Digital Academic Enhancement In Higher Education Of Pakistan: A Perspective Study with Reference to MOOCs

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Abstract

This paper aims to highlight the uprising concept of digital learning platforms that is known as "MOOCs" this abbreviation branded as Massive Open Online courses. Now the Technologically developed states MOOCs are rapidly increasing and becoming a potential source of E-learning. In this paper, the attention is drawn towards MOOCs, its understanding perception and obstacles faced by universities of Islamabad Pakistan. The paper also aims to highlight the importance for building digital skills in the university students of Pakistan. The paper additionally examines the present standing of universities within the context of MOOCs program and platform. The paper relies on semi-structured interviews that were conducted to gather information concerning MOOCs from the university students of ICT. Exclusively public sector universities were selected as part of research sample to explore the standing, progress and problems concerning "MOOCs" relating to building digital skills and capability of e-learning and services within the universities of Islamabad. Globally, the expansion of MOOCs concept has been seen particularly in technological advanced countries such as United States, Canada, United Kingdom and Japan, China where technology, digital transmission & transformation are resilient. Therefore, HEC has also emphasized on the importance of MOOCs program and its adoption as an e-learning platform for the improvement of education, learning and research in Pakistan. Only the Allam Iqbal Open University has a similar platform whereas the rest of universities are working on the adaptation of technology for E-learning. The findings of semi structured interviews show that mostly students in Islamabad are unaware of the e-learning platforms and they have no idea about this perspective & mode of learning. The findings suggest that there is a need to improve the digital understanding & acceptance in the university learners regarding motivate them to use technology in a more efficient manner for learning.

Key Words: MOOCS, Digital Uprising, Technology, Awareness and Challenges.

Introduction

In current era, the demand of professionals in every field are on hike. Subsequently in the field of technology, the transformation assists in easy and economical internet access to the general public. Hence with the advent of technology, it is viable to be engaged the learners in teaching learning trajectory via online mode and share rich experience and challenges (Schneider, & Council, 2021). The online teaching and learning trajectory are not novel in developed countries however, the teachers and students of developing countries are facing problems in dealing with online learning reason being that the awareness and skills are lacking. With the advent in online teaching and learning, a new arena of academic platform was introduced which exponentially

offers a blend of new teaching and learning experiences and enhance the quantification of courses (Joshi, Chapagain, Kharel, Poudyal, Murray, & Mehmood, 2020). This encourages the teachers and learners to adopt the online learning mode with flexible time through different teaching modules (Lin & Gao, 2020). As prior to online learning, the non-formal open distance education system was operationalized which has acceptable results. The learners receive the learning materials and assessment sheets / question papers with high order thinking questions and the learners will send back those assessment sheets / questions papers to the teacher after solving according to their understanding (Casey, 2008). Subsequently in the advancement of technology, the learning was shifted to online mode and initially the radios and TV programs were conducted, and furthermore the recorded videos on the complex topics were also shared with the students. This helps the students in conceptual understanding of the complex topics and also able to repeat the topics as many as times they want. As per recent advancement, the teaching and learning was accessible to all the general public because of easy internet access, smartphones and android mobile systems, which ultimately leads to paradigm shift in education terms as Massive Open Online Course(s) – MOOCs (Phan, McNeil, & Robin, 2016) and was first used in 2008 by University of Manitoba in North American country (Daniel, 2012).

During and after COVID 19 pandemic, the online mode of teaching and learning was exponentially enhanced and open the doors for advanced education platforms including MOOCS and MOODELS (Aparicio, Oliveira, Bacao, & Painho, 2019), thus become trends in education as well as traced to administrative aspects also. Many students enrolled on MOOCs across the world (Henderikx, Kreijns, & Kalz, 2017) where numerous essential courses are accessed, which are acceptable by most of the universities (De Freitas, Morgan, & Gibson, 2015; Waldrop, 2013). With the advent of technology, most of the academic institutions

and universities are motivated to engaged their students through MOOCs or MOODELs for maximum utilization of resources (Griffiths, Goodyear, & Armour, 2021; Launois, Allotey, Reidpath, Maher, Certain, & Ross, 2019).

1.1 Objectives of the Study
The objectives of the study were to:
i.   Explore the perspective of tertiary level students regarding the usability of MOOCS
ii.   Investigate the knowledge and awareness of tertiary level students regarding the utilization of MOOCS for academic enhancement
iii.   Assess the students' perspectives regarding the problems faced by the universities in providing MOOCs facility

Statement of the Problem
In current era, every individual is interested to learn new academic concepts on economic fee from the reputed National or International Universities. The online education platform i.e., MOOCs etc. provides that learning opportunity to the students on flexible time and fee from the university of their own choice. The current study intends to explore the current topic because of limited study in Islamabad. In the post COVID scenario, the stakeholders have realized the importance of technology in the field of academics.

Literature Review
In the current era of technology, online education is economical, quick and feasible for almost everyone. The online learning is flexible and dynamic in nature and individual engaged through online learning are satisfied. Since there are numerous online learning platforms among which Massive Open Online Courses (MOOCs) is considered as more user friendly. MOOCs offered numerous courses in almost every notable field, which are taught by the qualified and experienced faculty members. Through this platform, the educationist expects the development of e-learning climate, which

will be according to the need and demand of students (Purkayastha & Sinha, 2021). MOOCs is a web-based learning platform which provides the liberty to the students in selecting the courses according to their needs, demands, and understanding level. There three domains of courses i.e., core, elective and minor courses. This type of platforms is suitable for enhancement of learning and understanding level of students and allow the students to learn with their own pace. The best feature of these offered courses is that there are no boundaries or any kind of restrictions on students for selecting a course but in fact, available for all to enroll and start learning.

With the advent of technology, the academicians shared their processed content (Lane & McAndrew, 2010) and recently the academicians shared their knowledge through Open Academic Resources (OAR) primarily focused on advanced instructions (Adams, Liyanagunawardena, Rassool, & Williams, 2013). An Open Course Ware (OCW) was initiated by the Massachusetts Institute of Technology (MIT) in 2001 with the mandate to provide the academic materials using internet as platform to the all the individuals for its utilization, changes and applications according to their need. Since then, many of the institutions have developed relevant and associated infrastructure to join the MOOCs.

There are no formal prerequisite requirements for registration and participation in the joining the MOOCs programs (McAuley, Stewart, Siemens, & Cormier, 2010) but primarily based on completely self-motivated and commitment towards learning. In addition, MOOCs has provided a mode of learning based on flexibility to the learners in terms of time, financial and level of complexity of the content and the learners could access the available material according to his/her need (Petronzi, & Hadi, 2016).

The MOOCs has connected the world and most of the leading institutions use this platform to engaged their students in offer essential courses. That is why, huge number of students enrolled in the Artificial Intelligence courses using MOOCs platform offered by Stanford University (Rodriguez, 2012). Due to the emerging trends of online learning, MOOCs platform becomes prominent and well known which was accordingly reported by the TIMES educational ranking; a quality assurance agency, in a research publication and also reported by the founders of course, renowned members of society and social scientists (Corbyn, 2012).

For joining the MOOCs, there are certain criteria i.e., providing fee for certification, formal assessment at the end of the course, flexible timing in joining the course anytime during the week. The starting and ending times of course are different and the lectures are given by the experts which are in the form of video clips for 12 – 20 minutes. The learner often requires to complete the quizzes, complete assignments, projects and or participate in a discussion forum. The MOOCs has high degree of acceptance across the world (Yuan, & Powell, 2013); however, some research studies indicate that only the economically stable individuals can get benefit of courses offered through MOOCs platform as one must have strong internet connection and computers (Dillahunt, Wang, & Teasley, 2014).

Mode of Teaching and Learning Styles of MOOCs

There are many learning and teaching approaches on MOOCs and based on its content and methodologies it was categorized in to the two main levels:
a) Process based level
b) Material based methodologies levels
    On the basis of methodologies level, there are two main approaches i.e., Connectivist and Instructivist (Yuan et al, 2013).

i)   **Connectivist Approach (C-MOOCs)**
        In this approach, focus was often given on the developing correspondence and collaboration with the mass (Siemens, 2005) and individual were required to register for sharing useful experience

and material (Bates, 2014). The most important feature was to develop networking among the colleagues, companions and develop mastery skills through socializations (Cabiria, 2012).

ii) **Instructivist Approach (X-MOOCs)**
The instructivist approach can also be called as model or X-MOOCs. In this type of approach, the individual is engaged in learning through video lectures and recording of short video clips which are shared with the enrolled students where the instructor taught the content in easy to complex approach (Jona & Naidu, 2014). The instructors are mostly the experienced and qualified professionals and university faculty members.

Methodology

Nature of the Study
The nature of the study was qualitative research with reference to case study. The reason for opting case study research was to explore the in-depth information from the respondent and to share with stakeholders for formulation of policy.

Population and Sample of the Study
The population of the study constitutes the graduate level students from the Department of Management Sciences and Computer Science of three public sector universities of Islamabad. The rationale of selecting the population was that most of these graduates were engaged in learning through online platform and were acquittanced with most of the software applicable in their learning. The university of Islamabad were selected and top three i.e., NUST, COMSATS and Quaid e Azam Universities were selected based on the expertise in the field of IT and Management sciences domains. The sample of 30 students (10 from each university) were selected through proportionate sampling techniques for the current study.

Research Instrument
The research instrument for current study was semi-structured interview developed by the researchers. The semi-structured interview was developed in the light of research objectives. The semi-structured interview scale contains three themes (with 15 questions) i.e., personal information, awareness of students and knowledge of students about MOOCS. If the student was not engaged in any online learning platform, then questions regarding the limitations regarding the participation in the study were asked.

Validity of the Interview

The interview was validated through Focus Group Design (at least three experts from the relevant field) and their suggestions were incorporated. The face, content and construct validity of the semi-structured interview were checked by the experts.

Data Collection
After validation of the research instrument, the semi-structured interview scale was administered on the sample of the study. Prior to data collection, formal permission from the university was taken stating all the pros and cons of participation in the study. Upon grant of permission, the graduate level students of the selected department were engaged. The data was collected from the sample with ensuring the confidentiality as per research ethics.

Data Analysis
The collected data was analyzed using thematic analysis approach. The interviews were coded to ensure anonymity and the overall conclusion was drawn regarding each theme.

Discussion and Results
In this section, the collected data was analyzed using thematic approach.

Theme 1: Demographic Data

In this theme, the demographic data of the respondents were collected and shown in the table:

Table 1. Demographic Data of participants

University Name	Participant number	Gender		Age (in years)	Discipline
		Male	Female		
NUST	10	05	05		
COMSAT	10	04	06	21 – 25	Management Sciences & Computer Sciences
Quaid-e-Azam	10	07	03		
Total	30	17	14	-	-

The demographic data reveals that male participant were aware of the MOOCs program and obtain many certificates after completion of courses on MOOCs as compared to female students.

Theme 2: Knowledge and Awareness about MOOCs

In theme 2, the knowledge and awareness of graduate level students were checked with reference to MOOCs. The data reveals that there was no difference among the male and female students in terms of knowledge but in the context of certificate completion and enrollment ratio. Among the three public sector universities taken as sample, the MOOCs in first university was fully operational and majority of the students were fully engaged in online learning platform. In second university, the students were enrolled in an International MOOCs courses suggested by the university while in the third university the students were motivated towards gaining updated knowledge and desired to be the part and parcel of MOOCs program. The enrollment of male and female does not observe significance difference. Among 30 students, only 10 students obtain certificates through MOOCs while the 20 students were enrolled in gaining the learning but didn't obtain their certificates.

Approaches of MOOCs Awareness Campaign among the Students

In this theme, an assessment regarding the inspirations and awareness of students with reference to MOOCs was checked through questions. To the item i.e., Social and electronic media was the easiest mode through which students were introduced to MOOCs", majority of the students (21 out of 30) claimed that it is effective way of getting quick awareness regarding MOOCs, while to the item related to awareness through friends or university, few students (07 out of 30) replied to Yes. Subsequently, only 02 out of 30 students got awareness through internet and web search engines.

Theme 3: Challenges to Academic Institution and Students with reference to MOOCs Operationalization

For e-learning or m-learning, MOOCs is an effective platform for engagement of students in their learning. Since due to its flexibility and affordability, the students are motivated towards this mode of learning. As the current study intends to explore the satisfaction level of students to the mode of learning, content and assessment through MOOCs. The data reveals that among 30 students, only 10 students (07 males and 03 females) completed their enrolled courses. Majority of the students were of the notion that learning through MOOCs is based on the individual motivation instead of forced learning. Subsequently, most of the students claimed that their aim was not only to obtain the certificates but also to enhance their academic

repertoire to perform well in their future job market. These findings of the study were similar to the study conducted by Milligan et al (2013) which states that there are three types of students i.e., passive participants who are not actively engaged in learning activities, Lurkers who participates in learning activates but do not post anything and students with active participation.

Problems and Challenges of MOOCs Program

During the interview with the tertiary level students, they were of the notion that MOOCs platform is suitable and viable for learning and dissemination of knowledge to the diversified population. However, it may not be replica of the formal and credit education system. The respondent also stated that this platform provides plethora knowledge at economical costs which only includes computer or laptop and high-speed internet. Furthermore, the importance of formal education cannot be denied and MOOCs are considered as only the supplementary sources, which strengthen the formal education under special circumstances. From the respondents' perspectives, some of the main problems related to MOOCs with special reference to Pakistan are mentioned as under:

1. Pakistan is a developing country and facing severe energy crisis. For MOOCs program, energy and technology are important factors for its effectiveness. Due to energy crisis, these types of other programs become costly and interruptible in engaging in teaching learning trajectory.
2. MOOCs is a technology-oriented program, where the technology embedded infrastructure is key feature in accordance with the human resources. Due to heavy costs, the Universities often face financial constraints to adopt MOOCs as source of effective learning.
3. General public are often reluctant to change. Using technology-oriented learning, people need adaptability and awareness to online mode of learning. General public need to know about the benefits of MOOCs programs and their future implications towards effective teaching and learning trajectory.
4. The usability of internet (3G and 4G) is tremendously high in Pakistan but still the people need awareness and training about the usability of internet sources for learning and enrolling in many online programs.

Conclusion and Recommendations

In the light of findings of the study, it is concluded that due to energy crisis and technological issues in Pakistan, the rate of involvement of students at tertiary level is not exemplary. The students dwelling in urban areas of Pakistan have slight awareness about the use of MOOCs programs or involvement in online teaching and learning programs while, on the other hand, the students dwelling in rural areas has no understanding and awareness about engaging in online learning teaching and learning process. In most of the rural regions, the energy crisis is severe and badly affect the education through online mode.

With reference to the urban areas of Pakistan, the Universities are continuously motivating the student to engage in online learning i.e., MOOCs. The students take keen interest in learning through online platform with modern trends in curriculum and international practices in their area of interest. In such courses, the students get flexibility with reference to time and the content are presented in logical sequence i.e., from easy to complex, where the students conceptualize their major concepts. Thus, it is important to strengthen the education system by involving the students in online learning and use application user friendly for effective learning, awareness programs for students of all levels.

The study suggested that the formal type of education could be embedded with the online education and offered to the students in formal classroom settings by expert and qualified faculty members. In addition, it is suggested

that formal assessment also be conducted in order to check the understanding level of students. The female dwelling in rural areas who has limited or no access to education must be targeted by these learning programs and also conduct awareness sessions to these marginalized general public for ensuring the learning process.

Human Capital is driving agent in promoting change and is also considered as important factor in contributing the prosperity and economic stability of a country. The human capital with technology-oriented approach is an asset which could contribute in the national economic stability (Rehman, 2015). Besides this, there are other numerous factors that are responsible for promotion of economy in the country.

Furthermore, the practice-based approach needs to be adopted in the university of Pakistan. Mostly, the teachers are under pressure of completing the course in a semester of academic year and have often least time for practical sessions. The study recommends that technology-oriented learning programs needs formal practical session where the students are engaged in acquaintance with the instruments / gadgets and its applications. On getting awareness, the students could perform better and in a productive manner.

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