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Student perceptions influencing MOOC enrolment in Higher Education Institutions: An IQA perspective

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ABSTRACT

Massive Open Online Courses (MOOCs) have been viewed as a game changer in the evolving ecosystem of the online learning environment. Despite MOOCs being heralded as an educational paradigm in the higher education landscape, scarcity of academic research capturing the mental map of student perceptions to identify the drivers and outcomes influencing MOOC enrolment has not been extensively studied. To address this gap in the literature, the current study adopted Interactive Qualitative Analysis (IQA) to extract a composite mental model of student perceptions influencing MOOC enrolment. Following the IQA protocol, our study conducted focus group discussions (FGD) to identify affinities and their relationships, and semi-structured interviews to methodically code their experiences while exploring the affinities, using student samples from a Business school in India. Findings of our study indicated that, while students perceived 'Self Interest' and 'Institutional requirement' as the primary drivers for enrolling in MOOCs, 'Employability' and 'Result Demonstrability' emerged as the primary outcomes. Understanding learner perspectives could encourage both academics and course designers to make necessary pedagogical affordances to MOOCs to support learner engagement and retention in the future.

Keywords: *Interactive Qualitative Analysis; Learner perception; MOOCs; Online-learning.*

INTRODUCTION

Ubiquitous penetration of the Information and Communication Technologies (ICT) and the Internet across most parts of the world has brought disruptive and noteworthy transformations to the higher education landscape. With the advent of modern instructional practices, the traditional approaches to teaching and learning have become ever more obsolete (Livingstone 2019). Seismic pedagogical shifts have been orchestrated in the twenty-first century education model, due to rapid advances in technology (Bubou & Job 2021). In this context MOOCs have received notable attention from multiple stakeholders including learners, educators, professionals, and media since their inception (Ma & Lee 2020). The term 'MOOC', coined by David Cormier in 2008, was intended to provide education for anyone, anytime and anywhere (Kaul 2012). MOOCs may be considered as online university short courses, developed with an aim to make higher education accessible to anyone in the world via the Internet, usually free of charge and most often with no entry requirements (Hughes 2016). Any learner enrolling for a MOOC may complete the course within a specific number of weeks by using university materials and resources posted online, instead of physically attending lectures and seminars. This model gained more visibility in 2011 when a MOOC on 'Artificial Intelligence' developed by Stanford University attracted 160,000 students from across the globe (Zheng et al. 2018). Recent years have seen exponential growth in the total number of MOOCs. A report by Shah (2019) indicated over 13,500 courses from 900 plus universities catering to over 120 million students online across the globe. This report also showcased that forty percent of the total courses offered globally through MOOC platforms are in the Business and Technology fields. Higher Education Institutions (HEI) across the world have realized the importance of making modifications in the services they offer to stay relevant and competitive (Stohs 2019). HEIs, especially those offering post graduate degree programmes in management, have been facing pressure from newer learning models such as MOOCs gaining wider popularity (Choi et al. 2019).

In developing economies such as India, MOOCs gained momentum within a few years of their inception, to the extent that by 2017, India was second globally in MOOC enrolments (Chauhan 2017). The National Program on Technology Enhanced Learning (NPTEL), was the first to pave the way for web-based technology to enhance learning in India. Statistical figures from many reports reveal that the average age of MOOC learners from India is far lower than their global counterparts (Kaveri et al. 2016) and there has been an increasing trend in the number of young Indian learners enrolling for MOOCs offered through different platforms (Shah 2019).

Despite the growing numbers in enrolments for MOOCs in Indian educational institutions, scant research has been carried out to capture learner perceptions influencing students to enroll for MOOCs (Ayala et al. 2014). Liu et al. (2021), based on their bibliometric review analysis of MOOC literature, suggested that learner satisfaction in using MOOC platforms is a significant factor that affects the behavioral intention and continuance intention to enroll for MOOCs. They argued that more in-depth research into exploring learner perceptions and satisfaction will continue to be important to improve service quality, improve evaluation systems, and enhance the teaching quality of courses offered through MOOC platforms.

For many years, management courses have been regarded as a 'golden passport' and a ticket for entry to several prestigious and high-profile jobs in multinational corporations (Datar et al. 2010). Interest in post graduate degrees and diplomas in the domain of management offered by business schools have become increasingly global and have risen especially in nations such as India and China (Peters et al. 2018). With the emergence and popularity gained for management courses offered by prestigious universities through MOOC platforms, there has been significant increase in the MOOC enrolment figures by students from business schools in India. But, with the phenomena of MOOCs being researched largely in the West, there is scarcity of literature focusing on MOOC enrolment patterns by students in developing countries (Liyanagunawardena, Adams & Williams 2013). Understanding the underlying student perspectives from developing nations is vital for academics, universities, and MOOC enterprises to effectively demonstrate the vision of MOOCs: to provide educational equity for students through exposure and access to quality education. To address these gaps in the literature, we conducted an exploratory qualitative study using the IQA method, and we captured a mental map of student perceptions to identify the drivers and outcomes that influenced students to enroll in MOOCs, among samples from a business school in India. Through this study, we tried to address the following research question (RQ): What were the key drivers and perceived outcomes that influenced students from Indian HEI's to enroll for MOOCs, in addition to the courses offered for their full-time post graduate programs?

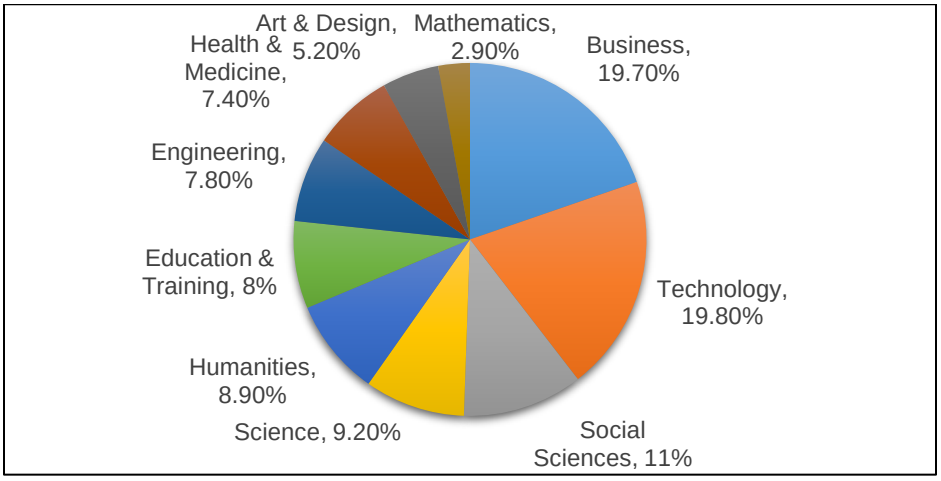

Figure 1: Domain based MOOCs distribution **(***Adapted from Shah (2019)*

LITERATURE REVIEW

MOOCs have gained popularity across the globe in the last decade, mainly for its unique characteristics of openness and massiveness (Aboshady et al. 2015). MOOCs provide an open and free online self-learning environment to its participants allowing them to explore learning avenues, to pursue their goals in their identified areas of interests, at their pace and convenience (Kizilcec & Schneider 2015). Even though the adoption level of ICTs like MOOCs in the higher education landscape has been booming in the last decade, it has been reported that they failed to change attitudes of the learners toward MOOCs, especially those from the developing economies (Amin & Zaman 2021). Although the issues reported in the implementation of both synchronous and asynchronous modes of e-learning, were more technical in nature, the success of these platforms were dependent on several behavioural factors (Vululleh 2018). Though many of the western scholars, in the past had widely discussed the phenomena of technology acceptance and adoption in learning, the conceptual models they developed concurrently were highly context specific (Andersson & Grönlund 2009).

Several studies in the past have identified an array of factors that influenced students to enroll in MOOCs. Breslow et al. (2013) identified 'Curiosity' and 'Job advancement' as the primary drivers for MOOC enrollment. The authors also noted that the learners viewed enrollment in MOOCs as a personal challenge and wanted to see how well they could make it through a course offered by the top universities of the world. According to Kop et al. (2011), 'self-directed ability', 'critical literacy', and 'social presence' of both instructors and participants encouraged learner engagement in online learning activities. Farrow et al. (2015) identified 'clarity of the learning objectives', 'easy access to learning materials', and 'high-quality content' as factors that influenced the users' decisions to enroll in MOOCs. 'Clarity in the introduction', 'the number and type of assignments', 'evaluation parameters', and 'time required for completion' were identified as some of the key factors that influenced learners to enroll in MOOCs (Pundak, Sabag & Trotskovsky 2014). Chakravarty & Kaur (2016) identified 'skill up-gradation and employability' as the most important drivers for Indian learners to enroll for MOOCs. Research studies in the past also revealed that learners adopt MOOCs as, 'a mechanism to learn about a new topic', 'to enhance and improve their existing knowledge/skill', 'to revisit their past learnings' and also 'to gain more domain knowledge to enhance quality of work' (Watted & Barak 2018).

Some of the empirical studies done in the past have also utilized popular information systems models such as the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), to understand the influence of different antecedents on the adoption behaviors exhibited by the learners enrolling in MOOCs. According to Pedrotti & Nistor (2014), 'social influence' acts as a major influence on students' decision in the adoption of online courses. Gao & Yang (2015) identified that 'perceived usefulness', 'ease of use', and 'mimetic pressures' influenced learners' intention to adopt of MOOCs. Zhou (2016) identified 'attitude' and 'perceived behavioral control' as the key determinants of learners' intention to use MOOCs. Khan et al. (2018) identified, 'social recognition', perceived competence', and 'perceived relatedness' as the antecedents that positively influenced behavioral intentions of students to enroll in MOOCs.

Considering the outbreak of the COVID-19 pandemic across the globe, digitization of education has accelerated at a faster pace in several parts of the world. Most MOOC platforms have been proactive in coming up with large scale offerings through different types of courses, designed with an aim to cater to the varied needs of people during these challenging times. MOOC based research since March 2020 has gained more prominence and acceptance largely due to its practical and social implications on a global scale. The sudden transition to the distance learning mode triggered by the outbreak of the pandemic has provided researchers with new opportunities to better study the online education landscape (Kooli 2021).Though the impact of the pandemic has been huge and has affected multiple sectors adversely, its impact on the healthcare sector has been huge across the world. The role of MOOCs in educating healthcare professionals, enabling

them for better preparedness and resilience, has been an area that has caught interest among several researchers. Bhattacharya et al. (2020) studied the role of MOOCs in strengthening the health system during the COVID-19 pandemic. Helmi et al. (2021) conducted a descriptive observational study to explore the challenges faced in education and training during the outbreak of COVID-19 with reference to a National Emergency Hospital located in Jakarta.

Most of the existing research on MOOCs has focused on North America and Europe. According to a study by Veletsianos & Shepherdson (2016), while 82% of the author affiliations were from North America and Europe; only 8% were from Asia. Through our study, we have tried to address the geographical skewness by understanding the phenomena under study from an Asian perspective. Based on a study by Raffaghelli et al. (2015), it was identified that the landscape of MOOC research has been rather fragmented, specifically in the methodological approaches used. The study highlights a gap and scope for future studies that addresses a need for further research to be carried out in this area. To address this identified gap, our study has adopted IQA, a structured and systematic qualitative research method to discuss the phenomena under the study.

METHODOLOGY

IQA is a method that adopts a structured and systematic approach to qualitative research design through systematic qualitative inquiries (Du Preez & Du Preez 2012). Adopting systems theory, the methodology of IQA aims at social construction of the meaning of the phenomenon under study, from the perspective of the participants who experience the phenomenon (Northcutt & McCoy 2004). IQA uses focus group discussions (FGD) and semi-structured interviews for data collection. FGD, also known as group interviewing, is a method that offers researchers an opportunity to interview multiple respondents simultaneously in a systematic manner (Boateng 2012). FGDs are considered effective because of its purposeful use of social interaction in generating data (Morgan 1996), and are most often applauded for its strength of convenience, economic advantage, high face validity, and speedy results (Krueger 2014).

For analysis, IQA uses principles borrowed from the Total Quality Management (TQM) literature (Northcutt & McCoy 2004). The systematic conduct of audit trails in IQA enables bias reduction, as it involves inclusion of participant perspectives and insights for analysis. The IQA protocol was developed by Northcutt & McCoy (2004), where they described the procedures and steps to be followed while using IQA for research purposes. IQA as a tool has been used mainly in classroom settings with student samples for various research studies. Studies have also been carried out in business contexts, in specific domains such as retail, healthcare and E-commerce in different contexts (Krishnan & Lokachari 2019). The current study aimed to capture the mental map of student perceptions about the various drivers that influenced them in MOOC enrolment using the IQA approach.

The IQA research flow process is shown in Figure 2 below.

Research Design

During the research design phase of the IQA study, the research question was formulated and presented to the focus group for discussion. The next step was to identify the constituents or persons with shared understanding of the phenomenon and are closely associated with the phenomenon under study (Northcutt & McCoy 2004). Constituents for this study comprised students from a private Business school in Kerala, India, aged 20-30, who had prior experience in learning through MOOCs. Following the IQA protocol, all students chosen to be a part of this study were identified using the purposive sampling technique. Every participant, who took part in the semi-structured interview and the FGD had completed a minimum of two courses through any of the available MOOC platforms. The FGD and the semi-structured interviews were carried out during the month of February 2020 prior to the declaration of the COVID-19 pandemic.

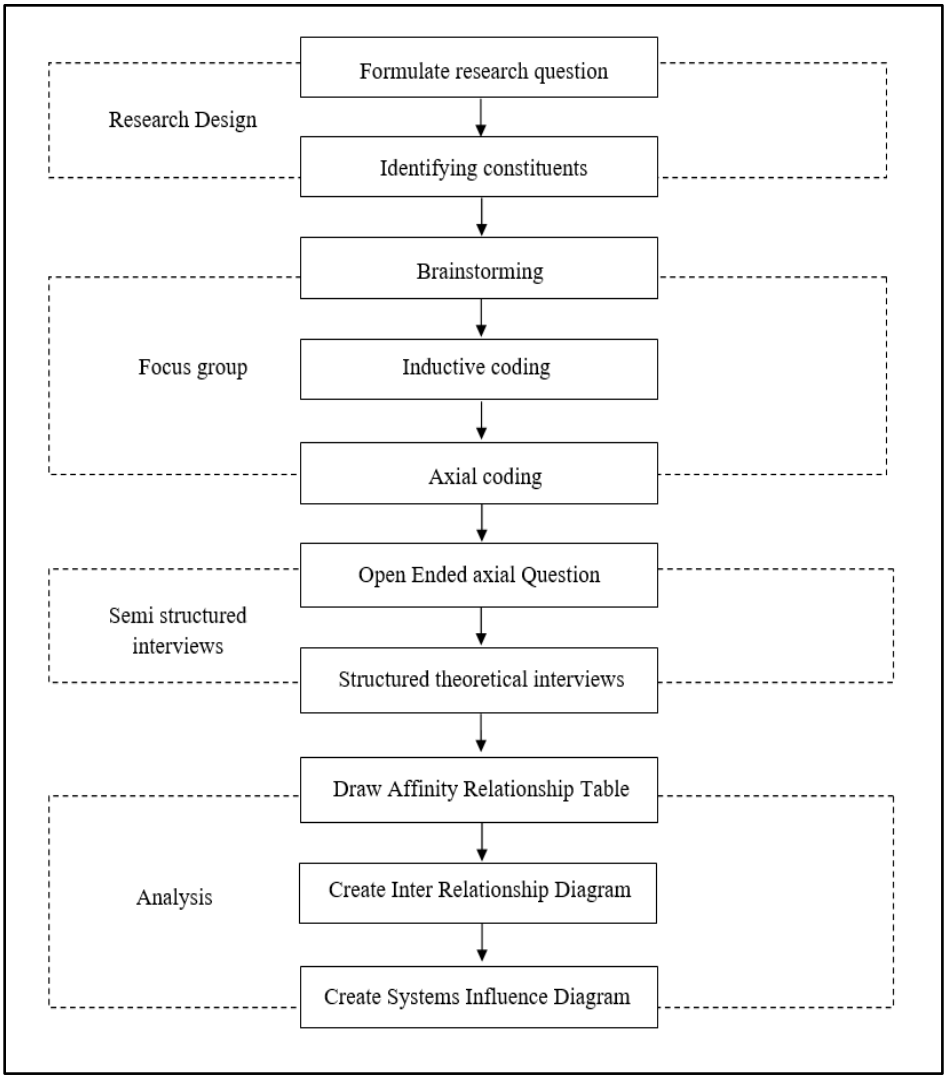

Figure 2: IQA Research flow diagram *Source: Adapted from Northcutt & McCoy (2004)*

FGD Protocol

The objective of the FGD was to identify the elements of the system under study and their relationship using the experience of the constituents with the phenomenon. Twenty (20) participants were identified for the FGD, including a mix of both first year and second year students pursuing the Post Graduate Diploma in Management (PGDM) at a business school in India, who had prior experience in learning through MOOCs and had completed a minimum of two courses offered by MOOC platforms. During the brainstorming phase, participants were provided with flashcards to reflect their thoughts about the proposed question and were asked to silently recount their experience and reflect their thoughts. The next step involved the process of 'inductive coding', where the participants were asked to share thoughts with similar meanings. Groupings were done by achieving a consensus among the group. This activity facilitated the emergence of natural clusters that shared similar meaning across the group. The next step was to conduct the process

of 'axial coding', where the constituents reviewed each of the natural clusters, and themes were identified and named. According to the IQA terminology, names given to the identified groups are called 'Affinities'. Affinities represented the elements of the system under study. After naming the affinities, participants were instructed to describe the affinities in their own terms in groups of two or three participants. The last task to be performed by participants of the FGD was the process of 'theoretical coding', where participants established the perceived relationships among the affinities. This process was carried out by creating an 'Affinity relationship table' (ART) that used pair-wise comparisons of all the identified affinities to capture their inter-relationships. As per the IQA protocol, a phenomenon studied with 'n' affinities will have an ART as an (n*n) matrix with rows and columns mapped to each of the affinities. In a symmetric matrix (n*n), the cells above the upper diagonal matrix would be analysed to capture the pair-wise relationship between the affinities. According to the IQA protocol, there can be a possibility of only three relationships between any two affinities. As an example, the coding scheme and the relationships between two affinities' A' and 'B' may be explained as follows: If A influences B then participants were advised to enter A; if B influences A then the participants were advised to enter B, and if there exist no relationship between the affinities A & B, then the participants were instructed to leave the cell empty.

Semi-structured interview protocol

Semi-structured interviews were conducted with another set of participants (13) with similar power over and distance from the phenomenon as in the focus group discussion. As per the IQA protocol, the affinities generated in the axial coding phase provides the protocol for the next phase of the study, where individual semi-structured interviews termed as 'open-ended axial interviews' were conducted to further explore the constituents' experiences of the phenomenon. Participants were introduced to the research question by the facilitator and the affinities identified during the FGD was also introduced to set the context for the interview. In the first phase of the interview, participants were asked to describe their views and perspectives on each of the identified affinities individually, based on their prior personal experiences. Upon completion of the first phase of the interview, to better understand the relationship between the affinities, 'structured theoretical interviews' were conducted. In this phase, respondents were asked to express their views on the relationship between the affinities and fill the ART as per the focus group protocol, either in dyads or triads.

Analysis phase

The analysis phase began from the ART, where relationships between affinities were sorted in a descending order of frequency, followed by the calculation of the cumulative frequency. IQA methodology adopts the 'Pareto protocol' as a statistical method to determine the optimal number of relationships. The Pareto principle states that "A minority of the relationships in any system will account for a majority of the variation within the system" (Northcutt & McCoy 2004, p. 157). Through the application of Pareto principle, the dominant relationships were identified and were represented through the Inter Relationship Diagram (IRD). The IRD is an (n*n) matrix with rows and columns mapped to the affinities, showcasing only the dominant relationships, unlike in the case of an ART where all possible relations between 2 affinities are represented. Each cell of the matrix in the study was analysed to understand the Affinity relationships in an IRD. Each relationship was categorized using either through '↑' called as an 'out', or '↓' called as an 'in', depending on the relationship between the affinities. For each row, the number of 'outs' and 'ins' were calculated and the absolute difference between them were calculated. According to Northcutt & McCoy (2004), the absolute difference value between the 'outs' and the 'ins' are known as 'Delta', and the delta values were used to classify affinities as primary driver, secondary driver, pivot, primary outcome and secondary outcome in a system.

The different affinities classified based on the delta values are defined below:

- **Driver**: An affinity identified with a positive delta value.
- **Outcomes**: An affinity identified with a negative delta value.
- **Pivots**: An affinity with delta value as '0'
- **Primary Driver**: An affinity with zero "in's" or with the least number of "in's"
- **Secondary Driver**: An affinity with positive delta value other than the primary driver
- **Primary Outcome**: An affinity with zero "out's" or with least number of "out's"
- **Secondary Outcome**: An affinity with negative delta value other than the primary outcome

Systems Influence Diagram

Based on the IQA protocol, the collective mental reflections of the participants showcasing all relationships of the entire system under study was depicted through a Systems Influence Diagram (SID) (Northcutt & McCoy 2004, p. 174). The positioning of affinities in the SID depends on the category of a driver outcome or a pivot, they fall under. The left side of the SID depicts the drivers' (both primary and secondary drivers), and the right side of the SID depicts the 'outcomes' (both secondary and primary outcomes). The affinities shown in the central portion would be those that fall under the category of 'pivot' or 'circulator'. The SID derived for this study is discussed later in the article.

RESULTS

Twenty MOOC users (15 male and 5 female) participated in the FGD. All the participants had completed a minimum of two courses through MOOC platforms, as shown in Table 1 below. The facilitator began the FGD by presenting the research questions for the discussion. Participants of the FGD were provided with flashcards to present their ideas on the question presented during a silent brainstorming session that extended for 20 minutes. Collectively, 140 thoughts/data points from their experiences, related to the MOOC phenomena under study were generated. During the next phase called the inductive coding stage, participants were asked to categorize the similar thoughts that evolved out of the FGD into separate groups. Eleven separate groups emerged out of the inductive coding phase.

Next, the axial coding phase began by asking the participants to refine the responses recorded in a few of the flash cards by seeking the respondents' clarification. After segregating the cards into groups, participants were asked to assign names to each group and eventually eleven affinities emerged from the axial coding phase. The participants of the FGD were then separated into groups of 2 and 3 to describe the affinities. Each pair/triad was asked to describe all the affinities, based on their experiences with the MOOCs. Pair-wise comparison of the affinities were carried out to define the relationship for capture in the ART. The FGD lasted for a total time duration of 90 minutes.

Table 1: *Respondent Profile (FGD)*

No.	Age	Gender	No. of courses completed (MOOCs)	MOOC Platform	Enrolment duration (years)
1	21	Male	2	Coursera	2019-2020
2	22	Male	4	Coursera, Udemy	2019-2020
3	22	Male	3	Future Learn, Swayam	2019-2020
4	24	Male	5	Coursera, Swayam, Udemy	2018-2020
5	23	Male	5	Coursera, Swayam, Udacity, Udemy	2018-2020
6	21	Male	3	Coursera	2019-2020
7	22	Male	2	Coursera	2019-2020
8	26	Male	5	Coursera, Swayam, Udemy	2018-2020
9	23	Male	4	Coursera, Swayam	2019-2020
10	22	Male	3	Coursera	2019-2020
11	21	Male	3	Coursera, Udemy	2019-2020
12	22	Male	4	Coursera, Swayam	2019-2020
13	22	Male	3	Coursera	2019-2020
14	21	Male	2	Coursera, EdX	2019-2020
15	23	Male	4	Coursera, Future Learn	2019-2020
16	22	Female	2	Coursera	2019-2020
17	22	Female	4	Coursera, Swayam, Udemy	2019-2020
18	24	Female	5	Coursera, Swayam, Udemy	2018-2020
19	23	Female	4	Coursera, Udemy	2019-2020
20	22	Female	4	Coursera, Udemy	2019-2020

The eleven affinities shown in Figure 3 below that emerged from the axial coding phase were:

1. Employability
2. Knowledge up-gradation
3. Institutional requirement
4. Elasticity
5. Openness to experience
6. Competitiveness
7. Perceived Quality
8. Social Influence
9. Result demonstrability
10. Self-interest
11. Cognitive flexibility

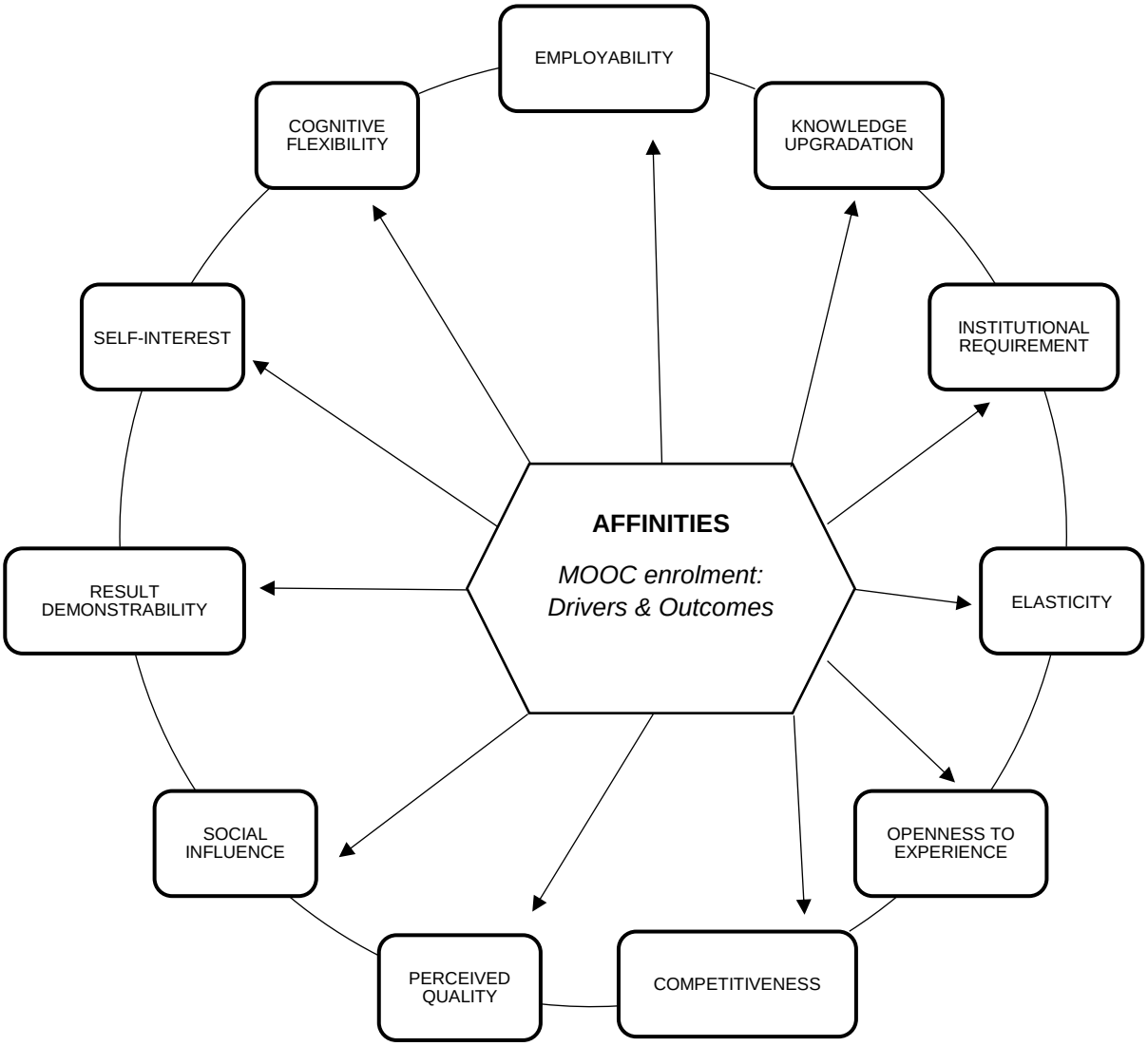

Figure 3: Affinity List

Semi-structured interviews

In accordance with the IQA protocol, after completion of the FGD, semi-structured interviews were conducted with another set of constituents comprising 13 members with similar power over and

distance from the phenomenon as the participants in the FGD. The participant profiles are shown in Table 2 below. Each interview lasted for approximately 20-30 minutes. Participants were asked to share their experiences with the affinities identified through the FGD, based on their prior experience in enrolling for courses offered through different MOOC platforms. The participants of the semi-structured interviews were asked to describe the identified affinities and their relationships with each other in the ART. Based on the collective inputs obtained from both the focus group discussion and personal interviews, the affinity descriptions were established.

Table 2: *Respondent Profile (Semi-structured interviews)*

No.	Age	Gender	No. of courses completed (MOOCs)	MOOC Platform	Enrolment duration (years)
1	24	Male	5	Coursera, Swayam, Udemy	2018-2020
2	21	Male	2	Udemy	2019-2020
3	23	Male	4	Coursera, Udemy	2019-2020
4	22	Male	3	Coursera, Udemy	2019-2020
5	26	Male	5	Coursera, EdX, Udemy	2018-2020
6	23	Male	3	Coursera, Swayam	2019-2020
7	22	Male	4	Coursera, EdX, Swayam, Udemy	2019-2020
8	22	Female	3	Coursera, Future Learn	2019-2020
9	24	Female	4	Coursera, Udemy	2018-2020
10	22	Female	2	Coursera	2019-2020
11	24	Female	4	Coursera, Swayam	2018-2020
12	22	Female	2	Coursera	2019-2020
13	23	Female	3	Coursera	2019-2020

Affinity descriptions

The eleven affinities were described and collated by incorporating the mental reflections of the participants of both the FGD and the semi structured interviews. Affinity descriptions in the participants' words were recorded and are represented in Table 3 below.

Table 3: *Affinity descriptions*

No.	Affinities	Affinity Description
1	Self-interest	"I take up a course that relates to the domain I have been pursuing prior to my Post graduation and also to an area that interests both my personal and professional choices.
2	Institutional requirement	"I enrol for MOOC courses to fulfil a set of requirements that my Institution wants or expects from me as a part of my course".

3	Social Influence	"I enrol for MOOCs mainly because of the influence of my academic acquaintances who I'm closely associated with, which includes my batch-mates, my teachers, my seniors and my friends outside my college
4	Knowledge up-gradation	"I enrol for MOOCs to enhance and upgrade my current knowledge on subjects of my interest."
5	Openness to new experiences	"I'm open to trying out new experiences that can challenge my status quo".
6	Cognitive Flexibility	"Learning through MOOC platforms help me in having a capability of seamlessly blending/ adjusting with any unknown environments".
7	Competitiveness	"Enrolling for online courses and certifications through MOOC platforms help me stay ahead of my peers".
8	Perceived quality	"Enrolling for courses offered by elite B-schools through platforms such as Coursera and edX provides me with access to learning materials and resources with high content quality would certainly enable me to achieve my deliverables with higher quality and degree of excellence".
9	Elasticity	"Enrolling for MOOCs enable me to push my limits and look beyond my immediate goals. I also like to accept newer challenges that come my way".
10	Employability	"Online certifications provided by elite institutes on niche subject areas that are of high demand in the market shall add value to the resume and does enhance the chances of being hired by desired employers".
11	Result Demonstrability	Having a better conceptual clarity helps me secure better marks or grades for my examinations".

Inter-Relationship Diagram (IRD)

The consolidated ART that captured all possible relations between the affinities, as suggested by the respondents of the FGD were rationalized into an inter-relationship table with 110 unidirectional relationships. In accordance with the IQA protocol, after arranging the 110 pairwise relationships in the descending order of frequency, Pareto principle was applied to identify the significant dominant affinity relationships.

As shown in Table 4 below, the top 31 affinity pair relationships explained 54% of the variations of the data and were used to create the Inter-relationship diagram (IRD). The creation of the IRD helps in rationalizing the overall system relationships (Northcutt & McCoy 2004, p. 170).

***Table 4**: Consolidated ART using Pareto principle*

No.	Affinity pair Relationship	Frequency sorted (descending)	Cumulative frequency	Cumulative percent (relation)	Cumulative percent (frequency)	Power
1	1 ← 2	13	13	0.91%	2.29%	1.38%
2	1 ← 10	12	25	1.82%	4.40%	2.58%
3	2 ← 5	12	37	2.73%	6.51%	3.79%
4	2 ← 10	12	49	3.64%	8.63%	4.99%
5	3 → 5	12	61	4.55%	10.74%	6.19%
6	1 ← 11	11	72	5.45%	12.68%	7.22%
7	2 ← 3	11	83	6.36%	14.61%	8.25%
8	2 → 7	11	94	7.27%	16.55%	9.28%
9	3 → 4	11	105	8.18%	18.49%	10.30%
10	1 ← 7	10	115	9.09%	20.25%	11.16%
11	1 ← 8	10	125	10.00%	22.01%	12.01%
12	2 ← 8	10	135	10.91%	23.77%	12.86%
13	4 ← 10	10	145	11.82%	25.53%	13.71%
14	5 → 7	10	155	12.73%	27.29%	14.56%
15	5 ← 8	10	165	13.64%	29.05%	15.41%
16	5 ← 10	10	175	14.55%	30.81%	16.26%
17	6 ← 8	10	185	15.45%	32.57%	17.12%
18	7 → 9	10	195	16.36%	34.33%	17.97%
19	10 → 11	10	205	17.27%	36.09%	18.82%
20	1 ← 3	9	214	18.18%	37.68%	19.49%
21	1 ← 5	9	223	19.09%	39.26%	20.17%
22	3 → 9	9	232	20.00%	40.85%	20.85%
23	4 → 11	9	241	20.91%	42.43%	21.52%
24	5 → 9	9	250	21.82%	44.01%	22.20%
25	5 ← 11	9	259	22.73%	45.60%	22.87%
26	6 → 7	9	268	23.64%	47.18%	23.55%
27	9 ← 10	9	277	24.55%	48.77%	24.22%
28	2 → 4	8	285	25.45%	50.18%	24.72%
29	2 → 6	8	293	26.36%	51.58%	25.22%
30	3 → 7	8	301	27.27%	52.99%	25.72%
31	7 ← 10	8	309	28.18%	54.40%	26.22%
32	1 ← 4	5	314	29.09%	55.28%	26.19%

Composite focus group IRD

The IRD framed upon the application of the Pareto principle was then sorted and arranged in descending order of delta values to get the final Composite focus group IRD. Delta is the difference between the 'outs' and 'ins' for each affinity. The affinities were classified as drivers or outcomes based on the data provided by the IRD and are represented in Table 5 below.

As shown in Table 5, affinities with positive delta values (10, 3, 8) emerged as the drivers or causes, affinities with negative delta (6, 4, 7, 9, 1) emerged as the outcomes or effects and the affinities (2, 5, 11) with zero deltas (Count of 'in's=out's) emerged as the circulators or pivots. The affinities Self Interest (10) and Institutional Requirement (3) emerged as primary drivers of the system and Result Demonstrability (9) and Employability (1) emerged as the primary outcomes. While Social Influence (8) emerged as a secondary driver, Competitiveness (6), Elasticity (4), and Perceived Quality (7) emerged as the secondary outcomes. Cognitive Flexibility (11), Openness to experience (5) and Knowledge up-gradation (2) emerged as the pivots/circulators from our analysis.

Table 5: *Composite Inter relationship diagram*

Affinity No.	1	2	3	4	5	6	7	8	9	10	11	Out	In	Delta	Location
10	↑	↑		↑	↑		↑		↑	■	↑	7	0	7	Primary driver
3	↑	↑	■	↑	↑		↑		↑			6	0	6	Primary driver
8	↑	↑			↑	↑		■				4	0	4	Secondary driver
2	↑	■	←	↑	←	↑	↑	←		←		4	4	0	Circulator/Pivot
5	↑	↑	←		■		↑	←	↑	←	←	4	4	0	Circulator/Pivot
11	↑			←	↑					←	■	2	2	0	Circulator/Pivot
6		←				■	↑	←				1	2	-1	Secondary outcome
4		←	←	■						←	↑	1	3	-2	Secondary outcome
7	↑	←	←		←	←	■		↑	←		2	5	-3	Secondary outcome
9			←		←		←		■	←		0	4	-4	Primary Outcome
1	■	←	←		←		←	←		←	←	0	7	-7	Primary Outcome

Affinities: *1 -Employability ,2-Knowledge Up-gradation, 3-Institutional Requirement, 4-Elasticity 5-Opnness to experience, 6-Competition, 7-Pereived Quality, 8-Social Influence, 9-Result Demonstrability, 10-Self Interest, 11- Cognitive Flexibility.*

Systems Influence Diagram

Cluttered SID:

A visual representation of the system along with its elements and their relationships was depicted by constructing a Cluttered Systems Influence Diagram (SID). In accordance with the IQA protocol, the primary drivers were positioned on the extreme left-hand side and the primary outcomes were positioned on the extreme right-hand side, while drawing the SID. While both secondary drivers and secondary outcomes were placed between primary drivers and outcomes, 'circulators' or 'pivots' were placed in the middle. As per the IQA protocol, for every relationship represented in the IRD in Figure 4, an arrow was drawn between the two affinities indicating the direction of cause and effect. With the cluttered SID having a limited explanatory value and being too complex for meaningful analysis, the IQA protocol suggests a precondition to modify the cluttered SID into an uncluttered SID by removing redundant links.

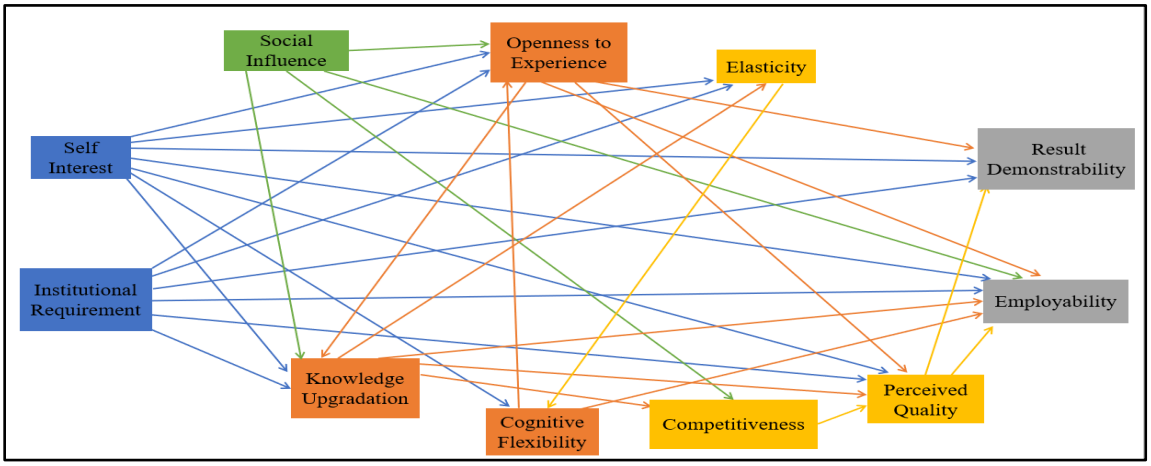

Figure 4: Cluttered SID

Uncluttered SID

Upon examination of all the affinity relationships, all redundant links were removed to simplify the diagram to generate an uncluttered SID. The process of removing redundant links in generating the uncluttered SID continued until all such links had been removed and optimal relations created to help in developing a meaningful analysis. The uncluttered SID for the SID is shown in Figure 5 below.

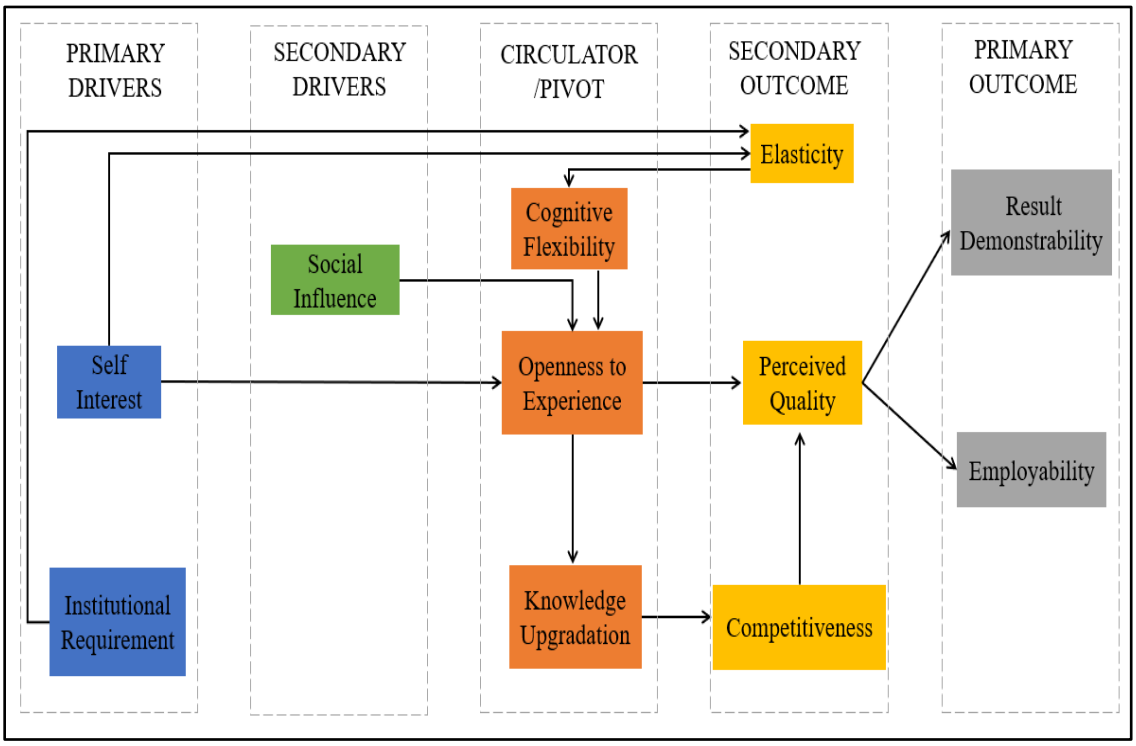

Figure 5: Uncluttered SID

DISCUSSION

The objective of this study was to identify the key drivers and outcomes that influenced students from HEIs in India to enroll in MOOCs. The mental model (SID) that emerged from IQA analysis identified 'Self Interest' and 'Institutional requirement' as primary drivers for enrolment in MOOC platforms as compared to 'Employability' and 'Result Demonstrability' as the primary outcomes for enrolling in MOOCs. The study also identified a few other factors that significantly influenced the students from B- schools in India to enroll in MOOC platforms. While 'Social Influence' emerged as a secondary driver that influenced student enrollment, factors such as 'Elasticity', 'Perceived Quality' and 'Competitiveness' emerged as the secondary outcomes. Our study also revealed 'Cognitive flexibility', 'Openness to experience' and 'Knowledge up-gradation' as the circulators/pivots that influenced students towards MOOC enrolment. Most of these findings with respect to the affinities identified as drivers, outcomes and pivots were consistent with previous studies which sought to identify attributes related to learner motivation for MOOC adoption.

Drivers

Studies conducted in the past discussed the influence of an individual's personality traits or attitudinal factors influencing MOOC adoption. Self-interest, identified from our study as a primary driver could be linked to the study by Tsai et al. (2018), who also discussed the influence of individual factors such as 'self-control' and 'attitude' on adoption of MOOCs. Another study by Xing and Du (2019) had also contended the role of 'behavioral dispositions' of the learners on MOOC adoption, which was consistent with our findings that suggested cognitive flexibility and openness to experience as drivers to MOOC enrolment. Knowledge up-gradation as a driver identified from our study was supported by the findings of research by Watted & Barak (2018) that highlighted the importance of Knowledge up-gradation on MOOC enrollment. Among the 11 affinities identified as drivers, outcomes, and pivots for MOOC enrollment, 'Social Influence' has been one of the most widely accepted and researched constructs in the MOOC literature. Our study has identified Social Influence as a secondary driver that influences students to enroll in MOOCs, which was consistent with the findings of Zhou (2017). Several studies in the past have empirically proven that constructs such as social influence and facilitating conditions did have a significant influence on the behavioral intention to use MOOCs.

Outcomes

The current study identified employability as a primary outcome for business school students to enroll for MOOCs. Students who enrolled for certification courses considered the value of these certificates to play a significant role in enhancing their opportunities for employment. Consistent with the study by Brown (2014), MOOCs allow the enrolled learners to learn from distinguished faculty from the world's most elite schools and provide access to quality course materials which essentially enhances the overall exposure of the student and improve their chances of being employable. Perceived quality identified from our study as a primary outcome, could also be linked to the results of the study by Shih & Chuang (2013), who suggested, quality of course content as one of the main determinants for students' motivation to learn through MOOCs. Findings from the studies conducted by Hone & El Said (2016) also showcased the influence of quality of course content and delivery as a significant predictor of MOOCs' enrolment and usage. Another key outcome identified from our study was 'Result Demonstrability', which also has been theoretically proven as a significant influential factor for Technology acceptance from the MOOCs context. A theoretical extension of TAM called as the TAM-2 Model proposed by Venkatesh & Davis (2000) found Result Demonstrability to be a significant factor that influences user acceptance of Technology, which in our case could be related to acceptance of MOOCs.

Further to other affinities discussed, our study also saw the emergence of two new affinities through the IQA process: Elasticity as a perceived outcome and Cognitive flexibility as a Pivot which influenced students to enroll, in addition to their regular courses offered at their institutions. This study was also the first-ever study that described both Elasticity and Cognitive flexibility in the MOOC context as a motivating factor for students to enroll in MOOCs. The term Elasticity has largely been studied in the context of material sciences and Cognitive flexibility in the context of the medical sciences. In the participants' view, enrolling in courses through MOOCs were viewed as an opportunity for them to stretch their goals and targets Our findings on the affinity of Elasticity also contradict the study by Chamberlin & Parish (2011), who found that the college students who enrolled in additional courses through MOOCs were more committed to finishing their regular courses offered by their parent institutes than the MOOCs. This study also suggested that priorities given by the students to their regular courses pose a deterrence to the completion of MOOCs, and suggested the provision of academic incentives that may act as extrinsic motivators, and a suitable nudge for the completion of MOOCs. The findings of our study provide an initial insight at an abstract level, which through further research needs to be empirically validated.

THEORETICAL CONTRIBUTION AND MANAGERIAL IMPLICATIONS

Though a considerable number of studies have been carried out using the application of established theories and models from the domain of Information Systems to understand the MOOC phenomenon, this study is an early attempt that employed a systematic qualitative approach using the IQA protocol, to explore and uncover mental reflections on the drivers and outcomes that influenced students from HEIs in India to enroll in MOOCs. This qualitative study contributes to the existing body of literature on MOOC adoption, by identifying eleven affinities/factors that influence learners in MOOC enrollment. While most of the affinities that emerged from our analysis confirm the findings in the existing MOOC literature, we also identified affinities such as 'Elasticity' and 'Cognitive Flexibility' and its influence on MOOC adoption from participants' perspectives. These factors could be explored further in the future and could be empirically proven upon further analysis.

The findings of this study provide useful insights to MOOC designers, platforms and HEIs planning to develop and offer new courses through MOOC platforms. Our study has identified that there seems to be a growing interest among students from Indian HEI's to enroll for certification courses that can enhance their employability and cater to their skill up-gradation, thereby enabling them to achieve better results in both their academic and professional spaces. With 'Employability' and 'Result demonstrability' identified as the perceived outcomes from the IQA analysis, MOOC designers may focus on clearly indicating the course objectives and outcomes along with the skills that the participants may acquire on the completion of the course, which may attract more students to enroll. MOOC designers may also focus on the dimension of Quality, especially in the design and delivery phase that could also play a significant role in attracting learners to the course. Students did agree that newer courses based on relevance in the job market, that can also challenge their intellectual capacities and capabilities, delivered using interactive teaching pedagogies may be more attractive to learners. Students also expressed their interest in enrolling in courses that help them reach their goals, make them flexible, open, and job-ready.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Respondents of our study were confined to a business school in India and hence the generalizability of these results to a wider population may be contestable. The findings of our study are confined to a time frame before the outbreak of the COVID-19 pandemic and hence the generalizability of the results remain as a limitation of our study. Further exploratory and empirical studies could be conducted in the future to understand the perceived drivers and outcomes that influenced learners in the adoption of MOOCs, at different time frames- before, during and after the pandemic. An experimental design to capture the factors that lead students from HEIs towards successful completion of MOOCs are highly recommended. As the level, exposure and use of technology among students from developing and developed economies differ, a cross-cultural study to find out the impact of cultural factors influencing adoption of MOOCs may also be relevant to expand the understanding of the phenomenon under study. Similar studies could also be carried out with students from varied academic streams that help to make a comparative assessment on the influence of the course type on the motivation to enroll in MOOCs. To assess the future of MOOC adoption in developing economies, it is vital for MOOC designers to examine the drivers and outcomes that may influence learners' acceptance, adoption, and continuance intention to use MOOCs.

CONCLUSION

Through our study, we aim to influence MOOC designers to incorporate learner perspectives and aspirations in the design phase of MOOCs. With Employability and Result demonstrability identified as the perceived outcomes from the IQA analysis, MOOC designers may focus on clearly indicating the course objectives and outcomes along with the skills that the participants may acquire post the completion of the course which may attract the students to enroll. MOOC providers may also focus on the dimension of Quality in course design and delivery that also could play a significant role in

attracting learners. This study was also successful in uncovering the underlying mental reflections influencing students towards MOOC adoption and continuance intentions. Students did agree to the fact that newer courses designed based on its relevance in the job market, that can also challenge their intellectual capacities and capabilities, delivered using interactive teaching pedagogies, may attract learners today. Further, inclusion of appropriate human-interactive elements with quality focused content that enables learners to be competitive in the job market may help them in showcasing demonstrable results.

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