6681230. [Accessed: 18 July 2019].

Dassa, C. (2009) Interrater reliability in content analysis of healthcare service quality using Montreal's conceptual framework, *The Canadian Journal of Program Evaluation*, 24(2), pp. 81- 102.

Davis, F. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results*. PhD. Massachusetts Institute of Technology.

Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, [online] 13(3), pp.319-340. Available at: https://www.jstor.org/stable/249008?seq=1 [Accessed 15 Dec. 2019].

Davis, F., Bagozzi, R. and Warshaw, P. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, [online] 35(8), pp.982-1003. Available at: https://www.jstor.org/stable/2632151?seq=1#metadata_info_tab_contents [Accessed 15 Dec. 2019].

Davis, H., Dickens, K., Urrutia, M., Vera, M., and White, S. (2014) MOOCs for Universities and Learners An analysis of motivating factors. In: *6th International Conference on Computer Supported Education*. [Online]. 2014, Southampton: University of Southampton, pp. 1-13. Available at: https://eprints.soton.ac.uk/363714/1/DavisEtAl2014MOOCsCSEDUFinal.pdf. [Accessed: 18 July 2019].

De Barba, P., Kennedy, G.E. and Ainley, M. (2016) The role of students' motivation and participation in predicting performance in a MOOC, *Journal of Computer Assisted Learning*, 32(3), pp. 218-231.

De Freitas, S.I., Morgan, J. and Gibson, D. (2015) Will MOOCs transform learning and teaching in higher education? Engagement and course retention in online learning provision, *British Journal of Educational Technology*, 46(3), pp. 455-471.

Demetriou, A., Spanoudis, G. and Mouyi, A. (2011) Educating the developing mind: Towards an overarching paradigm, *Educational psychology review*, 23(4), pp. 601-663.

Denscombe, M. (2008) Communities of Practice: A Research Paradigm for the Mixed Methods Approach, *Journal of Mixed Methods Research*, 2(3), pp. 270-283.

Denzin, N. and Lincoln, Y. (2000) *Handbook of qualitative research*. 2nd edn. Thosand Oaks, California: Sage.

Dewey, J. (2019) *Reconstruction in Philosophy*. Whithorn: Anodos books.

Dick, W., Carey, L. and Carey, J.O. (2009) *The systematic design of instruction. Upper Saddle River, NJ: Merrill'. New Jersey: Pearson.*

Diver, P. and Martinez, I. (2015) MOOCs as a massive research laboratory: Opportunities and challenges, *Distance Education*, 36(1), pp. 5-25.

Dolati, R. (2012) Overview on three core theories of second language acquisition and criticism, *Advances in Natural and Applied Sciences*, 6(6), pp. 752-763.

Downes, S. (2008) Places to go: Connectivism & connective knowledge, *Innovate: Journal of Online Education*, 5(1), p. 6.

Downes, S. (2012) *Connectivism and connective knowledge: Essays on meaning and learning networks.* [Online]. Available at: https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/Connective_Knowledge-19May2012.pdf [Accessed 15/6/2019].

Downes, S. (2017) *Toward Personal Learning*. Canada: National Research Council Canada.

Elby, A. (1999) Another reason that physics students learn by rote, *American journal of physics*, 67(S1), pp.S52–S57.

Elyas, T. and Picard, M.Y. (2012) Teaching and moral tradition in Saudi Arabia: a paradigm of struggle or pathway towards globalization?, *Procedia-Social and Behavioral Sciences*, 47, pp. 1083-1086.

Engle, D., Mankoff, C. and Carbrey, J. (2015) Coursera's introductory human physiology course: Factors that characterize successful completion of a MOOC, *The International Review of Research in Open and Distributed Learning*, 16(2). pp. 46 - 67.

Erdem-Aydin, İ. (2015) Preferences and willingness for participating MOOCs in Turkish, *Turkish Online Journal of Educational Technology-TOJET*, 14(3), pp. 88-96.

Ernest, P. (1994) *An Introduction to Research Methodology and Paradigms*. Exeter: Research Support Unit, School of Education, University of Exeter.

Farooq, M.U. and Soomro, A.F. (2018) Teachers and Technology: Trends in English Language Teaching in Saudi Arabia, *International Journal of English Linguistics*, 8(5), pp. 10-19.

Festenstein, M. (2018) *Dewey's Political Philosophy*. [Online]. 2018. Stanford Encyclopedia of Philosophy. Available at: https://plato.stanford.edu/entries/dewey-political/. [Accessed: 27 July 2019].

Fesol, S. and Salam, S. (2016) Towards MOOC for technical courses: A blended learning empirical analysis. In the: *2016 4th International Conference on User Science and Engineering (i-USEr)*. [Online]. 2016, Melaka: IEEE, pp. 116-121. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7857945. (Accessed: 18 July 2019).

Fidalgo-Blanco, Á., Sein-Echaluce, M.L. and García-Peñalvo, F.J. (2015) Methodological Approach and Technological Framework to break the current limitations of MOOC model, *Journal of Universal Computer Science* 21, pp. 712-743.

Fini, A. (2009) The technological dimension of a massive open online course: The case of the CCK08 course tools, *The International Review of Research in Open and Distributed Learning*, 10(5). pp. 1-26.

Fishbein, M. and Ajzen, E. (1975). *Belief, attitude, intention and behavior*. Reading, Mass.: Addison-Wesley.

Foroughi, A. (2016) MOOCs: The Enduring Importance of Teacher Presence, *Journal of Higher Education Theory and Practice*, 16(6), p. 76.

Frank, S.J. (2012) MITx's online circuit and analysis course [Education], *IEEE Spectrum*, 49(9), pp. 27-28.

Freihat, N. and Zamil, A.J.A. (2014) The Effect of Integrating MOOC's on Saudi Female Students' Listening Achievement, *European Scientific Journal, ESJ*, 10 (34).pp. 127- 142.

Furneaux, B. (2012). Task-Technology Fit Theory: A Survey and Synopsis of the Literature. In: Y. Dwivedi, M. Wade and S. Schneberger, ed., *Information Systems Theory*. NYC: Springer.

Gage, N. (1989) The Paradigm Wars and Their Aftermath A "Historical" Sketch of Research on Teaching Since 1989, *Educational Researcher*, 18(7), pp. 4-10.

Gagné, R.M. and Medsker, K.L. (1996) *The conditions of learning: Training applications*. Fort Worth, TX: Harcourt Brace College Publishers.

Gall, M.D. (1996) *Educational research : an introduction*. 6th ed.. edn. White Plains, N.Y.: White Plains, N.Y. : Longman Publishers USA.

Gall, M.D., Borg, J.P. & Borg, Walter R (2007) Educational research : an introduction. 8th ed.. Boston, Mass.: Allyn and Bacon.

Gamage, D., Whiting, M., Perera, I., and Fernando, S. (2018) Improving Feedback and Discussion in MOOC Peer Assessement Using Introduced Peers. In: *2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*. [Online]. 2018, Wollongong: IEEE, pp. 357-364. Available at: https://www.researchgate.net/publication/330200922_Improving_Feedback_and_Discussion_in_MOOC_Peer_Assessement_Using_Introduced_Peers. (Accessed: 18 July 2019).

Gasson, S. (2003) Rigor In Grounded Theory Research: An Interpretive Perspective on Generating Theory From Qualitative Field Studies. In: Whitman, M. and Woszczynski, A. (ed.). *Handbook for Information Systems Research*. Hershey, PA: IGI Publishing, pp. 79-102.

Ghadiri, K., Qayoumi, M.H., Junn, E., Hsu, P. and Sujitparapitaya, S. (2013) The transformative potential of blended learning using MIT edX's 6.002 x online MOOC content combined with student team-based learning in class, *environment*, 8(14), pp. 14-29.

Ginns, P. and Ellis, R. (2007). Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning. *The Internet and Higher Education*, [online] 10(1), pp.53-64. Available at: https://www.sciencedirect.com/science/article/pii/S1096751606000728?via%3Dihub [Accessed 16 May 2019].

Glance, D.G., Forsey, M. and Riley, M. (2013) The pedagogical foundations of massive open online courses, *First Monday*, 18(5). [Online]. Available at: https://firstmonday.org/ojs/index.php/fm/article/view/4350/3673doi%3A10.5210.[Accessed 4/5/2019].

Glogowska, M. (2011) Paradigms, pragmatism and possibilities: mixed-methods research in speech and language therapy, *International Journal Of Language & Communication Disorders*, 46(3), pp. 251-260.

Golafshani, N. (2003) Understanding reliability and validity in qualitative research, *The qualitative report*, 8(4), pp. 597-606.

Goodhue, D., Klein, B. and March, S. (2000). User evaluations of IS as surrogates for objective performance. *Information & Management*, [online] 38(2), pp.87-101. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0378720600000574 [Accessed 15 Dec. 2019].

Goodhue, D. and Thompson, R. (1995). Task-Technology Fit and Individual Performance. *MIS Quarterly*, [online] 19(2), p. 213-236. Available at: https://www.jstor.org/stable/249689?seq=1 [Accessed 15 Dec. 2019].

Graham, M., Milanowski, A., and Miller, J. (2012) *Measuring and Promoting Inter-Rater Agreement of Teacher and Principal Performance Ratings*. [Online]. USA: Centre for Educator Compensation Reform. Available at: https://files.eric.ed.gov/fulltext/ED532068.pdf. [Accessed: 21 July 2019].

Graneheim, U.H. and Lundman, B. (2004) Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness, *Nurse education today*, 24(2), pp. 105-112.

Green, J. and Thorogood, N. (2009) *Qualitative methods for health research*. 2nd edn. London: Sage.

Green, J.L., Camilli, G. and Elmore, P.B. (2006) *Handbook of complementary methods in education research*. 3rd ed.. London: Lawrence Erlbaum Associates.

Greene, J.A., Oswald, C.A. and Pomerantz, J. (2015) Predictors of Retention and Achievement in a Massive Open Online Course, *American Educational Research Journal*, 52(5), pp. 925-955.

Greene, J.C. (2008) Is mixed methods social inquiry a distinctive methodology?, *Journal of mixed methods research*, 2(1), pp. 7-22.

Greenhow, C. and Belbas, B. (2007) Using activity-oriented design methods to study collaborative knowledge-building in e-learning courses within higher education, *International Journal of Computer-Supported Collaborative Learning*, 2(4), pp. 363-391.

Greenland, S. (1987) Quantitative methods in the review of epidemiologic literature, *Epidemiologic Reviews*, 9(1), pp. 1-30.

Griffith, L.E., Cook, D.J., Guyatt, G.H. and Charles, C.A. (1999) Comparison of Open and Closed Questionnaire Formats in Obtaining Demographic Information From Canadian General Internists, *Journal of Clinical Epidemiology*, 52(10), pp. 997-1005.

Griffiths, R., Mulhern, C., Spies, R. and Chingos, M. (2015) Adopting MOOCS on campus: A collaborative effort to test MOOCS on campuses of the university system of Maryland, *Online Learning*, 19(2), pp.1-15.

Grünewald, F., Meinel, C., Willems, C., and Totschnig, M. (2013) Designing MOOCs for the Support of Multiple Learning Styles. In: *European Conference on Technology Enhanced Learning*. [Online]. 2013, Berlin: Springer, pp. 371-382. Available at: https://link.springer.com/chapter/10.1007/978-3-642-40814-4_29. (Accessed: 21 July 2019).

Guba, E. and Lincoln, Y. (1982) Epistemological and Methodological Bases of Naturalistic Inquiry. *Educational Communication and Technology*, [Online]. 30(4), pp. 233-252. Available at: https://www.jstor.org/stable/30219846. [Accessed: 27 July 2019].

Gulatee, Y. and Nilsook, P. (2016) MOOC's Barriers and Enables, *International Journal of Information and Education Technology*, 6(10), pp. 826-830.

Haggerty, K.D. (2004) Ethics creep: Governing social science research in the name of ethics, *Qualitative sociology*, 27(4), pp. 391-414.

Hair, J., Hult, G., Ringle, C., and Sarstedt, M. (2014) *A primer on partial least squares structural equation modeling (PLS-SEM)*. Los Angeles: SAGE.

Hakami, N.A.M. (2018) *An Investigation of the Motivational Factors Influencing Learners' Intentions to Continue Using Arabic MOOCs*. PhD. University of Southampton.

Handyside, R. (2016). *A design-based research approach to an educational challenge: Developing independent learners using a blended learning environment*. PhD. University of Newcastle.

Hartas, D. (2010) *Educational research and inquiry : qualitative and quantitative approaches*. London: Continuum.

Hassan, O.A. (2011) Learning theories and assessment methodologies–an engineering educational perspective, *European Journal of Engineering Education*, 36(4), pp. 327-339.

Hatch, J.A. (2002) *Doing qualitative research in education settings.* Suny Press. [Online]. Available at: https://epdf.pub/doing-qualitative-research-in-education-settings.html. [Accessed 3/5/2019].

Hazlett, C. (2014) Bridging the Gap between Education and Employment in the Arab World, *Learner News* [Blog]. Available at: https://blog.edx.org/bridging-gap-between-education-0. [Accessed: 19/5/2019].

Hazlette, C. (2014) Queen Rania Foundation Launches Edraak, a MOOC Portal for the Arab World, *Learner news/Open edX* [blog]. Available at: https://blog.edx.org/queen-rania-foundation-launches-edraak. [Accessed: 25/05/2019].

Henderson, C. and Harper, K.A. (2009) Quiz corrections: Improving learning by encouraging students to reflect on their mistakes, *The physics teacher*, 47(9), pp. 581-586.

Henich, R., Molenda, M., Russell, J. and Smaldino, S. (1999) *Instructional Media and Technology for Learning*. New Jersey Prentice Hall.

Hew, K.F. and Cheung, W.S. (2014) Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges, *Educational research review*, 12, pp. 45-58.

Hilal, K.T. (2013) Between the Fears and Hopes for a Different Future for the Nation-States: Scholarship Programs in Saudi Arabia and United Arab Emirates from a Public Policy Standpoint, *International Journal of Higher Education*, 2(2), pp. 195-210.

Hill, P. (2012) Online educational delivery models: A descriptive view, *Educause Review Online*, 47(6), pp. 84–97.

Hodges, T.S., Feng, L., Kuo, L.-J. and McTigue, E. (2016) Discovering the literacy gap: A systematic review of reading and writing theories in research, *Cogent Education*, 3(1), pp. 1-13.

Höfler, E. and Kopp, M. (2014) Do MOOCs need a Special Instructional Design?. In: EDULEARN14. [Online]. 2014, Barcelona: EDULEARN14, pp. 7138-7137. Available at: https://www.researchgate.net/publication/263784897_Do_MOOCs_need_a_Special_Instructional_Design. [Accessed: 1 August 2019].

Hollands, F. and Tirthali, D. (2014) *MOOCs: Expectations and reality: Full report*. [Online]. NYC: Center for Benefit-Cost Studies of Education, Teachers College, Columbia University. Available at: https://files.eric.ed.gov/fulltext/ED547237.pdf. [Accessed: 21 July 2019].

Holotescu, C., Grosseck, G., CREŢU, V. and Naaji, A. (2014) Integrating MOOCs in Blended Courses, *Elearning & Software For Education*, (1). pp. 243-250

Hone, K. and El Said, G. (2016). Exploring the factors affecting MOOC retention: A survey study. Computers & Education, [online] 98, pp.157-168. Available at: https://www.sciencedirect.com/science/article/pii/S0360131516300793 [Accessed 13 Apr. 2019].

Hone, K.S. and El Said, G.R. (2016) Exploring the factors affecting MOOC retention: A survey study, *Computers & Education*, 98, pp. 157-168.

Hood, N., Littlejohn, A. and Milligan, C. (2015) Context counts: How learners' contexts influence learning in a MOOC, *Computers & Education*, 91, pp. 83-91.

Hookway, C. and Legg, C. (2019) Pragmatism, in Zalta, E.N. (ed.) *Stanford Encyclo*. Spring 2019 edn. Stanford: Stanford University [Online]. Available at: https://plato.stanford.edu/entries/pragmatism/. [Accessed: 01/07/2019].

Howland, J.L. and Moore, J.L. (2002) Student perceptions as distance learners in Internet-based courses, *Distance education*, 23(2), pp. 183-195.

Hung, M. and Chou, C. (2015). Students' perceptions of instructors' roles in blended and online learning environments: A comparative study. *Computers & Education*, [online] 81, pp.315-325. Available at: https://www.sciencedirect.com/science/article/pii/S0360131514002425 [Accessed 18 Apr. 2019].

Israel, M.J. (2015) Effectiveness of integrating MOOCs in traditional classrooms for undergraduate students, *The International Review of Research in Open and Distributed Learning*, 16(5).pp 102-118.

Iversen, J. and Eierman, M. (2018). The Impact of Experience and Technology Change on Task-Technology Fit of a Collaborative Technology. *Journal of Education and Learning*, [online] 7(3), pp.56-75. Available at: https://eric.ed.gov/?id=EJ1173117. [Accessed 15 Dec. 2019].

Ja'ashan, M.M.N.H. (2015) Perceptions and Attitudes Towards Blended Learning for English Courses: A Case Study of Students at University of Bisha, *English Language Teaching*, 8(9), pp. 40-50.

Jackson, L.D. (2009) Revisiting adult learning theory through the lens of an adult learner, *Adult Learning*, 20(3-4), pp. 20-22.

Johnson, R. (2013). *Student Attitudes Toward Blended And Online Courses: A Comparison Of Students In Traditional Classroom Writing Environments And Students In Blended Writing Environments*. Phd. The University Of Tennessee At Chattanooga.

Johnson, R.B. and Onwuegbuzie, A.J. (2004) Mixed methods research: A research paradigm whose time has come, *Educational researcher*, 33(7), pp. 14-26.

Johnston, T. (2015) Lessons from Moocs: Video Lectures and Peer Assessment, *Academy of Educational Leadership Journal*, 19(2), pp. 91-97.

Joseph, A. and Nath, B. (2013) Integration of Massive Open Online Education (MOOC) System with in-Classroom Interaction and Assessment and Accreditation: An extensive report from a pilot study. In: *International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (EEE)*. [Online]. 2013, Kolkata: Department of Computer Science, St. Xavier's College, pp. 1-9. Available at: http://worldcomp-proceedings.com/proc/p2013/EEE3547.pdf. [Accessed: 21 July 2019].

Jude, L.T., Kajura, M.A. and Birevu, M.P. (2014) Adoption of the SAMR model to asses ICT pedagogical adoption: A case of Makerere University, *International Journal of e-Education, e-Business, e-Management and e-Learning*, 4(2), pp. 106 - 115.

Kalz, M. and Specht, M. (2013) *If MOOCS are the answer – did we ask the right questions? Implications for the design of large-scale open online courses*. [Online]. Available at: https://core.ac.uk/download/pdf/55537960.pdf. [Accessed: 21 July 2019].

Kaplan, A.M. and Haenlein, M. (2016) Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster, *Business Horizons*, 59(4), pp. 441-450.

Karsenti, T. (2013) What the research says, *International Journal of Technologies in Higher Education*, 10(2), pp. 23-37.

Kellogg, S. (2013) Online learning: How to make a MOOC, *Nature*, 499(7458), pp. 369-371.

Kennedy, J. (2014) Characteristics of massive open online courses (MOOCs): A research review, 2009-2012, *Journal of Interactive Online Learning*, 13(1),pp.1-15.

Kerdeman, D. (1998) Hermeneutics and education: Understanding, control, and agency, *Educational Theory*, 48(2), pp. 241-266.

Kesim, M. and Altınpulluk, H. (2015) A theoretical analysis of MOOCs types from a perspective of learning theories, *Procedia-Social and Behavioral Sciences*, 186, pp. 15-19.

Khosrow-Pour, M. (2003). *Information, Technology and Organizations: Trends, Issues, Challenges and Solutions Vol. I*. Philadelphia: Idea Group Publishing, p. 383.

Kim, T., Suh, Y., Lee, G. and Choi, B. (2010). Modelling roles of task-technology fit and self-efficacy in hotel employees' usage behaviours of hotel information systems. *International Journal of Tourism Research*, [online] 12(6), pp.709-725. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1002/jtr.787 [Accessed 15 Dec. 2019].

King Abdulaziz University (2019) *Deanship of e-learning and Distance Education-Open Education Resources*. [Online]. Available at: https://oer.kau.edu.sa/Default-214888-EN.[Accessed: 22/04/2019].

Kirschner, A. (2012) A pioneer in online education tries a MOOC, *Chronicle of Higher Education*edn). [Online]. Available at: https://www.chronicle.com/article/A-Pioneer-in-Online-Education/134662. [Accessed: 20/5/2019].

Kizilcec, R., Perez-Sanagustin, M., and Maldonado, J. (2016) Recommending Self-Regulated Learning Strategies Does Not Improve Performance in a MOOC. In: *Third ACM Conference on Learning @ Scale*. [Online]. 2016, Edinburgh: ACM, pp. 101-104. Available at: https://dl.acm.org/citation.cfm?id=2893378. [Accessed: 21 July 2019].

Kizilcec, R.F., Pérez-Sanagustín, M. and Maldonado, J.J. (2017) Self-Regulated Learning strategies predict learner behavior and goal attainment in Massive Open Online Courses, *Computers & education*, 104, pp. 18-33.

Kizilcec, R. and Schneider, E. (2015). Motivation as a Lens to Understand Online Learners. *ACM Transactions on Computer-Human Interaction*, [online] 22(2), pp.1-24. Available at: https://dl.acm.org/citation.cfm?id=2699735. [Accessed 15 Dec. 2019].

Kolb, A.Y. and Kolb, D.A. (2005) Learning styles and learning spaces: Enhancing experiential learning in higher education, *Academy of management learning & education*, 4(2), pp. 193-212.

Kop, R. (2011) The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course, *The International Review of Research in Open and Distributed Learning*, 12(3), pp. 19-38.

Kop, R. and Carroll, F. (2011) Cloud computing and creativity: Learning on a massive open online course, *European Journal of Open, Distance and E-learning*, 14 (2), pp. 1-11.

Kop, R. and Hill, A. (2008) Connectivism: Learning theory of the future or vestige of the past?, *The International Review of Research in Open and Distributed Learning*, 9(3). pp. 1- 13.

Krieger, Z. (2007) *Saudi Arabia Puts Its Billions Behind Western-Style Higher Education*. [Online]. 2007. The Chronicle of Higher Education. Available at: https://www.chronicle.com/article/Saudi-Arabia-Puts-Its-Billions/33055. [Accessed: 21 July 2019].

Kripanont, N. (2006). Using a Technology Acceptance Model to Investigate Academic Acceptance of the Internet. *Journal of Business Systems, Governance and Ethics*, [online] 1(2), pp.13-30. Available at: https://journals.vu.edu.au/index.php/jbsge/article/view/72 [Accessed 15 Dec. 2019].

Kulik, E. and Kidimova, K. (2019) Integrating MOOCs in University Curriculum: HSE University Experience. In: Kloos, C., Sanagustín, M., Jermann, P., Seaton, D., White, S., Jansen, D. and Calise, M. (ed.). *Proceedings of Work in Progress Papers of the Experience and Research Tracks and Position Papers of the Policy Track at EMOOCs 2017*. Madrid: CEUR workshop proceedings.

Kursun, E. (2016) Does Formal Credit Work for MOOC-Like Learning Environments?, *The International Review of Research in Open and Distributed Learning*, 17(3). pp.75-91.

Lankshear, C. & Knobel, M. (2004) *A handbook for teacher research : from design to implementation*. Maidenhead, England ; New York: Open University Press.

Larsen, L.J.E., (2012) *Teacher and student perspectives on a blended learning intensive English program writing course*. Phd. Iowa State University Ames, Iowa. Available at: https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=3382&context=etd.[Accessed 3/7/2019].

Laverde, A.C., Hine, N. and Silva, J.A.M. (2015) Literature and practice: a critical review of MOOCs, *Comunicar: Revista Científica de Comunicación y Educación*, 22(44), pp. 9-18.

Lee, D. and Lehto, M. (2013). User acceptance of YouTube for procedural learning: An extension of the Technology Acceptance Model. *Computers & Education*, [online] 61, pp.193-208. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0360131512002229 [Accessed 14 Dec. 2019].

Lee, P., Stewart, D., and Parvez, A. (2014) *Technology, Media & Telecommunications Predictions 2014*. Middle East. [Online]. UK: Deloitte. Available at: https://www2.deloitte.com/content/dam/Deloitte/xe/Documents/technology-media-telecommunications/predictions2014/dtme_TMT_Predictions2014_TMTPredictions2014.pdf. [Accessed: 27 July 2019].

Levy, D. (2011) Lessons learned from participating in a connectivist massive online open course (MOOC). In: *Proceedings of the Chais conference on instructional technologies research 2011: Learning in the technological era* (pp. 31-36).

Levy, D. and Schrire, S. (2015) Developing a Massive Open Online Course (MOOC) at a College of Education: Narrative of Disruptive Innovation?, *Current Issues in Emerging eLearning*, 2(1), p. 1-18.

Li, N., Verma, H., Skevi, A., Zufferey, G., Blom, J. and Dillenbourg, P. (2014) Watching MOOCs together: investigating co-located MOOC study groups, *Distance Education*, 35(2), pp. 217-233.

Li, Y., Zhang, M., Bonk, C.J. and Guo, Y. (2015) Integrating MOOC and Flipped Classroom Practice in a Traditional Undergraduate Course: Students' Experience and Perceptions, *International Journal of Emerging Technologies in Learning*, 10(6).pp. 4- 10.

Liaw, S., Huang, H. and Chen, G. (2007). Surveying instructor and learner attitudes toward e-learning. *Computers & Education*, [online] 49(4), pp.1066-1080. Available at: https://www.sciencedirect.com/science/article/pii/S1877042812053372 [Accessed 15 Apr. 2019].

Lincoln, Y. and Guba, E. (2000) Paradigmatic controversies, contradictions, and emerging confluences. In: Denzin, N. and Lincoln, Y. (ed.). *Handbook of qualitative research*. Thosand Oaks, California: Sage, pp. 163-188.

Littlejohn, A., Hood, N., Milligan, C. and Mustain, P. (2016) Learning in MOOCs: Motivations and Self-Regulated Learning in MOOCs, *The Internet and Higher Education*, 29, pp. 40-48.

Liu, M., Kang, J., Cao, M., Lim, M., Ko, Y., Myers, R. and Schmitz Weiss, A. (2014) Understanding MOOCs as an emerging online learning tool: Perspectives from the students, *American Journal of Distance Education*, 28(3), pp. 147-159.

Liu, X., Zhang, J., and Zhang, L. (2015) Application of MOOC in the Design of Hybrid Learning Strategies. In: *2015 International Symposium on Educational Technology (ISET)*. [Online]. 2015, Wuhan: IEEE, pp. 129-133. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7439650. [Accessed: 21 July 2019].

Liyanagunawardena, T. (2015) Massive open online courses, *Humanities*, 4(1), pp. 35-41.

Liyanagunawardena, T.R., Adams, A.A. and Williams, S.A. (2013) MOOCs: A systematic study of the published literature 2008-2012, *The International Review of Research in Open and Distributed Learning*, 14(3), pp. 202-227.

Ma, L. and Lee, C.S. (2019) Investigating the adoption of MOOC s: A technology–user–environment perspective, *Journal of Computer Assisted Learning*, 35(1), pp. 89-98.

Mack, L. (2010) The philosophical underpinnings of educational research, *Polyglossia*, 19, pp. 5-11.

Mackness, J., Mak, S. and Williams, R. (2010) The Ideals and Reality of Participating in a MOOC. In: *7th International Conference on Networked Learning 2010*. [Online]. 2010, Lancaster: University of Lancaster, pp. 266-274. Available at: https://researchportal.port.ac.uk/portal/en/publications/the-ideals-and-reality-of-participating-in-a-mooc(067e281e-6637-423f-86a5-ff4d2d687af1).html. [Accessed: 21 July 2019].

Macleod, H., Haywood, J., Woodgate, A. and Alkhatnai, M. (2015) Emerging patterns in MOOCs: Learners, course designs and directions, *TechTrends*, 59(1), pp. 56-63.

Magen-Nagar, N. and Cohen, L. (2017) Learning strategies as a mediator for motivation and a sense of achievement among students who study in MOOCs, *Education and Information Technologies*, 22(3), pp. 1271-1290.

Mahara, P. (2019) *Skill Courses.* Available at: https://translate.google.com/translate?hl=en&sl=ar&u=https://www.maharah.net/&prev=search [Accessed: 8/4/2019].

Majmaah University (2018) *Annual Report for Deanship of Admission and Registration 2017/2018*. [Online] Majmaah: Majmaah University, pp.1-55. Available at: https://m.mu.edu.sa/en/deanships/deanship-admission-and-registration/annual-report [Accessed 26 Aug. 2019].

Mamman, B., Yusof, A., AbuHassna, H.M., Aly, H., Al-Ahmadi, T., Atan, N.A., Harun, J., Said, M.N.H.M., Ismail, Z. and Yahaya, N. (2017) Design and learning strategies applied in MOOC: À meta-analysis, *Sains Humanika*, 9(1-4), pp. 71-76.

Mandrekar, J.N. (2011) Measures of interrater agreement, *Journal of Thoracic Oncology*, 6(1), pp. 6-7.

Mansoor, I. (2002) Computer skills among medical learners: a survey at King Abdul Aziz University, Jeddah, *Journal of Ayub Medical College Abbottabad*, 14(3). Available at: file:///C:/Users/hp-pc/Downloads/3889-16681-1-PB%20(1).pdf .[Accessed 3/7/2019]

Margaryan, A., Bianco, M. and Littlejohn, A. (2015) Instructional quality of massive open online courses (MOOCs), *Computers & Education*, 80, pp. 77-83.

Marshall, S. (2014) Exploring the ethical implications of MOOCs, *Distance Education*, 35(2), pp. 250-262.

Marshall, S.J. (2013) Evaluating the strategic and leadership challenges of MOOCs, *MERLOT Journal of Online Learning and Teaching*, 9(2), pp. 216-227.

Matthews, B. and Ross, L. (2010) *Research methods : a practical guide for the social sciences*. Harlow: Harlow : Longman.

Matveev, A. (2002) The advantages of employing quantitative and qualitative methods in intercultural research: practical implications from the study of the perceptions of intercultural communication competence by american and russian managers. *Theory of communication and applied communication*, [Online]. 1(6), pp. 59-67. Available at: http://www.russcomm.ru/eng/rca_biblio/m/matveev01_eng.shtml. [Accessed: 27 July 2019].

McAuley, A., Stewart, B., Siemens, G., & Cormier, D. (2010). *The MOOC model for digital practice*. Prince Edward Island. University of Prince Edward Island.

McDonach, E., Barbour, R.S. and Williams, B. (2009) Reflections on applying for NHS ethical approval and governance in a climate of rapid change: prioritising process over principles, *International Journal of Social Research Methodology*, 12(3), pp. 227-241.

McGuire, W., Raaper, R. and Nikolova, V. (2016) Three perspectives on hybridising x and c MOOCs to create an online course on digital CVs, *International Multidisciplinary Journal*, 3(2), pp. 20-33.

Merrill, M. (2013) *First principles of instruction*. San Francisco: Pfeiffer.

Mertens, D.M. (1998) *Research methods in education and psychology : integrating diversity with quantitative & qualitative approaches*. Thousand Oaks, Calif.: Sage Publications.

Mertens, D.M. (2014) *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Sage publications.

Mertler, C. (2009) *Action Research: Teachers as Researchers in the Classroom*. 2nd edn. Los Angeles: Sage.

Miles, M.B. and Huberman, A.M. (2002) *The qualitative researcher's companion : classic and contemporary readings.* London: Sage.

Miliany, K.A.M. (2014) *The impact of the internet on Saudi students' use of television*. University of Leicester. PhD. University of Leicester, Leicester. Available at: https://lra.le.ac.uk/handle/2381/28650 [Accessed: 2/7/2019]

Miller, G.A. (2003) 'The cognitive revolution: a historical perspective', *Trends in cognitive sciences*, 7(3), pp. 141-144.

Milligan, C. and Littlejohn, A. (2014) Supporting professional learning in a massive open online course, *The International Review of Research in Open and Distributed Learning*, 15(5).pp. 198-212.

Milligan, C., Littlejohn, A. and Margaryan, A. (2013) Patterns of engagement in connectivist MOOCs, *MERLOT Journal of Online Learning and Teaching*, 9(2). pp. 149 - 159.

Minghua, L. (2013) MOOCs Revolution: The Emergence of Independent Course Markets and the New World Higher Education Market Structures [J], *Open Education Research*, 9(3), pp. 29.

Ministry of Education (2019) *Education and Visiion 2030*. Available at: https://www.moe.gov.sa/en/Pages/Vision2030.aspx. [Accessed: 25/5/2019].

Minstry of Finance, K. (2019) *Budget Statement Fiscal Year 2019*. Ryadh: Ministry of Finance, KSA. [Online]. Available at: https://www.mof.gov.sa/en/financialreport/budget2019/Documents/Budget%20Statement%202019.pdf [Accessed: 24/4/2019].

Mishra, P. and Koehler, M.J. (2006) Technological pedagogical content knowledge: A framework for teacher knowledge, *Teachers college record*, 108(6), pp. 1017-1054.

Modell, S. (2009) In defence of triangulation: A critical realist approach to mixed methods research in management accounting, *Management Accounting Research*, 20(3), pp. 208-221.

Moe, R. (2015) The brief & expansive history (and future) of the MOOC: Why two divergent models share the same name, *Current issues in emerging elearning*, 2(1), p. 2. Available at: https://scholarworks.umb.edu/ciee/vol2/iss1/2 [Accssess 2/7/2019].

Mok, H.N. (2014) Teaching tip: The flipped classroom, *Journal of Information Systems Education*, 25(1), pp. 7 - 11.

Molenda, M. (2003) In search of the elusive ADDIE model, *Performance improvement*, 42(5), pp. 34-36.

Morgan, D.L. (2007) Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods, *Journal of mixed methods research*, 1(1), pp. 48-76.

Morrison, G.R., Ross, S.J., Morrison, J.R. and Kalman, H.K. (2010) *Designing effective instruction*. 6th edn. NJ: Wiley.

Morrow, S.L. (2005) Quality and trustworthiness in qualitative research in counseling psychology, *Journal of counseling psychology*, 52(2), pp. 250 - 260.

Muhua, Z. and Yan, L. (2015) Research on students' experience in MOOC-based flipped classroom. In: *2015 International Conference of Educational Innovation through Technology (EITT)*. [Online]. 2015, Wuhan: IEEE, pp. 236-240. Available at: https://ieeexplore.ieee.org/abstract/document/7446185. [Accessed: 21 July 2019].

Muñoz-Merino, P., Ruipérez-Valiente, J., Delgado Kloos, C., Auger, M., Briz, S., de Castro, V. and Santalla, S. (2016). Flipping the classroom to improve learning with MOOCs technology. *Computer Applications in Engineering Education*, [online] 25(1), pp.15-25. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1002/cae.21774 [Accessed 12 May 2019].

Mutawa, A.M. (2017) It is time to MOOC and SPOC in the Gulf Region, *Education and Information Technologies*, 22(4), pp. 1651-1671.

Najafi, H., Evans, R. and Federico, C. (2014) MOOC integration into secondary school courses, *The International Review of Research in Open and Distributed Learning*, 15(5). pp. 306- 322.

Najafi, H., Rolheiser, C., Haklev, S. and Harrison, L. (2017) Variations in Pedagogical Design of Massive Open Online Courses (MOOCs) Across Disciplines, *Teaching & Learning Inquiry*, *5*(2), pp.47-64.

Narrainen, G. (2018) When the Massive Open Online Courses, MOOC, become Hybrid at the Open University of Mauritius. *4th International Conference on Higher Education Advances (HEAD'18)* (pp. 717-724). Editorial Universitat Politècnica de València. Available at: https://riunet.upv.es/handle/10251/109706. [Accessed: 30/5/2019].

National Center for E-Learning (2019) *About us*. Available at: https://www.elc.edu.sa/?q=en/aboutus .[Accessed: 25/5/2019].

Ng, A. and Widom, J. (2014) *Origins of the Modern MOOC (xMOOC). NY: Centre for benefit-Cost studies of Education Teachers college University*. Available at: https://files.eric.ed.gov/fulltext/ED547237.pdf. [Accessed: 25/5/2019].

O'Toole, R. (2013) *Pedagogical strategies and technologies for peer assessment in Massively Open Online Courses (MOOCs) - WRAP: Warwick Research Archive Portal*. [Online]. 2013. University of Warwick Publications service & WRAP. Available at: http://wrap.warwick.ac.uk/54602/. [Accessed: 21 July 2019].

Økland, G.M. (2012) Determinants of learning outcome for students at high school in Norway: A Constructivist approach, *Scandinavian Journal of Educational Research*, 56(2), pp. 119-138.

Onah, D., Sinclair, J., Boyatt, R., and Foss, J. (2014) Massive Open Online Courses: Learners Participation. In: *7th International Conference of Education, Research and Innovation (iCERi2014)*. [Online]. 2014, Seville: University of Warwick, pp. 1-10. Available at: https://warwick.ac.uk/fac/sci/dcs/people/research/csrmaj/daniel_onah_iceri14.pdf. [Accessed: 21 July 2019].

Onwuegbuzie, A.J. and Johnson, R.B. (2006) The validity issue in mixed research, *Research in the Schools*, 13(1), pp. 48-63.

Ouyang, J.R. and Stanley, N. (2014) Theories and research in educational technology and distance learning instruction through Blackboard, *Universal Journal of Educational Research*, 2(2), pp. 161-172.

Owston, R., York, D. and Murtha, S. (2013) Student perceptions and achievement in a university blended learning strategic initiative, *The Internet and Higher Education*, 18, pp. 38-46.

Panagiotidis, P. (2019) MOOCs for Language Learning. Reality and Prospects. In: *Society for Information Technology and Teacher Education*. [Online]. Las Vegas: AACE, pp. 285-292. Available at: https://www.academia.edu/38765756/MOOCs_for_Language_Learning._Reality_and_Prospects. [Accessed: 21 July 2019].

Papathoma, T., Blake, C., Clow, D., and Scanlon, E. (2015) *Investigating Learners' Views of Assessment Types in Massive Open Online Courses (MOOCs) - Open Research Online*. [Online]. The Open University. Available at: http://oro.open.ac.uk/47287/. [Accessed: 21 July 2019].

Parra, J. (2016) Moving beyond MOOC mania: Lessons from a faculty-designed MOOC, *Current Issues in Emerging eLearning*, 3(1), pp. 173-204.

Patton, M.Q. (2002) *Qualitative research & evaluation methods*. 3rd ed. edn. London: London : Sage.

Pavan, A. (2016) Higher education in Saudi Arabia: Rooted in heritage and values, aspiring to progress, *International Research in Higher Education*, 1(1), pp. 91-100.

Pedro, L., Santos, C., Aresta, M. and Almeida, S. (2015). Peer-supported badge attribution in a collaborative learning platform: The SAPO Campus case. *Computers in Human Behavior*, [online] 51, pp.562-567. Available at: https://www.sciencedirect.com/science/article/pii/S0747563215002149. [Accessed 10 Apr. 2019].

Perry, F. (2011) *Research in applied linguistics*. 2nd edn. New York: Routledge.

Petkovska, B., Delipetrev, B., and Zdravev, Z. (2014) MOOCs In Higher Education – State Of The Art Review. In: *International Conference On Information Technology And Development Of Education ITRO 2014*. [Online]. Zrenjanin: University of Novi Sad, pp. 108-112. Available at: http://eprints.ugd.edu.mk/10347/1/Zbornik2014-Petkovska.pdf. [Accessed: 21 July 2019].

Phillips, M. (2015) Digital technology integration. In: Henderson, M. and Romeo, G. (ed.). *Teaching and Digital Technologies: Big Issues and Critical Questions*. [Online]. Melbourne: Cambridge University Press, pp. 318-331. Available at: http://newmediaresearch.educ.monash.edu.au/lnm/wp-content/uploads/2015/04/Ch25-Phillips-Digital-technology-integration_p318-331.pdf. [Accessed: 21 July 2019].

Piech, C., Huang, J., Chen, Z., Do, C., Ng, A., and Koller, D. (2013) *Tuned Models of Peer Assessment in MOOCs*. [Online]. Cornell University. Available at: https://arxiv.org/abs/1307.2579. [Accessed: 21 July 2019].

Doroob, P. (2019) '*About Doroob*'. Available at: https://translate.google.com/translate?hl=en&sl=ar&u=https://www.doroob.sa/&prev=search [Accessed: 19/5/2019].

Rwaq, p. (2019) ؟ هو رواق ما. Available at: https://www.rwaq.org/pages/about [Accessed: 20/5/2019].

Poni, M. (2014) Research paradigms in education. *Journal of Educational and Social Research*, *4*(1), pp. 407 413.

Ponterotto, J.G. (2005) Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science, *Journal of Counseling Psychology* 5252(2), pp.126–136.

Poplar, D. (2014) *MOOC evolution and one poetry MOOC's hybrid approach*. Available at: https://er.educause.edu/articles/2014/11/mooc-evolution-and-one-poetry-moocs-hybrid-approach. [Accessed: 20/5/2019].

Punch, K. (1998) *Introduction to social research : quantitative and qualitative approaches.* London: SAGE.

Punch, K. (2005) *Introduction to social research : quantitative and qualitative approaches*. 2nd ed.. edn. London: London : SAGE.

Punch, K. (2014) *Introduction to social research : quantitative and qualitative approaches.* Third edition.. edn. London : SAGE.

Rajab, H. and Al-Sadi, A. (2015) An empirical study of reading habits and interests of Saudi university EFL learners, *International Journal of Linguistics*, 7(2), pp. 1-17.

Raposo-Rivas, M., Martinez-Figueira, E. and Sarmiento Campos, J. (2015) A Study on the Pedagogical Components of MOOC, *Media Education Research Journal*, 44, pp. 27-35.

Redish, E.F. (2003) *Teaching physics : with the physics suite*. Hoboken, NJ: John Wiley & Sons.

Redish, E.F., Saul, J.M. and Steinberg, R.N. (1998) Student expectations in introductory physics, *American Journal of Physics*, 66(3), pp. 212-224.

Reiser, R.A. (2001) A history of instructional design and technology: Part II: A history of instructional design, *Educational Technology Research and Development*, 49(2), pp. 57-67.

Renz, J., Bauer, M., Malchow, M., Staubitz, T., and Meinel, C. (2015) Optimizing The Video Experience In Moocs. In: *EDULEARN15 Conference*. [Online]. Potsdam: Hasso Plattner Institute, University of Potsdam, pp. 5150-5158.[Online]. Available at: https://hpi.de/fileadmin/user_upload/fachgebiete/meinel/papers/Web-University/2015_Renz_EduLearn.pdf. [Accessed: 21 July 2019].

Rhoads, C. (2011) The Implications of "Contamination" for Experimental Design in Education. *Journal of Educational and Behavioral Statistics*, [Online]. 36(1), pp. 76-104. Available at: https://journals.sagepub.com/doi/abs/10.3102/1076998610379133. (Accessed: 10 February 2020).

Robinson, R. (2016) Delivering a medical school elective with massive open online course (MOOC) technology, *PeerJ*, 4, pp. 2-9.

Rogers, E. (2013) *Diffusion of Innovations*. 5th edn. NYC: Free Press.

Rodriguez, C.O. (2012) MOOCs and the AI-Stanford Like Courses: Two Successful and Distinct Course Formats for Massive Open Online Courses, *European Journal of Open, Distance and E-Learning*. Available at: https://files.eric.ed.gov/fulltext/EJ982976.pdf. [Accessed 4/7/2019].

Rorty, R. (1980) Pragmatism, Relativism, and Irrationalism, *Proceedings and Addresses of the American Philosophical Association*, 53(6), pp. 717-738.

Rorty, R. (1999) *Philosophy and social hope*. London: Penguin.

Rosenblatt, L.M. (2013) The transactional theory of reading and writing, in Alvermann, D.E., Unrau, N.J. and Ruddell, R.B. (eds.) *Theoretical models and processes of reading*, 6th edn. Newark: International Reading Association.

Roshchina, Y., Roshchin, S., and Rudakov, V. (2018) The Demand for Massive Open Online Courses (MOOC): Evidence from Russian Education. *Voprosy obrazovaniya / Educational Studies Moscow*, [Online]. (1), pp. 174-199. Available at: https://vo.hse.ru/en/2018--1/217491645.html. [Accessed: 21 July 2019].

Ross, J., Sinclair, C., Knox, J., Bayne, S. and Macleod, H. (2014) Teacher experiences and academic identity: The missing components of MOOC pedagogy, *Journal of Online Learning and Teaching*, 10(1), pp. 57-69.

Ross, J.L. and Schulz, R.A. (1999) Using the World Wide Web to accommodate diverse learning styles, *College Teaching*, 47(4), pp. 123-129.

Rutherford-Hemming, T. (2012) Simulation methodology in nursing education and adult learning theory, *Adult Learning*, 23(3), pp. 129-137.

Saadatmand, M. and Kumpulainen, K. (2013) Content aggregation and knowledge sharing in a personal learning environment: Serendipity in open online networks, *International Journal of Emerging Technologies in Learning (iJET)*, 8. pp. 70 -77.

Saadatmand, M. and Kumpulainen, K. (2014) Participants' Perceptions of Learning and Networking in Connectivist MOOCs [Massive Open Online Courses], *Journal of Online Learning and Teaching*.10 (1). pp .16-30.

Saleh, M.A. (1986) Development of higher education in Saudi Arabia, *Higher Education*, 15(1), pp. 17-23.

Sandeen, C. (2013) Assessment's Place in the New MOOC World, *Research & practice in assessment*, 8, pp. 5-12.

Sarantakos, S. (2005) *Social research*. 3rd ed.. edn. New York: Palgrave Macmillan.

Sawahel, W. (2014) New Arab platform for MOOCs launched, *University World News*, 30 May. [Online]. Available at: https://www.universityworldnews.com/post.php?story=20140529184801359. [Accessed: 20/5/2019].

Shah, D. (2015) *By The Numbers: MOOCS in 2015*. Mooc report. [Online]. Class Central. Available at: https://www.classcentral.com/report/moocs-2015-stats/. [Accessed: 27 July 2019].

Shannon-Baker, P. (2016) Making Paradigms Meaningful in Mixed Methods Research, *Journal of Mixed Methods Research*, 10(4), pp. 319-334.

Shenton, A.K. (2004) Strategies for ensuring trustworthiness in qualitative research projects, *Education for information*, 22(2), pp. 63-75.

Shweta, R., Chaturvedi, H. and Shweta, R. (2015) Evaluation of inter-rater agreement and inter-rater reliability for observational data: An overview of concepts and methods, *Journal of the Indian Academy of Applied Psychology*, 41, pp. 20-27.

Siemens, G. (2005) *Connectivism: A Learning Theory for the Digital Age*. [Online]. Available at: http://www.itdl.org/journal/jan_05/article01.htm. [Accessed: 25/5/2019].

Skiba, D.J. (2013) MOOCs and the Future of Nurs ing, *Nursing Education Perspectives*, 34(3), pp. 202-205.

Smith, B. and Eng, M. (2013) MOOCs: A Learning Journey. In: *International Conference on Hybrid Learning and Continuing Education*. [Online]. 2013, Berlin: Springer, pp. 244-255. Available at: https://link.springer.com/chapter/10.1007/978-3-642-39750-9_23#citeas. [Accessed: 21 July 2019].

Smith, P.L. and Ragan, T.J. (1999) *Instructional Design*. 3rd edn. New York: Wiley.

Stewart, B. (2013) Massiveness+ openness= new literacies of participation, *Journal of Online Learning and Teaching*, 9(2), pp. 228-238.

Stockwell, B.R., Stockwell, M.S., Cennamo, M. and Jiang, E. (2015) Blended learning improves science education, *Cell*, 162(5), pp. 933-936.

Suen, H. and Ary, D. (2014) *Analyzing quantitative behavioral observation data*. 2nd edn. New York: Psychology Press.

Tawfik, A.A., Reeves, T.D., Stich, A.E., Gill, A., Hong, C., McDade, J., Pillutla, V.S., Zhou, X. and Giabbanelli, P.J. (2017) The nature and level of learner–learner interaction in a chemistry massive open online course (MOOC), *Journal of Computing in Higher Education*, 29(3), pp. 411-431.

Taylor, P. and Medina, M. (2013) Educational Research Paradigms: From Positivism to Multiparadigmatic, *College Research Journal*, 1 (1). pp. 1-16.

Teddlie, C. and Tashakkori, A. (2009) *Foundations of mixed methods research : integrating quantitative and qualitative techniques in the social and behavioral sciences*. London: London : SAGE.

Teddlie, C. and Yu, F. (2007) Mixed Methods Sampling:A Typology With Examples, *Journal of Mixed Methods Research*, 1(1), pp. 77-100.

Terras, M. and Ramsay, J. (2015). Massive open online courses (MOOCs): Insights and challenges from a psychological perspective. *British Journal of Educational Technology*, [online] 46(3), pp.472-487. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/bjet.12274 [Accessed 15 Dec. 2019].

Tolman, D. and Brydon-Miller, M. (2001) *From subjects to subjectivities: A handbook of interpretive and participatory method*. New York: New York University Press.

Torrance, H. (2012) Triangulation, Respondent Validation, and Democratic Participation in Mixed Methods Research, *Journal of Mixed Methods Research*, 6(2), pp. 111-123.

Tovani, C. (2004) *Do I Really Have to Teach Reading?: Content Comprehension, Grades 6-12*. 1st edn. Portland, Me.: Stenhouse Publishers.

Tubaishat, A., Bhatti, A. and El-Qawasmeh, E. (2006) ICT experiences in two different Middle Eastern universities, *Issues in Informing Science & Information Technology*, 3.pp. 667-678.

Tucker, B. (2012) The flipped classroom: Online instruction at home frees class time for learning. Education next , *Journal of opinion and research*, 12(1), pp. 82 - 83.

Tularam, G.A. and Machisella, P. (2018) Traditional vs Non-traditional Teaching and Learning Strategies--the case of E-learning!, *International Journal for Mathematics Teaching & Learning*, 19(1). pp. 129-158.

Tuomi, I. (2013) Open educational resources and the transformation of education, *European Journal of Education*, 48(1), pp. 58-78.

Ulrich, C. and Nedelcu, A. (2015) Moocs in our university: Hopes and worries, *Procedia-Social and Behavioral Sciences*, 180, pp. 1541-1547.

Vaill, P.B. (1996) *Learning as a way of being: Strategies for survival in a world of permanent white water.* San Francisco: Jossey-Bass.

Van der Merwe, A. (2011) Can online learning boost academic performance? A microeconomics study, *The International Business & Economics Research Journal*, 10(8), pp. 45-55.

Varthis, S. (2016). *Students' Perceptions of Blended Learning and its Effectiveness As a Part of Second Year Dental Curriculum*. PhD. Columbia University.

Veletsianos, G. and Shepherdson, P. (2016) A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015, *The International Review of Research in Open and Distributed Learning*, 17(2), pp. 198-221.

Voss, B.D. (2013) Massive open online courses (MOOCs): A primer for university and college board members, *AGB Association of Governing Boards of Universities and Colleges*, pp. 1-12.

Vrasidas, C. (2000) Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education, *International journal of educational telecommunications*, 6(4), pp. 339-362.

Waite, M., Mackness, J., Roberts, G. and Lovegrove, E. (2013) Liminal participants and skilled orienteers: Learner participation in a MOOC for new lecturers, *MERLOT Journal of Online Learning and Teaching*, 9(2), pp. 200-215.

Walker-Gleaves, C. (2010) *Invisible threads of pedagogic care : a study of 'caring' academics and their work within a UK university*. Saarbrucken: LAP LAMBERT Academic Publishing.

Wang, S.-K. and Hsu, H.-Y. (2009) Using the ADDIE Model to Design Second Life Activities for Online Learners, *TechTrends*, 53(6), pp. 76-81.

Wang, X.-H., Wang, J.-P., Wen, F.-J., Wang, J. and Tao, J.-Q. (2016) Exploration and Practice of Blended Teaching Model Based Flipped Classroom and SPOC in Higher University, *Journal of Education and Practice*, 7(10), pp. 99-104.

Wang, Y. and Baker, R. (2015) Content or platform: Why do students complete MOOCs, *MERLOT Journal of Online Learning and Teaching*, 11(1), pp. 17-30.

Watson, S.L., Loizzo, J., Watson, W.R., Mueller, C., Lim, J. and Ertmer, P.A. (2016) Instructional design, facilitation, and perceived learning outcomes: An exploratory case study of a human trafficking MOOC for attitudinal change, *Educational Technology Research and Development*, 64(6), pp. 1273-1300.

Weaver, K. and Olson, J.K. (2006) Understanding paradigms used for nursing research, *Journal of Advanced Nursing*, 53(4), pp. 459-469.

Weegar, M. and Pacis, D. (2012) A Comparison of Two Theories of Learning -- Behaviorism and Constructivism as applied to Face-to-Face and Online Learning. In: *E-Leader conference*. [Online]. 2012, Manilla: E-Leader, pp. 1-20. Available at: https://www.semanticscholar.org/paper/A-Comparison-of-Two-Theories-of-Learning-and-as-to-Weegar-Pacis/2cb0b3019f04cfbf790d0ed8fa39f603bcfa4f7e. [Accessed: 21 July 2019].

Wiersma, W. (2000) *Research methods in education : an introduction*. 7th ed.. Boston: Allyn and Bacon.

Wigfield, A. and Guthrie, J.T. (1995) *Dimensions of Children's Motivations for Reading: An Initial Study. Reading Research Report No. 34*. Spring Universities of Georgia and Maryland.[Online] Available at: https://files.eric.ed.gov/fulltext/ED384010.pdf. [Accessed: 25/5/2019].

Wild, U. and Gimbrère, M. (2017) MOOCs: Introducing Flexibility in Academia. In: *EMOOCs 2017: Work in Progress Papers of the Experience and Research Tracks and Position Papers of the Policy Track*. [Online]. Berlin: Springer, pp. 133-138. Available at: http://ceur-ws.org/Vol-1841/P07_111.pdf. [Accessed: 21 July 2019].

Willis, J.W. (2007) *Foundations of Qualitative Research: Interpretive and Critical Approaches*. California: Sage.

Wong, S., Tee, W., and Lim, P. (2015) Design Model for Integrating Learning Activity Management System (LAMS), Massive Open Online Courses (MOOC) and Flipped Classroom in Taylor's Integrated Moodle e-Learning System (TIMeS). In: *Taylor's 7th Teaching and Learning Conference 2014 Proceedings*. [Online]. Singapore: Springer, pp. 379-387. Available at: https://link.springer.com/chapter/10.1007%2F978-981-287-399-6_35#citeas. [Accessed: 21 July 2019].

Woodgate, A., Macleod, H., Scott, A.-M. and Haywood, J. (2015) Differences in online study behaviour between sub-populations of mooc learners, *Educación XXI: revista de la Facultad de Educación*, 18(2), pp. 147-163.

Wu, B. and Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in Human Behavior*, [online] 67(C), pp.221-232. Available at: https://dl.acm.org/citation.cfm?id=3179720 [Accessed 10 Apr. 2019].

Wu, S., Fitzgerald, A., & Witten, I. H. (2014). Second language learning in the context of MOOCs. In: S. Zvacek, M. T. Restivo, J. Uhomoibhi, & M. Helfert (Eds.), *Proceedings of the 6th International Conference on Computer Supported Education*, Volume 1 (pp. 354–359). Barcelona, Spain: SCITEPRESS. [Online]. Available at: http://doi.org/10.5220/0004924703540359. [Accessed 3/6/2019].

Yáñez, C., Nigmonova, D. and Panichpathom, W. (2013) *"DeMOOCratization of Education?: Massive Open Online Courses (MOOCs) and the opportunities and challenges for developing countries"*. Applied Research Seminar (ARS). [Online]. Geneva: Graduate Institute of International and Development Studies. Available at: https://repository.graduateinstitute.ch/record/286962/files/MOOCs_Full_Final.pdf. [Accessed: 18 August 2019].

Yeager, C., Hurley-Dasgupta, B. and Bliss, C.A. (2013) CMOOCs and global learning: An authentic alternative, *Journal of Asynchronous Learning Networks*, 17(2), pp. 133-147.

Yilmaz, K. (2011) The cognitive perspective on learning: Its theoretical underpinnings and implications for classroom practices, *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 84(5), pp. 204-212.

Yousef, M. and Wosnitza, M. (2014) What drives a successful MOOC? An empirical examination of criteria to assure design quality of MOOCs. In: *2014 IEEE 14th International Conference on Advanced Learning Technologies*. [Online]. 2014, Athens: IEEE, pp. 44-48. Available at: https://ieeexplore.ieee.org/document/6901394. [Accessed: 18 August 2019].

Yousef, A. (2015) *Effective Design of Blended MOOC Environments in Higher Education*. PhD. RWTH Aachen University.

Yousef, A.M.F., Chatti, M.A., Wosnitza, M. and Schroeder, U. (2015a). A cluster analysis of MOOC stakeholder perspectives. *International Journal of Educational Technology in Higher Education, 12*(1), pp.74-90.

Yousef, A.M.F., Chatti, M.A., Schroeder, U. and Wosnitza, M. (2015b) A usability evaluation of a blended MOOC environment: An experimental case study, *The International Review of Research in Open and Distributed Learning*, 16(2). pp. 69- 93.

Yu, T. and Yu, T. (2010). Modelling the factors that affect individuals' utilisation of online learning systems: An empirical study combining the task technology fit model with the theory of planned behaviour. *British Journal of Educational Technology*, [online] 41(6), pp.1003-1017. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8535.2010.01054.x. [Accessed 15 Dec. 2019].

Freihat, N. and Al Zamil, A, (2014) The Effect of Integrating MOOCs on Saudi Female Students Listening Achievement. *European Scientific Journal*, 10(34). pp. 127 - 142.

Yuan, L. and Powell, S. (2013) *MOOCs and open education: Implications for higher education*. UK: cetis.org.uk/. [Online]. Available at: https://e-space.mmu.ac.uk/619735/1/MOOCs-and-Open-Education.pdf. [Accessed: 19/5/2019].

Zadi, P. (2019) كيف تتعلم مع زادي , .[Online]. Available at: https://zadi.net/how-learn-with-zadi .[Accessed: 19/4/2019].

Zigurs, I. and Buckland, B. (1998). A Theory of Task/Technology Fit and Group Support Systems Effectiveness. *MIS Quarterly*, [online] 22(3), pp.313-334. Available at: https://www.jstor.org/stable/249668?seq=1. [Accessed 15 Dec. 2019].

Zigurs, I. and Khazanchi, D. (2008). From Profiles to Patterns: A New View of Task-Technology Fit. *Information Systems Management*, [online] 25(1), pp.8-13. Available at: https://www.tandfonline.com/doi/abs/10.1080/10580530701777107. [Accessed 15 Dec. 2019].

Zimmerman, B. (2000) Attaining self-regulation: a social cognitive perspective, in Boekaerts, M., Zeidner, M. and Pintrich, P. (eds.) *Handbook of self-regulation*. San Diego, CA.: Academic Press, pp. 13-39.

Zhou, M. (2016). Chinese university students' acceptance of MOOCs: A self-determination perspective. *Computers & Education*, [online] 92-93, pp.194-203. Available at: https://www.sciencedirect.com/science/article/pii/S0360131515300610?via%3Dihub. [Accessed 15 Dec. 2019].

Appendix

Appendix 1: Designing instructional material for teaching 'Educational Technology and Communication Skills' module

Designing the content of the module, 'Educational Technology and Communication Skills', was done using the course book, *Educational Technology and Communication Skills* 2016, 3rd Edition by Doctor Mohamad Alqomaizy.

Designing this module consisted of five stages according to (ADDIE) model: The first stage was the Analysis stage, the second stage was the Design stage, the third stage was the development stage, the fourth stage was the Implementation stage and the final stage was the Evaluation stage.

First stage: Analysis stage

This stage is about the accurate description of the main components of all other stages. Therefore, this stage is considered the foundation for outlining the goals of the module, identifying the target audience, choosing the educational content in accordance with students' levels, choosing teaching methods and specifying the assessment methods that suit the students' levels. The analysis stage comprises the following components:

1- The need to analyses

- To know the effect of Hybrid MOOCs on students' academic success in the 'Educational Technology and Communication Skills' module at the Faculty of Education, Majmaah University.
- To know students' experiences in using this new teaching method at the higher education institutions in Saudi Arabia.
- To know whether students' attitudes towards the use of Hybrid MOOCs are positive or negative.
- To know the challenges students faced during the use of this new teaching method.

2- Analysis of aims

The aims of the educational design are:

1- To encourage students to use the new teaching methods available to them via internet or the teaching platform (MOOCs) as opposed to the exclusive use of traditional teaching methods.

2- To help students participate in the teaching process through exchanging ideas and experiences.

3- To take students' individual differences into consideration.

4- To overcome the challenges that students might face and which impact on their studies, such as shyness and absence.

5- To swap the traditional passive role of students as recipients with a more active role as participants in the teaching process.

6- To swap the traditional role of the teacher as the main source of information with the role of supervisor and facilitator.

7- To facilitate the presentation of the educational material to students through the use of different educational sources such as video clips, PowerPoint presentations, scientific articles and internet websites.

8- To give students flexibility in learning, whether they are physically present at the educational institution or via remote learning.

9- To help teachers identify students' weakness and provide them with feedback.

10- To help students improve their academic achievement and their comprehension of the module.

11- To provide a number of educational activities which motivate students to improve their thinking and communication skills.

3- Analysis of the module content and aims

a) General aims of the module

The general aims of the module 'Educational Technology and Communication Skills' are:

1- Students get to know the developmental history of the 'communication' concept and its relevance to the teaching-learning process.

2- Students get to know the benefits of communication models and their classifications.
3- Students get to know the main communication skills such as speaking, listening and self-awareness.
4- Students get to know the main features of the educational communication such as conception, importance and features.
5- Students get to explain the effects of modern communication theories on teaching aids.
6- Students get to know the historical development of teaching aids.
7- Students get to define teaching methods, their significance, selection criteria, rules of use, sources and difficulties it their use.
8- Students get to know types of teaching aids and their production skills (models, samples, pictures, PowerPoint, transparencies).
9- Students get to know types of teaching devices used in the teaching process.
10- Students get to know new directions in the field such as computers, internet, e-learning, hypermedia, e-books and video conferences.
11- Students get to use social media in learning, such as Facebook, Twitter, WhatsApp and Instagram.

b) Module content

Topics covered in this module will be available to students through the educational platform and the course book. These topics are:

*** Introduction to Communication:** it presents an overview of the concept of communication, educational communication, the elements of communication process, the importance of communication, features of communication and difficulties in communication.

*** Communication models:** this is about the concept of communication models, benefits of communication models, types of communication models (linear/ interactive).

*** Communication skills:** it encompasses types of communication and how to deal with them. For example, listening and speaking skills.

*** Communication and educational communication:** It encompasses the concepts of communication and educational communication, their importance, features and difficulties.

*** Teaching aids:** this includes the developmental stages of teaching aids, difficulties in using

teaching aids and the new roles in teaching aids.

*** Teaching aids and their classifications:** this covers the concept and development of teaching aids, the importance of teaching aids, selection criteria for teaching aids, foundations of designing and producing teaching aids and difficulties in using teaching aids.

*** Teaching devices:** such as overhead projectors, visual presenter, slide projectors, electronic board and electronic platform.

*** Advanced teaching aids in education:** such as computers, e-books and internet websites in teaching.

*** Recent directions in educational technology:** it comprises e-learning, distance learning, virtual universities and educational platforms.

*** Social media in education:** such as Facebook, Twitter and Instagram.

4- Task Analysis

Analyses of the tasks required from the students in the experimental group when studying the module, 'Educational Technology and Communication Skills' through MOOCs

a) Before the class

1- All activities and lesson contents which include video clips, articles, homework, and tests are available on the MOOCs platform.

2- Each student will receive an email notifying him that all the lesson materials are available, and he has access to them.

3- Students will be asked to watch the video clips that are relevant to the topic of the lecture. These clips usually consist of two parts, 8-10 minutes each.

4- Students will be asked to read scientific articles that are available on the MOOCs platform or links from the internet.

5- Students will be asked to log into the discussion forums to ask relevant questions which they do not know.

b) During the class

1- Students are required to attend the 2 hours lecture every week.

2- During the lecture, the students are required to do some exercises related to the topic of the lecture.

3- Students are required to work in groups and form teams.

4- Students are required to produce teaching aids such as PowerPoint, and transparencies.

5- The lecture is a kind of discussion between students and the teacher or between students themselves.

6- At the end of the lecture, the module leader does a recap of the lecture and explains further the most difficult points of the lecture.

C) After the class

1- Students are required to log into the platform to discuss the topic of the lecture.

2- Students will be asked to participate in group work.

3- The module leader will provide feedback to students and further information that will help them improve their understanding of the topic.

5- Analysis of learners' characteristics

***** All students are from Majmaah University and are taking the 'Educational Technology and Communication Skills' module which is one of the compulsory modules for BA students.

***** All students are adults with an age range of 18-26 years.

***** All students taking the module are from different specialties such as Arabic studies, English studies, and Islamic studies.

***** All students live in Majmaah City or the surrounding villages.

***** All students are expected to have experience in using computers, tablets, and smart phones.

***** All students are full time students.

***** All students are in their first year, first semester.

6- Analysis of learning and training environments

Lecture room

Teaching this module requires a number of requirements that help the teacher in the process of teaching. These requirements are in the classroom, which is equipped with advanced teaching devices, some of which are:

- Digital teaching podium that controls all the other teaching devices inside the classroom.
- The smart board which displays the content of the teaching material.
- Projector connected to the platform to display videos.
- Internet for the use of students and teachers during the teaching process.
- A spacious teaching classroom.

Second: The Design Stage

The designing stage is the second stage of the Instructional Design. It is about designing teaching material suitable for the level of students in the Faculty of Education at Al Majmaah University. This includes specifying the topics that will be taught in the module and their dates, designing electronic materials that will be presented to students, designing online and in-class activities for students and designing the assessment.

1- Choosing the topics to be taught in the module.

2- Preparing and design electronic materials after choosing the topics to be taught:

- Producing educational videos for each topic. Each video briefly outlines the main points of the topic and will last 10-15 minutes. Care was taken in choosing the length of the video; not too short so it leaves out parts of the topic and not too long so students feel bored.
- Choosing articles and published studies that are relevant to the topic in pdf format.
- Attaching the PowerPoint of each topic as a pdf.
- Directing students to websites in order to get further information about the topic.

3- Preparing evaluation instruments:

1- First type is self-assessment: after students finish studying the unit through MOOCs, they will be presented with two types of questions to answer; true-false questions and multiple-answer questions. Students can get immediate feedback on their answers to the questions on MOOCs.

2- The second type of evaluation is group-assessment: When students attend the class, the teacher divides them into groups and gives them open questions to discuss. After students answer the open questions, the teacher provides feedback on their answers.

Third stage: The development stage

In this stage, we develop and pilot the teaching materials that have been designed in order to ensure that these materials are ready to be used by students. In this stage, the quality of the teaching material is checked, such as the quality of the content in relation to its aims and evaluation, the quality of the videos in relation to the sound, image and the duration, in addition to the smooth use of the materials available on the platform, such as downloading files from the platform and accessing to the evaluation section in order to answer questions.

Fourth stage: The Implementation stage

In this stage, the educational programme is applied whilst taking a number of points into consideration:

1- Preparing all materials and uploading them on the platform.

2- Introducing the programme and its aims to the students.

3- Obtaining consent forms from students to study the programme.

4- Ensuring all students are registered on the platform.

5- Training students on the use of the platform: how to log into the contents section, watching the videos, downloading materials and accessing the discussion and evaluation sections.

6- Informing students with the tasks they have to accomplish in this module, whether before, during or after the class.

7- Taking into account the learners' individual differences while applying the study.

8- Encouraging students to take part in discussions, whether on the platform or inside the class.

9- Giving students feedback, whether on the platform or inside the class.

Fifth stage: The evaluation stage

In this stage, the effectiveness of the teaching-learning process through the use of Hybrid MOOCs is evaluated based on a number of tests:

1- The pre-test which students undertake before the study of the module in order to know whether students are familiar with the module content or not.

2- Quizzes which students undertake after the study, whether in-class or through the platform. Their aim is to investigate students' progress after the study. There are ten tests in total after each study.

3- Final test which students undertake at the end of the module and which tests all the topics covered in the module.

Appendix 2: Content Analysis (e.g. First Lecture-Communication)

1- Lecture aims

At the end of this lecture, students will be able to:

1- Know the history of the communication concept

2- Define the concept of 'communication'

3- Understand the significance of communication

4- Comprehend the elements of communication

5- Explain types of communication

6- Learn the difficulties of communication

2- Lecture content

A review on the history of communication

Communication science originated in the 5th century BC in the writings of Babylonians and ancient Egyptians. It can also be traced through the religious studies before Islam, and then in the beginning of the Hellenistic era. It emerged at the beginning of the 19th century. Corax is considered the founder of the first communication theory in Greece. His student, Tisias developed this theory which was used in pleas in courts as a method of persuasion that can be taught as an art.

Aristotle and Plato, who lived between the 3rd and 4th centuries BC, are considered the founders of early studies in communication. They both considered communication as an independent science, an art, or industry that can be taught through training.

Definition of communication

There have been many attempts to reach a consensus on a specific definition of communication, and the reason behind these various attempts is that the science of communication is closely related and interconnected with many other disciplines or sciences.

"An interaction between two or more parties about a specific event or topic in order to exchange information and influence one or both parties".

"A meaningful process that transfers information from one person to another in order to create some kind of mutual understanding and harmony between them".

Significance of communication

A. Building up social relationships.
B. Exchanging information and knowledge.
C. Expressing feelings and opinions.
D. Persuading and impacting others.
E. Emphasizing comprehension.
F. Changing the individuals' behaviors and developing their skills.

Communication elements

A. Source or Sender.
B. Message.
C. Channel or Media.
D. Receiver
E. Feedback.
F. Environment.

Types of communication

First: based on the direction of communication

- One-Way Communication.
- Two-way communication.

Second: based on the number of participants

- Intrapersonal Communication.
- Interpersonal Communication.
- Group Communication.
- Mass Communication.

Third: based on the way of communication

- Verbal Communication.
- Non-Verbal Communication.

There are many factors that might impede the communication process and cause its failure

- When the sender does not use the suitable means for communication.
- When the sender lacks speaking skills such as persuasion skills and body language.
- Not choosing the right communication method.
- Not choosing the right time for communication.
- When the receiver does not understand the message.

3- Course reading list

- Educational Technology and Communication Skills book, chapter. 1 p.19-49.
- Article: Muhammad bin Ali Shaiban Al-amri (2001). 'The concept of communication and its importance'.
- Relevant links**:**
    1- https://mawdoo3.com/%D8%B9%D9%86%D8%A7%D8%B5%D8%B1_%D8%A7%D9%84%D8%A7%D8%AA%D8%B5%D8%A7%D9%84
    2- http://www.khayma.com/education-technology/TCHH1.htm

4- Assessment

Dear student,

Answer the following questions to evaluate your progress in achieving the aims of the first lecture (Communication)

a) Put (✓) next to the right statement and (X) next to the wrong statement

1- Verbal communication is the only way of communication. ( )
2- Communication has four elements. ( )
3- The success of communication is based on the modernity of communication channels. ( )
4- The sender needs to have knowledge of types and channels of communication. ( )
5- The aim of communication is to pass knowledge from one generation to another. ( )

6- Plato is considered the founder of the Communication Theory. ( )

7- Communication channel is the content conveyed between the sender and the receiver. ( )

8- Interest in communication sciences dates back to the 5th Century BC. ( )

9- One of the features of communication is being interactive, deliberate and constant. ( )

b) Choose the right answer

1- Types of communication are classified into:
   a) Classification based on the number of participants
   b) Classification based on the direction of communication
   c) Classification based on the language of communication
   d) All of the above

2- The following are examples of the importance of communication, except:
   a) Building up social relationships
   b) Changing behavior and developing skills
   c) Receiver
   d) Exchanging information and knowledge

3- Communication cannot be achieved without:
   a) Sender
   b) Receiver
   c) Channel
   d) All of the above

4- The most important channel used in teaching is:
   a) written
   b) Electronic
   c) Audio and visual
   d) All of the above

5- The information written on the pages of a book is:
   a) Media
   b) Channel
   c) Message
   d) All of the above

6- Lectures are example of……. communication
   a) Mass
   b) Intra personal

c) Group
d) All of the above

7- Television and Radio are……communication
   a) Group
   b) Mass
   c) Intrapersonal
   d) Intra personal

8- Sources of disturbance are communication difficulties related to:
   a) Communication environment
   b) Communication channels
   c) Communication methods
   d) Sender and receiver

9- One of communication barriers is related to:
   a) Teacher
   b) Learner
   c) Message
   d) All of the above

10- An example of one-way communication is:
   a) Radio
   b) Teacher and learner
   c) Students together
   d) All of the above

c) In class activities

Dear student,

You are invited to participate in educational activities inside the classroom by completing group work related to the first lecture entitled ‘communication’. The aim of group work is to train you to understand the questions related to the lecture topic through discussions with your peers and course teachers.

To answer the following questions, you can be aided by the platform and the course book:

1- Based on your study of the historical development of communications science,

discuss with your colleagues the main stages and most important scientists that have contributed to the development of this discipline.

2- Communication has a very important and prominent role in human life. Having studied the significance of communication, discuss with your colleagues the importance of communication to you.
3- There are many classifications of the communication process. Discuss with your colleagues these classifications along with some examples of each.
4- Communication scientists have defined the main elements of communication. Talk to your colleagues about these elements, the relationship between these elements and the most important element in your opinion.
5- There are many factors that impede the communication process and might lead to its failure. Explain these difficulties and the best ways of dealing with them in your view.

Appendix 3: The Final Exam for the Module 'Educational Technology and Communication Skills'

Answer all of the following questions…

First question: put (✔) next to the right statement or (✖) next to the wrong statement

1- The receiver is the first element of communication and the source of the message ( )
2- Teaching aids help solve the problem of increased numbers of learners. ( )
3- One of the aims of E-learning is to create an interactive learning environment. ( )
4- Theory of knowledge directly focuses on the behavior of the learner inside the learning environment. ( )
5- Cone of experience consists of five groups of teaching aids. ( )
6- Teaching aids have become principal components of teaching. ( )
7- Images, drawings and maps are examples of teaching devices. ( )
8- One advantage of Asynchronous E-learning is that the learner gets immediate feedback ( )
9- The Schramm model is one of the linear models of communication. ( )
10- The human element is an important element of teaching aids. ( )

Second question: Choose the right answer

1- Teaching aids are classified based on senses into
a) Visual
b) Audio
c) Audio-visual
d) All of the above
2- Movies and transparencies are examples of
a) Verbal aids
b) Visual aids
c) Sensory aids
d) None of the above
3- Educational software that is presented to learners at the end of each unit to better understand the lesson is called:
a) Practice and training programme
b) Educational gaming programme

c) Assimilation programme
d) All of the above

4- General advantages of using internet in education are:

a) Group learning
b) Easy development of educational content and curricula
c) Self-learning
d) All of the above

5- All of the following are examples of the disadvantages of digital teaching podium except:

a) Expensive
b) Requires specialists to fix
c) Removes time and space barriers
d) Big in size and difficult to move

The third question: Based on what you have studied, provide the term that refers to each of the following definitions

(a) **……..** is a teaching method that uses recent communication techniques such as computers, multimedia (e.g. audio, video, images, animation), search mechanisms, and electronic libraries whether before, during or after the class.

(b) …….. is an instructional technology that comprises educational materials, tools/devices, and presentation methods used by either the teacher or the learner or both in educational contexts in such an organized way to facilitate the teaching-learning process.

(c) ……. offers teaching anytime and anywhere through the use of small wireless devices such as smartphones and laptops.

(d) …….. electronic networks allow the members to create their own webpages and connect with other members of same interests and hobbies.

(e) ……. is an academic institution that offers distance learning through the use of advanced electronic tools such as internet, electronic mails, channels and satellites.

The fourth question: complete the following statements as appropriate:

a) Communication elements are……., ……..., ……., …….

b) Waver model of communication consists of……....., ……., ……., ……

c) Slide projector is called……., ……., ……., ……

d) The role of educational technology in overcoming educational challenges is……., ……., ……., ……

e) What are the physical parts of the computer?....., ……., ……., ……..

The fifth question: Answer the following

First question: Based on your study of social media channels as new techniques in education technology, indicate the pros and cons of using social media channels in teaching.

Second question: based on your study of the teaching aids, discuss the main criteria for choosing them.

Appendix 4: Letter of Support from my supervisor

May 5th, 2017

Professor Caroline Walker-Gleaves
School of Education, Communication and Language Sciences
Newcastle University

Letter of Support

To Whom It May Concern:

This letter evaluates of the quality of doctoral work of Homoud Al Anazi. The title of his thesis is 'An Examination of the Impact of Using Hybrid MOOCs on Students' Experiences & Achievements within Higher Education in Saudi Arabia'. I am his doctoral supervisor and I can testify to the originality, significance and contribution to the field of Homoud's work. In addition, and very importantly, I can testify to the effort and industry and quality of Homoud's work. He is extremely motivated and assiduous both in responding to feedback and in designing and actualizing original doctoral scholarship. He has to date, spent productively, several thousand hours on various aspects of his research and I am sure that his fieldwork, analysis and thesis writing will continue in the same vein. In particular, the study takes a mixed methods approach that is a very novel model for understanding the interaction of learning, motivation and progress within the learner engagement and achievement framework.

Mr Al Anazi will shortly be undertaking fieldwork in Saudi Arabia, at Majmaah University, beginning 10th September 2017 for 14 weeks.
Faithfully yours,
Caroline Walker-Gleaves

Professor Caroline Walker-Gleaves

Appendix 5: Ethics Approval from Majmaah University, Saudi Arabia

kingdom of Saudi Arabia
Ministry of Higher Education
Majmaah University
Deanship of Scientific Research

بسم الله الرحمن الرحيم

جامعة المجمعة
Majmaah University

المملكة العربية السعودية
وزارة التعليم العالي
جامعة المجمعة
عمادة البحث العلمي

Dear Homoud Alanazi

Project title: An Examination on the Impact of Using Hybrid MOOCs on Students Experiences & Achievements within Higher Education in Saudi Arabia.

Approval No.: MUREC-May.24/COM-2017/19

Thank you for submitting the complete application form for ethical approval of your research project. The Deanship of Scientific Research has gone through the project and considered all the issue pertaining to ethical guidelines. On behalf of the Deanship of Scientific Research, I am pleased to confirm a favorable ethical opinion of the above research on the basis described in the application form and supporting documents as revised. You are requested to consider the code of the ethics released by the national ethical committee, King Abdul Aziz for Science & Technology, Kingdom of Saudi Arabia.

Importantly, the scientific evaluation of application form should be reviewed by pertaining party. Additionally, an approval from related parties must be obtained to be able to arty out the research method/tool on the target group.

Dr. Thamer Shuleih Alharbi

Dean of Deanship of Scientific Research

المملكة العربية السعودية - ص.ب: ٦٦ المجمعة ١١٩٥٢- هاتف: ٠١٦ ٤٠٤١٥٠٣ - فاكس: ٠١٦ ٤٠٤١٥٥٠
Kingdom of Saudi Arabia - P.O. Box 66 Almajmaa 11952 Tel: 06 4041503 - Fax: 016 4041550
Email: dsr@mu.edu.sa www.mu.edu.sa

Appendix 6: Letter from the Head of Educational Department in Majmaah University, Saudi Arabia for Conducing Study (Arabic)

Kingdom of Saudi Arabia
Ministry of Education
Majmaah University
College of Education Zulfi

بسم الله الرحمن الرحيم
جامعة المجمعة
Majmaah University

المملكة العربية السعودية
وزارة التعليم
جامعة المجمعة
كلية التربية بالزلفي

إفادة

يفيد قسم العلوم التربوية بكلية التربية بالزلفي بجامعة المجمعة بأن الطالب:

حمود بن حداد العنزي

قام بتطبيق دراسته التجريبية والتي بعنوان:

An Examination on the Impact of Using Hybrid MOOCs on Students Experiences & Achievements within Higher Education in Saudi Arabia

أثراستخدام الدروس الجماعية الالكترونية المفتوحة المصادر على النجاح الأكاديمي لطلاب التعليم العالي في المملكة العربية السعودية، خلال تدريس مقرر "تقنيات التعليم ومهارات الاتصال" في الفصل الدراسي الأول للعام الجامعي ٢٠١٧/٢٠١٨م وكانت فترة التطبيق الدراسة من ٢٠١٧/٩/٢٤م الى ٢٠١٨/١/١٢م.

وبناء على طلبة أعطي الإفادة، شاكرين لكم تعاونكم.

رئيس قسم العلوم التربوية

د. ناصر بن عثمان العثمان

الرقم: ..... التاريخ: ١٤٣٩/٥/٢٧هـ المرفقات .....

المملكة العربية السعودية - ص.ب: ١٢٢١ الزلفي ١١٩٣٢ - هاتف: ٠١٦ ٤٠٤٣٧٧٤ - فاكس: ٠١٦ ٤٠٤٣٨٨٣
Kingdom of Saudi Arabia - P.O. Box 1221 Zulfi 11932 Tel: 016 4043774 - Fax: 016 4043883
Email: cez@mu.edu.sa www.mu.edu.sa

Appendix 7: Questionnaire (English)

General Information:

1. Age:

☐ 18-20 ☐ 20-22 ☐ 22-24 ☐ Above 24

2. Are you familiar with e-learning?

☐ Yes ☐ No

3. Which of the following electrical devices do you own?

☐ Desktop computer ☐ Laptop ☐ Smartphone ☐ IPad ☐ Table

☐ Other

4. Have you ever taken a MOOCs course?

☐ Yes ☐ No

If yes, please give details of the context and place you have used them:

Name or subject of the course:……

Platform which provided it:……

Institution that offered it:……

Did you complete the course?.....

5. Have you ever studied courses that utilize social networks?

☐ Yes ☐ No

If yes, please choose below the social network(s) used in these courses:

☐ WhatsApp ☐ Twitter ☐ Facebook ☐ Instagram

☐ Telegram ☐ Snapchat ☐ Other…….

Dimension I Student Experience with Hybrid MOOCs A: The Favoured Importance of Each MOOCs Component							
N	Items	Extremely Favoured	Very Favoured	Somewhat Favoured	Somewhat Unfavoured	Very Unfavoured	Extremely Unfavoured
1	Video Lectures						
2	Associated Journal Resources & Articles						
3	Discussion Forums						
4	Quizzes						
5	E-mails						
B. Flexibility of Using Hybrid MOOCs (Perceived Ease of Use {PEOU})							
N	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Reference
1	I can access the learning activities any time.						Yousef, 2015 Varthis, 2016
2	I can access the learning activities at any place.						Yousef, 2015
3	I can access the learning activities without much difficulty.						Yousef, 2015 Larsen, 2012
4	I can access and use the platform in my own personal devices.						Ja'ashan, 2015
C. The Quality of Course Content							
1	The contents of this course were clear.						Yousef, 2015 Ja'ashan, 2015
2	The contents of this course were stated within each lesson.						Yousef, 2015 Ja'ashan, 2015
3	The contents of this course were contributing towards learning.						Yousef, 2015 Ja'ashan, 2015 Hone & El

							Said, 2016
4	The contents of this course were presented logically.						Ja'ashan, 2015
5	The contents of this course were relevant to the subject.						Yousef, 2015 Ja'ashan, 2015 Hood, Littlejohn and Milligan, 2015
6	The contents of this course were up to date with the subject.						Yousef, 2015 Ja'ashan, 2015 Hood, 2015
7	The contents of this course helped me to think in depth about the subject.						Yousef, 2015 Ja'ashan, 2015 Hood, Littlejohn and Milligan, 2015
8	The contents of this course improved my understanding of the key concepts.						Owston, York and Murtha, 2013 Hood, Littlejohn and Milligan, 2015
D. Self-Regulated Learning							
1	I can set goals for myself in order to direct my activities in each study period.						Handyside, 2016
2	I can organize my own learning activities.						Yousef, 2015 Kizilcec, Perez-Sanagustin

							and Maldonado, 2016; 2017
3	I can learn in my own style.						Ja'ashan, 2015 Kizilcec, Perez-Sanagustin and Maldonado, 2016; 2017
4	I can learn independently from my teacher.						Yousef, 2015 Wu and Chen, 2017
	I can decide how much I want to learn in a given time period.						Yousef, 2015 Hood, Littlejohn and Milligan, 2015
6	I am allowed to work at my own pace to achieve my learning objective.						Yousef, 2015 Hood, Littlejohn and Milligan, 2015 Kizilcec, Perez-Sanagustin and Maldonado, 2016; 2017
7	I am able to control my progress as I move through the material.						Handyside, 2016
E. Networked learning (Perceived Usefulness {PU})							
1	I can interact with other students and teachers inside or outside of the learning environment						Yousef, 2015 Ja'ashan, 2015 Hone & El Said, 2016

	when working ***online***.						Hood, Littlejohn, and Milligan, 2015
2	I can interact with other students and teachers inside or outside of the learning environment when working ***face to face***.						Yousef, 2015 Ja'ashan, 2015 Hone & El Said, 2016 Hood, Littlejohn and Milligan, 2015
3	I feel free to ask questions in this course when working ***online.***						Hood, Littlejohn, and Milligan, 2015
4	I feel free to ask questions in this course when working ***face to face***.						Hood, Littlejohn and Milligan, 2015
5	I can collaborate with other students in the group projects when working ***online.***						Yousef, 2015 Ja'ashan, 2015 Larsen, 2012
6	I can collaborate with other students in the group projects when working ***face to face***.						Yousef, 2015 Ja'ashan, 2015 Larsen, 2012
7	The communication tools enhanced my interaction and collaboration with my classmates when working ***online.***						Yousef, 2015 Ja'ashan, 2015
8	Within Hybrid MOOCs & Flipped						Yousef, 2015 Ja'ashan,

	Classrooms, ***online*** feedback from students and teachers had a substantial impact.						2015 Larsen, 2012 Hone & El Said, 2016 Hood, Littlejohn and Milligan, 2015
9	Within Hybrid MOOCs & Flipped Classrooms, ***face to face*** feedback from students and teachers had a substantial impact.						Yousef, 2015 Ja'ashan, 2015 Larsen, 2012 Hone & El Said, 2016 Hood, Littlejohn and Milligan, 2015
10	Within Hybrid MOOCs & Flipped Classrooms, adequate ***online*** support was received from students and teachers.						Yousef, 2015 Ja'ashan, 2015 Larsen, 2012 Hone & El Said, 2016 Hood, Littlejohn and Milligan, 2015
11	Within Hybrid MOOCs & Flipped Classrooms, adequate ***face to face*** support was received from students and teachers.						Yousef, 2015 Ja'ashan, 2015 Larsen, 2012 Hone & El Said, 2016 Hood, Littlejohn, and Milligan, 2015

12	I can collaborate with other students to complete assignments when working ***online.***						Hone & El Said, 2016
13	I can collaborate with other students to complete assignments when working ***face to face***.						Hone & El Said, 2016
14	I can ask the teacher to clarify concepts, I do not understand well when working ***online.***						Handyside, 2016
15	I can ask the teacher to clarify concepts, I do not understand well when working ***face to face***.						Handyside, 2016
16	When I do not understand the ***online*** materials in this course, I can ask my classmates for help.						Handyside, 2016
17	When I do not understand the materials in the ***face to face*** part of this course, I can ask my classmates for help.						Handyside, 2016
18	I can share the course materials with other students inside or outside of the learning environment when working						Handyside, 2016

	online.						
19	I can share the course materials with other students inside or outside of the learning environment when working ***face to face***.						Handyside, 2016
20	The teacher provides timely feedback on assignments, exams, and projects, ***online.***						Hung and Chou, 2014
21	The teacher provides timely feedback on assignments, exams, and projects, ***face to face***.						Hung and Chou, 2014
F. Instructional Design							
1	The ***online*** and ***face to face*** components enhanced each other (work well together).						Owston, York and Murtha, 2013
2	The ***online*** and ***face to face*** components give me plenty of time to study.						Larsen, 2012
3	***Online*** and ***face to face*** activities encourage me to study from different resources.						Larsen, 2012
4	The assessment in this course enhances my learning process.						Handyside, 2016
5	This method takes into account individual differences.						Hone and El said, 2016

J. Assessment Design (quizzes, exams, assignments, coursework, homework, tests, exercises, tasks, etc.…)							
1	The assessments taken from students in this course were clear.						Ja'ashan, 2015 Larsen, 2012
2	The assessments were useful in evaluating my learning of the subject.						Pedro *et al*., 2016
3	The assessments were related to the learning objectives.						Hone & El Said, 2016
4	The assessments were interesting and stimulating.						Hone & El Said, 2016
5	Assessments helped me understand difficult issues better.						Handyside, 2016
6	Through the assessments, I became aware where I am in the course, in terms of how much I have learned.						Yousef, 2015
Dimension II: Attitudes Towards Using Hybrid MOOCs							
1	This method of teaching gives me more room to express myself.						Alqahtani, 2010 Liaw, Huang and Chen, 2007
2	I would like other subjects to be taught by this method.						Alqahtani, 2010 Wu and Chen, 2017
3	Using this method of teaching at university level is very helpful.						Alqahtani, 2010 Liaw, Huang and Chen, 2007
4	Using this						Alqahtani,

	method of teaching contributes to my personal development.						2010 Wu and Chen, 2017
5	This method of teaching was interesting.						Ja'ashan, 2015 Liaw, Huang and Chen, 2007
6	This method of teaching motivates me to succeed.						Ja'ashan, 2015
7	I would like to use this method of teaching when I become a teacher.						Alqahtani, 2010
8	I think this method makes learning easy.						Wu and Chen, 2017
9	I think using this method is a positive idea.						Wu and Chen, 2017
10	I would recommend other students to use this method in their studies.						Wu and Chen, 2017
11	I enjoy learning from the ***face to face*** component of this course.						Munoz-Merino *et al*., 2016 Wu and Chen, 2017
12	I enjoy learning from the ***online*** component of this course.						Munoz-Merino *et al*., 2016
13	I think working within groups ***online*** is really useful.						Handyside, 2016
14	I think working within groups ***face to face*** is really useful.						Handyside, 2016
15	I am satisfied in using this method						Munoz-Merino *et*

	for my learning.						*al*., 2016 Wu and Chen, 2017 Liaw, Huang and Chen, 2007
Dimension III: Challenges							
	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
1	I didn't receive helpful feedback from my teacher.						Ginns & Ellis, 2007
2	It has often been hard to discover what is expected of me in this course.						Ginns & Ellis, 2007
3	There is a lot of pressure on me as a student in this course.						Ginns & Ellis, 2007
4	Sometime I had difficulty in allocating time to participate in the ***online*** component of this course.						Johnson, 2013
5	Sometimes I had difficulty in allocating time to participate in the ***face to face*** component of this course.						Johnson, 2013
6	I didn't have technical support when I had problems.						Ja'ashan, 2015
7	Slow internet connectivity was an issue for me.						Ja'ashan, 2015
8	The materials for ***online*** learning were not well organised.						Ja'ashan, 2015
9	The materials for ***face to face*** learning were not						Ja'ashan, 2015

	well organised.						
10	***Online*** & ***face to face*** activities were not well. Coordinated.						Ja'ashan, 2015

Appendix 8: Questionnaire (Arabic)

المعلومات العامة

1- العمر:

☐ 20-18 ☐ 22- 20 ☐ 24-22 ☐ فوق 24

2- هل لديك معرفة بالتعلم الالكتروني؟

☐ نعم ☐ لا

3- هل أخذت دورة المساق الهائل المفتوح عبر الإنترنت من قبل؟

☐ نعم ☐ لا

إذا كان الإجابة نعم بين تفاصيل الدورة:

اسم أو موضوع الدورة:

الجهة التي قدمتها:

المؤسسة التي قدمتها:

هل أكملت الدورة؟

4- أي من الاجهزة الكهربائية التالية تملكها:

☐ كمبيوتر ديسك توب ☐ لاب توب ☐ هاتف لوحي ☐ أي باد

☐ هاتف ذكي ☐ أخرى

7- هل درست من قبل دورات تستخدم شبكات التواصل الاجتماعي؟

☐ نعم ☐ لا

إذا كان نعم اختر بين الشبكة (الشبكات) الاجتماعية التي تستخدم في هذه الدورات:

☐ واتساب ☐ تليجرام ☐ سناب شات ☐ فيسبوك

☐ تويتر ☐ نستجرام ☐ أخرى.....

البعد الأول: خبرة الطلاب البعد الأول: خبرة الطلاب بالمساق الهائل المفتوح عبر الإنترنت الهجين أ- الأهمية النسبية لكل عنصر من عناصر المساق الهائل المفتوح عبر الإنترنت							
م	العبارة	غير مفضلة للغاية	غير مفضلة	غير مفضل إلى حد ما	مفضلة إلى حد ما	مفضلة جدا	مفضلة للغاية
1	محاضرات الفيديو						
2	الموارد والمواد ذات الصلة						
3	منتديات المناقشة						
4	الامتحانات						
5	تقييمات الأقران						
6	رسائل البريد الالكتروني						

ب- مرونة استخدام المساق الهائل المفتوح عبر الإنترنت الهجين							
م	العبارات	لا اوافق بشدة	لا اوافق	محايد	اوافق	اوافق بشدة	المراجع
1	يمكنني الاطلاع على أنشطة التعليمية في أي وقت.						يوسف 2015 فرتيس 2016 وو و شين 2016
2	يمكنني الاطلاع على أنشطة التعليمية في أي مكان.						يوسف 2015 وو و شين 2016
3	يمكنني الاطلاع على أنشطة التعلم دون صعوبة كبيرة.						يوسف 2015 لارسن 2012
4	يمكنني الاتصال بالمنصة التعليمية (MOOCs) من خلال اجهزتي الشخصية.						جاشان 2015
ج- جودة المحتوى							
1	كانت محتويات هذه الدورة واضحة.						يوسف 2015 جاشان 2015
2	كانت محتويات هذه الدورة محددة في كل درس.						يوسف 2015 جاشان 2015
3	ساهمت محتويات هذه الدورة في التعلم.						يوسف 2015 جاشان 2015 هون والسعيد 2016
4	تم تقديم محتويات هذه الدورة وعرضها بطريقة منطقية.						جاشان 2015
5	كانت محتويات هذه الدورة مناسبة للموضوع الدراسي.						يوسف 2015 جاشان 2015 هود 2015
6	كانت محتويات هذه الدورة حديثة ومواكبة للموضوعات الدراسية.						يوسف 2015 جاشان 2015 هود 2015
7	كانت محتويات هذه الدورة حديثة ومواكبة للموضوعات الدراسية.						يوسف 2015 جاشان 2015 هود 2015
8	حسنت محتويات هذه الدورة من فهمي للمفاهيم الأساسية للموضوعات.						استون ويورك 2012 هود 2015

د- التعليم الذاتي							
1	يمكنني أن أحدد أهداف لنفسي من أجل توجيه أنشطتي في كل مادة دراسية.						هاندي ساید 2016
2	يمكنني تنظيم الأنشطة التعلم الخاصة بي.						يوسف 2015 فلود وآخرون 2015 كيزليس 2016
3	يمكنني التعلم بطريقتي الخاصة.						جاشان 2015 كيزليس 2016
4	يمكنني التعلم بمعزل عن معلمي.						يوسف 2015 وو وشين 2016
5	يمكنني أن أقرر مقدار ما أريد تعلمه في فترة زمنية معينة.						يوسف 2015 هود وآخرون 2015
6	يسمح لي بالعمل في مكاني الخاص من أجل تحقيق هدف التعلم.						يوسف 2015 هود وآخرون 2015 كيزليس 2016
7	أنا قادر على السيطرة على تقدمي من خلال التنقل في محتوى المادة الدراسية						هاندي ساید 2016
هـ. التعلم الشبكي							
1	يمكنني التفاعل مع الطلاب والمعلمين داخل أو خارج بيئة التعلم عند العمل عبر الانترنت.						يوسف 2015 جاشان 2015 هون والسعيد 2016 هود وآخرون 2015
2	يمكنني التفاعل مع الطلاب والمعلمين الآخرين داخل أو خارج بيئة التعلم عند التعلم داخل الفصل						يوسف 2015 جاشان 2015 هون والسعيد 2016 هود وآخرون 2015
3	أشعر بحرية طرح الاسئلة في هذه الدورة عند العمل عبر الانترنت.						هود وآخرون 2015
4	أشعر بحرية طرح الاسئلة في هذه الدورة عند العمل داخل الفصل						هود وآخرون 2015
5	يمكنني التعاون مع الطلاب الآخرين في المشروعات الجماعية عند العمل عبر الانترنت.						يوسف 2015 جاشان 2015 لارسن 2012
6	يمكنني التعاون مع الطلاب الآخرين في المشروعات الجماعية عند العمل داخل الفصل.						يوسف 2015 جاشان 2015 لارسن 2012

7	أدوات التواصل عززت من تفاعلي وتعاوني مع زملاء الفصل عند العمل عبر الانترنت.						يوسف 2015 جاشان 2015
8	في إطار المساق الهائل المفتوح عبر الإنترنت والفصل المنعكس فإن التغذية الراجعة عبر الانترنت من الطلاب والمعلمين كان لها تأثير ملموس.						يوسف 2015 جاشان 2015 لارسن 2012 هون والسعيد 2016 هود وآخرون 2015
9	في إطار المساق الهائل المفتوح عبر الإنترنت والفصل المنعكس فإن التغذية الراجعة داخل الفصل من الطلاب والمعلمين كان لها تأثير ملموس.						يوسف 2015 جاشان 2015 لارسن 2012 هون والسعيد 2016 هود وآخرون 2015
10	في إطار المساق الهائل المفتوح عبر الإنترنت الهجين والفصل المنعكس تلقيت دعم كاف عبر الانترنت من الطلاب والمعلمين.						يوسف 2015 جاشان 2015 لارسن 2012 هون والسعيد 2016 هود وآخرون 2015
11	في إطار المساق الهائل المفتوح عبر الإنترنت الهجين والفصل المنعكس تلقيت دعم كاف داخل الفصل من الطلاب والمعلمين.						يوسف 2015 جاشان 2015 لارسن 2012 هون والسعيد 2016 هود وآخرون 2015
12	يمكنني التعاون مع الطلاب الآخرين على إنجاز التكليفات عند العمل عبر الانترنت						هون والسعيد 2016
13	يمكنني التعاون مع الطلاب الآخرين على انجاز التكليفات عند العمل داخل الفصل						هون والسعيد 2016
14	يمكنني أن أطلب من المعلم ايضاح المفاهيم التي لم أستطيع فهمها جيدا عند العمل عبر الانترنت.						هاندي سايد 2016
15	يمكنني أن أطلب من المعلم ايضاح المفاهيم التي لم أستطيع فهمها جيدا عند العمل عبر الانترنت.						هاندي سايد 2016
16	عندما لا أفهم المواد داخل الفصل في هذه الدورة يمكنني ان اطلب من زملائي المساعدة.						هاندي سايد 2016
17	عندما لا أفهم المواد وجها لوجه في هذه الدورة يمكنني ان اطلب من						هاندي سايد 2016

	زملائي في الفصل المساعدة.						
18	يمكنني أن اتبادل مواد الدورة مع الطلاب الآخرين داخل أو خارج بيئة التعلم عند العمل عبر الانترنت.						هاندي سايد 2016
19	يمكنني أن اتبادل مواد الدورة مع الطلاب الآخرين داخل أو خارج بيئة التعلم عند العمل داخل الفصل.						هاندي سايد 2016
20	يعطيني المعلم التغذية الراجعة حول التكليفات والامتحانات والمشروعات عبر الانترنت.						هاندي سايد 2016
21	يعطيني المعلم التغذية الراجعة حول التكليفات والامتحانات والمشروعات وجها لوجه.						هاندي سايد 2016
د ـ منهج التعلم والتصميم التعليمي							
1	يمكنني أن أطلب من المعلم ايضاح المفاهيم التي لم أستطيع فهمها جيدا عند العمل عبر الانترنت.						استون ويورك 2012
2	العناصر عبر الانترنت والعناصر وجها لوجه تعطيني قدر كافي من الوقت للدراسة.						لارسن 2012
3	الأنشطة عبر الانترنت والانشطة وجها لوجه تشجعني على الدراسة من موارد مختلفة.						لارسن 2012
4	التقييم في هذه الدورة يعزز عملية التعلم لدي .						هاندي سايد 2016
5	هذه الطريقة تراعي الفروق الفردية.						هون والسعيد 2016
و ـ تصميم التقييم (الاختبارات والامتحانات والتكليفات والدورات والعمل المنزلي والاختبارات والتمارين والمهام، الخ.....)							
1	كانت التقييمات في هذه الدورة واضحة.						جاشان 2015 لارسن 2012
2	كانت التقييمات مفيدة في تقييم تعلمي للمادة.						بيدرو وآخرون 2016
3	كانت التقييمات مرتبطة بأهداف التعلم.						هون والسعيد 2016
4	كانت التقييمات شيقة ومحفزة.						هون والسعيد 2016
5	ساعدتني التقييمات على فهم القضايا الصعبة بشكل أفضل في عملية تعلمي.						هاندي سايد 2016
6	من خلال التقييمات أصبحت أعرف عن مستواي في الدورة من حيث مقدار ما تعلمته.						يوسف 2015
البعد الثاني : الاتجاهات نحو المساق الهائل المفتوح عبر الإنترنت							
1	طريقة التعلم هذه تعطيني مساحة أكبر للتعبير عن نفسي.						القحطاني 2010 لاياو 2007

2	أرغب أن يتم تدريس الموضوعات الأخرى من خلال هذه الطريقة.						القحطاني 2010 وو وشين 2016
3	استخدام هذه طريقة للتدريس في المستوى الجامعي سيكون مفيدا جدا؟						القحطاني 2010 لاياو 2007
4	استخدام هذه الطريقة في التدريس يساهم في نمو قدراتي الشخصية.						القحطاني 2010 وو وشين 2016
5	كانت طريقة التدريس هذا المقرر شيقة.						جاشان 2015 لاياو 2007
6	طريقة التدريس في هذا المقرر تحفزني على النجاح.						جاشان 2015
7	أريد استخدام هذه الطريقة للتدريس عندما أصبح معلما.						القحطاني 2010
8	أعتقد أن هذه الطريقة تجعل التعلم سهلا.						لورنزو - روميو وآخرون 2013 وو وشين 2016
9	أعتقد أن استخدام هذه الطريقة في التدريس فكرة إيجابية.						لورنزو - روميو وآخرون 2013 وو وشين 2016
10	اوصي الطلاب الآخرين باستخدام هذه الطريقة في دراستهم.						لورنزو - روميو وآخرون 2013
11	أستمتع بالتعلم داخل الفصل من هذه الدورة.						مونوز - مرينو وآخرون 2016 لورنزو - روميو وآخرون 2013
12	استمتع بالتعلم في الجزء عبر الانترنت من هذه الدورة.						مونوز - مرينو وآخرون 2016 لورنزو - روميو وآخرون 2013

13	أعتقد أن العمل داخل المجموعة عبر الانترنت مفيد حقا.						مونوز - مرينو وآخرون 2016 وو وشين 2016 لاياو 2007
14	أعتقد أن العمل داخل المجموعة داخل الفصل مفيد حقا.						مونوز - مرينو وآخرون 2016 وو وشين 2016 لاياو 2007
15	أنا مقتنع وراضي باستخدام هذه الطريقة تعليمي.						مونوز - مرينو وآخرون 2016 وو وشين 2016 لاياو 2007
البعد الرابع : التحديات							
1	لم أتلقى تغذية راجعة مفيدة من معلمي.						جينس وأيلز 2006
2	غالبا ما يصعب على معرفة ما هو متوقع مني في هذه الدورة.						جينس وأيلز 2006
3	توجد الكثير من الضغوط على كطالب في هذه الدورة						جينس وأيلز 2006
4	في بعض الأحيان كنت أواجه صعوبة في تخصيص الوقت كافي للمشاركة في عنصر عبر الانترنت من هذه الدورة.						جونسون 2013
5	في بعض الأحيان كنت أواجه صعوبة في تخصيص الوقت كافي للمشاركة في داخل الفصل من هذه الدورة.						جونسون 2013
6	لم أتلقى الدعم الفني الكافي عندما أواجه مشكلات.						جاشان 2015
7	بطء الاتصال بالأنترنت أحد المشكلات التي واجهتني.						جاشان 2015
8	لم تكن مواد التعلم عبر الانترنت منظمة تنظيما جيدا.						جاشان 2015
9	لم تكن مواد التعلم داخل الفصل منظمة تنظيما جيدا.						جاشان 2015
10	لم يكن هناك تنسيق جيد بين الأنشطة التعليمية عبر الانترنت وداخل الفصل.						جاشان 2015

Appendix 9: Interview Questions (English)

The first dimension has nine questions about students experience when learning via Hybrid MOOCs, the following two questions were addressed:

1. What are your favourite components (Video Lectures, Journal and Articles, Discussion forums, Quizzes, Email…) when you use the Hybrid MOOC? Why?
2. What are your least favourite components when you use Hybrid MOOCs? Can you explain why?
3. Are you satisfied with the Instructional Design for this course? Why? Can you give me an example of when you felt satisfied or when you were not satisfied?
4. Has learning with Hybrid MOOCs facilitated your Self-Regulated Learning? How? Which component helped more in this regard?
5. Did you feel that collaborating with others improved your knowledge or no? Why?
6. What do you think of the MOOC's assessments? Were they suitable? Were they representative of your abilities? Did they give you the best opportunity to show what you know/can do?
7. What can you say about the educational experience you had learning under Hybrid MOOCs, compared to the traditional face to face methods used by your institution? Were there any specific aspects in either method you were more comfortable with?

The second dimension has two questions regarding attitudes towards Hybrid MOOCs in education:

8. How have your views changed towards Hybrid MOOCs before and after this course?
9. What do you think if Hybrid MOOCs were used as a compulsory part of your curriculum at university level?

The third dimension has two questions allowing room for the students to express the challenges they faced in the Hybrid MOOCs with Flipped Classroom:

10. Did you face any challenges when studying in the online component of this course? Why?
11. Did you face any challenges when studying in the Flipped Classrooms? Why

Appendix 10: Interview Questions (Arabic)

أسئلة المقابلة الشخصية:

يحتوي البعد الأول يشمل على تسعة أسئلة حول تجربة الطلاب عند استخدام MOOCs الهجين والأسئلة وهي كالآتي:

1. ما هي المكونات المفضلة لديك (محاضرات الفيديو والمجلات والمقالات ومنتديات المناقشة والاختبارات وتقييمات الأقران والبريد الإلكتروني) عند استخدام MOOCs الهجين؟ لماذا ا؟

2. ما هي مكوناتك الأقل تفضيلاً عند استخدام MOOCs الهجين؟ هل يمكنك أن تشرح لماذا؟

3. هل سهّل استخدام MOOCs الهجينة تعلمك الذاتي؟ كيف؟ أي عنصر من هذه العناصر ساعد أكثر؟

4. هل شعرت أن التعلم التعاوني مع الآخرين حسّن معرفتك العلمية أم لا؟ لماذا؟

5. هل أنت راض عن طريقة تصميم التدريس لهذه المقرر؟ لماذا ا؟ هل يمكن أن تعطيني مثالاً على شعورك بالرضا أو عندما تكون غير راضٍ؟ لماذا تعتقد أنك شعرت بهذه الطريقة؟

6. ما رأيك في تقييمات المقدمة لك عند استخدامك MOOCs الهجين؟ هل كانت مناسبة لك؟ هل كانت تقيس قدراتك؟ هل قدموا لك أفضل فرصة لإظهار ما تعرفه؟

7. ماذا يمكنك أن تقول عن التجربة التعليمية التي تعلمت بها من خلال استخدام MOOCs الهجين، مقارنة بالطرق التعليمية التقليدية التي تستخدمها جامعتك؟

البعد الثاني ويشمل سؤالان تتعلق باتجاه الطلاب نحو استخدام MOOCs الهجين في التعليم.

1. كيف تغيرت وجهات نظرك نحو استخدام MOOCs الهجين قبل وبعد دراستك هذا المقرر؟
2. ما هو رأيك إذا تم استخدام MOOCs الهجينة كجزء إلزامي في المناهج الدراسية على المستوى الجامعي؟

البعد الثالث ويشمل على سؤالين عن التحديات التي يوجهونها الطلاب عند استخدام MOOCs الهجين مع الفصل المقلوب.

1. هل واجهتك أي تحديات عند دراستك من خلال المكونات الموجودة عبر الإنترنت من هذه المقرر؟ لماذا؟
2. هل واجهتك أي تحديات عند الدراسة من خلال استخدام الفصل المقلوبة؟ لماذا

Appendix 11: Consent Form

Newcastle University
School of Education, Communication & Language Sciences
Declaration of Informed Consent

- I agree to participate in this study, the purpose of which is to 'Examine the Impact of Using Hybrid MOOCs on Students' Experiences & Achievements within Higher Education in Saudi Arabia'
- I have read the participant information sheet and understand the information provided.
- I have been informed that I may decline to answer any questions or withdraw from the study at any stage without penalty of any kind.
- I have been informed that data collection will involve the use of recording devices.
- I have been informed that all of my responses will be kept confidential and secure, and that I will not be identified in any report or other publication resulting from this research.
- I have been informed that the investigator will answer any questions regarding the study and its procedures. The investigator's email is..."h.alanazi1@newcastle.ac.uk ..... And they can be contacted via email or by telephone on "009665851900 (KSA) or 0044754236059 8 (UK)"
- I will be provided with a copy of this form for my records.

Any concerns about this study should be addressed to the School of Education, Communication & Language Sciences Ethics Committee, Newcastle University via email to vic.christie@newcastle.ac.uk

Date	Participant Name (please print)	Participant Signature

I certify that I have presented the above information to the participant and secured his or her consent.

Date	Signature of Investigator