

Does Design and Delivery of a MOOC Determine its Quality: Learners' Perception

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Manuscript Submission Date: May 25, 2025
Manuscript Acceptance Date: December 31, 2025

Abstract

In nearly a decade old journey, Massive Open Online Courses (MOOCs) have emerged as a popular mode of learning. MOOCs have transformed the face of online education and gained momentum during Covid pandemic after 2020. Thousands of MOOCs are available across platforms. Coursera, Udacity, Edx, SWAYAM, Future-learn have emerged as popular MOOC providing platforms around the globe. Despite the huge number of courses and massive enrollment, there are debates about the quality of MOOCs. Researchers have identified various factors determining the quality of MOOC, but the focus of present research is to examine the role of design and delivery of MOOC as quality determinants. For this purpose, researchers have collected the data from 308 course participants, who have enrolled and completed the MOOC offered by one of the researchers. The data was collected after the course completion in the form of a post-course survey. Analysis of the data has revealed that most of the respondents were satisfied with the course content and the modules' design. Finding highlighted the importance of presenting the content in small chunks, using only relevant videos, and provision of activities and opportunities to clear doubts. Collaborative learning opportunities and use of discussion forums as a platform for sharing ideas is very important in making any MOOC effective. The findings of study are providing insights to the MOOC developers and course-coordinators for designing and developing an effective MOOC.

Introduction

Massive Open Online Courses (MOOCs) have emerged as the most significant technological disruptors in the past decade. Since their emergence in 2012 (the year marked as the Year of MOOC by The New York Times, Papoon, 2002), MOOCs have seen phenomenal growth. Bates (2019) argued that MOOC has a high value in its own right. Millions of people are getting opportunities through MOOCs all over the world as a viable alternative to traditional classroom teaching-learning. MOOCs

could overcome the hurdles like lack of time because MOOCs give flexibility in time and location (Wei et al., 2009). MOOCs are accommodating thousands of students without charging any fees (Billsberry and Alony, 2023). MOOCs are gaining popularity as an effective online learning paradigm, aiming to improve the quality and accessibility of higher education (Wang et al., 2022). India recorded tremendous growth and is leading the global development after the United States of America. There is an enormous enrolment of Indian students in MOOCs platforms such as Coursera,

edX, and Udacity. Among the top five nations, India is the second-largest country with respect to registered MOOC users (Levin, Economic Times, 2014). The increasing popularity of MOOCs has led to rapid growth in enrolment (Kineber et al., 2024). Over 4000 MOOCs are available worldwide and register 35 million users at any given time (Denial, 2016). The University Grant Commission (UGC) in India was notified in 2017 to offer MOOC through SWAYAM (UGC, 2017). With increasing connectivity, initiatives like Digital India, and more focus on online learning, the number has crossed 42 million on SWAYAM in a short span of seven years (2017 to 2024) (SWAYAM Central, May 2024).

Though MOOCs have progressed a lot in the last decade, the question on the quality of content (Hollands and Tirthali, 2014; Singh, 2022; Williams et al., 2024) as well as the learning being provided through them, always remains under a critical lens, as some researchers have found that MOOCs have not lived up to the hope that they would make high-quality education (Liu et al., 2022). People having deep faith in the traditional system of education always question the capabilities of MOOCs. Being a disruptive technology, MOOC has to face this. The importance of quality is very relevant to teaching and platforms on the continuance intention of MOOCs (Shanshan and Wenfei, 2022). There has been substantial discussion on the design aspects and instructional quality of MOOCs (Oh et al., 2023). Course design is composed of learning objectives, assessment and measurement, instructional materials, and learning activities.

Learner interaction, and course technology (Sadaf et al., 2019), is one of the major quality predictors; therefore, instructors need to pay more attention to the course design (Shanshan and

Wenfei, 2022). Various predictors of the quality of MOOCs, like course structure, instructional components (Liu et al., 2022), user-friendly design, course content, and opportunities for participation and interaction, have been determined by various researchers. These findings reflect that it is essential to know how well the quality of a MOOC is determined while designing, developing, and offering a MOOC and what the aspects are that contribute to quality assurance.

Need and Significance

MOOCs have become an important practice in teaching and learning in higher education around the world to expand access to higher education and improve the quality of teaching and learning (Xiaobo, 2024). MOOCs have improved the quality of education (Palantani, 2019; Alhazzani, 2020), but various researchers have reported that the success of a MOOC depends on many factors, primarily related to its quality. Quality leads to higher levels of satisfaction (Albelbisi et al., 2021). There are various predictors of quality like pedagogy, professionalism, personality, and social interaction (Mishra, 2018). The effectiveness of the MOOC hinges on its planning, presentation, and execution, as well as its ability to engage with the learners. It reflects that there may be aspects associated with the planning of MOOCs, which require attention and contribute to the effectiveness of MOOCs.

The design has emerged as a key consideration, but the question is, how well do MOOC developers consider it as a parameter of an effective MOOC? Wang et al. (2018) hinted that different instructional designs required different capabilities and information literacy among learners. Hew and Cheung (2014) found that sometimes teachers face difficulties engaging

with large and complex learning communities. The ability to fulfill the needs related to contextualized content as per local need is also a challenge (Baggaley, 2014). Researchers and MOOC practitioners have identified MOOC design and facilitation as highly complex, relating to pedagogy (learning objectives, assessments, duration, content, etc.), resources (platform affordance, institutional support, and availability), and logistics (e.g., development time) (Laaser and Toloza, 2017; Zhu et al., 2018), for more engaging learning environments (Alemayehu and Chen, 2021; Romero-Rodríguez et al., 2019) for MOOC learners.

The quality of MOOCs is determined by various design- and delivery-related factors, including plan-making, reflection activity, social accountability, and value-relevance (Cornell University, 2020); course assessment, course content, and course delivery (Kumar and Kumar, 2020; Zixi et al., 2024); cultural diversity (Lochlainn et al., 2020); contextualisation of learning material and their availability in local languages (Allotey et al., 2021); number of discussion forums, online review sentiment, and MOOC rating (Wu and Chen, 2018); and learners' attention to important information in the learning materials (Deng and Gao, 2023). degree and quality of interactions (Wang et al., 2018; Aldowah et al., 2020; Al Rawashdeh et al., 2021; Li, et al., 2022; Wei, et al. 2024), including one-to-one interaction opportunities (Boltz et al., 2021), quality of instructional videos (Deng et al., 2019; Lemay and Doleck, 2022), in making courses interesting (Deng and Benckendorff, 2021; Deng, 2023), duration and fulfilling the immediate needs (May et al. 2021), collaborative learning opportunities (Rose, 2015), self-regulated learning strategies (Moreno-Marcos et al., 2020; Albelbisi et al., 2021), time-management (Lee et al. 2020), personalised learning

through customized services and real-time feedback (Zhang et al., 2022; Wang et al., 2022), quality of explanation (Dart & Gregg, 2021). On analysing the review, researchers found that some in-depth study is required to examine the contribution of various design- and delivery-related predictors like course information, course design and organisation, interaction and collaboration, and assessment practices, which are essential for ensuring the quality of MOOCs.

Statement of the Problem

As the literature review suggests, MOOC quality is determined by many factors, including design and delivery. To find out how design and delivery contribute to the quality of a MOOC as perceived by participants of the MOOC, researchers have focused on finding out "the aspects of design and delivery that contribute to making a MOOC effective."

Operational Definitions

In the present study, the following terms are considered important to define operationally:

Massive Open Online Course (MOOC)

MOOCs are the courses being offered online to a large population without any prerequisite of entry qualification, geographical boundary, age limit, etc. Anyone having an internet connection and a device to explore the course could learn from MOOCs with the flexibility in time and place, generally without any course fee. For the present study, "MOOC means the course developed and offered by the researchers on a free and open platform (CANVAS)."

Design and delivery

The researcher has considered the design and delivery part of MOOC as possible determinants of quality,

which have been assessed under the themes “Course Information, Course Design, and Organization, Interaction and Collaboration, and Assessment Practices,” adopted in the MOOC.

Quality

Thought quality is a subjective and relative term, but it is determined by the parameters of minimum quality benchmarks associated with any product. Here, in this study, the benchmarks to assess the quality of the course were design and delivery.

Research Objectives

For the present study, the following objectives have been framed:

1. To analyze the perception of MOOC course participants on various aspects of the design and delivery of the course,
2. To find out the dimension/aspects of design and delivery contributing as the determinants of the quality of a MOOC

Research Design

Research Methodology

Though the researcher has developed an MOOC and offered it, the perception of course participants was taken into account. For the current objectives, the descriptive survey method was used to collect the post-course data.

Population and Sample

As anyone can join the MOOC, hence for the present study, with a filter of being a teacher educator, the population was considered as the teacher educators. A numerical description of the population is not possible in this study. All the teacher educators in India constitute the study population because no institutional or territorial jurisdiction of the university or state was fixed for the study. 308 course participants, who

have filled out the post-course survey after completing the course, have considered the sample.

Tools For Data Collection

The researcher had studied the perception of the respondents after completion of the course by using a post-course survey, which was developed as an online tool using Google Forms and embedded in the course page.

The Tool

At the end of the course, respondents were expected to share their opinions and views on various components of the course and the structure and design. The post-course survey aimed to collect participants' feedback. Respondents were requested to express their inputs on all the items of this survey.

Apart from the section on general information/demographic details, there were five sections in the tool, i.e., course information, course design and organisation, interaction and collaboration, assessment, and content of course/course modules. Respondents were given four choices—strongly agree, agree, disagree, and strongly disagree—to share their views based on their experience. At the end of each section, respondents were given a few open-ended questions to share their experience/views about the dimension the course discussed in that section.

The qualitative data was also collected using a post-course survey. The objective of using a post-course survey was to know about respondents' perception towards the design and delivery of MOOC as a determinant of quality.

Analysis Of Post-Course Survey Data

After completion of the course, respondents were asked to fill out their feedback on various components of it. On the tool for Feedback on 'Course

Design and Delivery,' there were five (5) sections, i.e., Course Information, Course Design and Organization, Interaction and Collaboration, Assessment, and Effectiveness of MOOC. Respondents were expected to give their opinion on each item based on their level of satisfaction/experience by clicking the relevant column, i.e., Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), to rate the item based on their experience and satisfaction. A total of 308 respondents

have responded to the post-course survey after completing the course. The analysis of the data is as follows:

Course Information

In this section, responses are recorded on eight items on the basis of respondents' experiences related to various aspects of course information, which was provided to them before, during and after the course. Table 1, summarises their responses.

Table 1: Feedback on the course information

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
1.	Learning objectives were clearly stated.	237	76.95	71	23.05	0	0.00	0	0.00
2.	PCP MOOC achieved all the learning objectives.	149	48.38	76	24.67	59	19.16	34	11.04
3.	The welcome module of the course helped me to navigate the course easily	186	60.39	86	27.92	26	8.44	10	3.24
4.	All the instructions were not given clearance to navigate the course.	62	20.13	18	5.84	96	31.17	132	42.86
5.	The syllabus is easily found on the home page.	196	63.64	102	33.12	6	1.95	4	1.30
6.	Course home page has communicated all necessary information extensively.	151	49.02	104	33.77	41	13.31	12	3.90
7.	All the additional materials and suggested readings were listed properly.	108	35.06	98	31.82	62	20.12	40	12.99
8.	Directions for completing the activities or assignments were not stated clearly.	62	20.13	15	4.87	83	26.95	148	48.05

All the respondents agreed that the 'learning objectives were clearly stated' in the course; however, when asked whether the course had achieved all the learning objectives, 73.05% of respondents agreed, while 30.20% did not. This reflects that though the majority of the respondents found that the course has achieved all the learning objectives successfully, a significant number did not agree to it. In the opinion of 88.31% of respondents, 'the welcome module of the course helped in navigating the course easily.' Out of 308 respondents, 71.43% thought of 'strongly agree,' 27.92% were of the opinion of 'agree,' whereas only 0.65% believed 'disagree.' It shows that in the welcome module, clear instructions were given to navigate in the course, and the welcome module of the course helped the respondents to navigate in the course easily. In the opinion of 74.03% of respondents, instructions were giving clarity to navigate the course; however, 25.97% of respondents did not find clarity in instructions to navigate the course, which means that few respondents were expecting more clarity on instructions. 96.75% of respondents found the syllabus of the course easily on the home page, and they were able to access it easily to get an overview of the course.

82.79% of respondents found all the necessary information regarding the course on its home page. The course homepage had detailed information about the course,

duration, prerequisites, conditions for certification, and structure of the modules that was communicated clearly to assist the respondents in moving smoothly. 66.88% of respondents had a positive view towards the information regarding the appropriate listing of additional reading materials and suggested readings, but 33.18% did not agree to it. This reflects that there should be more prominence and guidance for learners to locate the additional readings and suggested readings easily in the course. Only 25.00% of respondents have reported that directions for completing the activities or assignments were not stated clearly; the other 75.00% of respondents understood the directions for completing the activities or assignments.

The responses to statements in this section reflect that the respondents well understood the course design. The instructors well communicated the information of the course. The course successfully achieved all its learning objectives. The instructors provided clear instructions for completing tasks, quizzes, and navigating the course. The well-planned course took into account the diverse needs of the respondents.

Course design and organisation

This second section was on 'Course design and organisation,' in which respondents were given eight (08) statements to rate based on their experiences/satisfaction. Table 2 summarises their responses.

Table 2: Feedback on course design and organisation

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
1.	The course structure was clear and easy to understand.	131	42.53	125	40.58	45	14.61	7	2.27

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
Course design and organisation									
2.	A timeline was given to complete the modules, activities, and assignments.	124	40.26	139	45.13	33	10.71	12	3.90
3.	The course content was available in small chunks.	147	47.72	101	32.79	38	12.34	22	7.14
4.	All links used in the course were relevant and up-to-date.	126	40.91	139	45.13	33	10.71	10	3.89
5.	The course activities were not interesting.	34	11.04	13	4.22	113	36.69	148	48.05
6.	Course activities helped to clear doubts and concepts.	156	55.64	106	34.42	24	7.79	22	7.14
7.	The videos used in modules were relevant to the theme.	110	35.71	95	30.84	62	20.12	41	13.31
8.	The course content was not up-to-date.	37	12.01	28	9.09	97	31.49	146	47.40

Out of 308 respondents, 83.11% found the course well-organized and easy to navigate, which represents that the organisation of the course was good, and respondents did not face any problem navigating the course. 85.39% of respondents were satisfied with the welcome module, clear instructions, and guidelines, along with a timeline to complete the modules, activities, and assignments. 80.52% of respondents appreciated the course content in small chunks. 86.04% of the respondents had a favourable opinion on the statement 'All links used in the course were relevant and up-to-date,' which reflects that most of the respondents found the links used in the course relevant and up-to-date. Only 15.26% of respondents

have reported that the course activities were not interesting'. It shows that most respondents liked the activities and found them engaging and attractive. 85.06% of the respondents found the course activities helpful in clearing doubts and concepts. In comparison to other statements, only 66.56% of the respondents found the videos used in modules relevant to the theme. A big number 33.44% of respondents did not like the videos used in the modules and also did not find the videos relevant to the theme. Only 20.10% of the respondents did not find the course content up-to-date', but 78.90% found the content used in the course relevant to the theme and up-to-date.

The responses to statements in this section reflect that the respondents understood the course design well and the course was well organised. The content was presented in small chunks in each module, and videos were relevant to the content; activities helped the respondents clear doubts. The course content was up-to-date.

and 'Collaboration', respondents have recorded their opinion on the statements related to the interaction of the course coordinator with respondents and collaboration within the respondents and between the course coordinator and respondents. There were seven (07) statements in this section on which respondents have given their opinion based on their experiences/satisfaction.

Interaction and Collaboration

In the section related to 'Interaction

Table 3: Feedback on 'Interaction and Collaboration'

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
	Interaction and collaboration								
1.	Content delivery by the instructor was good.	170	45.45	83	26.95	15	4.87	40	12.99
2.	I was motivated to share my views in the discussion forum.	73	23.70	72	23.37	85	27.59	78	25.32
3.	Queries related to content were not solved by the instructors.	33	10.71	43	13.96	120	38.96	112	36.36
4.	Concepts became clearer by reading comments of other respondents in the discussion forum.	131	42.53	92	29.87	51	16.56	34	11.04
5.	The instructor provided announcements reminders during the course.	235	76.30	70	22.73	2	0.65	1	0.32
6.	The feedback about student performance was not provided regularly throughout the course (for example: discussion forum, assignments, quizzes, etc.).	33	10.71	39	12.66	114	37.01	122	39.61
7.	Learning was in a collaborative manner with peer groups in this course.	125	40.58	115	37.34	11	3.57	67	21.75

Out of 308 respondents, 82.14% have agreed with the statement that content delivery by the instructor was satisfactory. This indicates that the majority of respondents were satisfied with the course instructor's content delivery, while a minority (17.86%) disagreed.

Interestingly, 47.08% of the respondents expressed motivation to share their views in the discussion forum, while 52.95% did not. This reflects that respondents were having some hesitation in sharing their views on the discussion forum. The reason may be sharing individual views on a public forum, fear of peer exposure, or poor language competencies. The researcher further explored it and asked the respondents if their queries related to content were not solved by the instructors. 75.32% of the responses were negative; this means that only in the views of 24.68% of respondents, queries related to the content were not solved by the instructor.

72.40% of respondents reported that their conceptual understanding became better by reading comments of other respondents in the discussion forum; this means that though they were hesitant to initiate the discussion, they were engaged in reading the comments of other respondents. This also reflects that respondents got the collaborative environment to learn in this course with each other. Almost all (99.03%) respondents have reported that the instructor has provided announcements/reminders during the course on time.

23.38% of respondents have reported that the feedback about student performance was not provided regularly throughout the course (example: discussion forum, assignments, quizzes, etc.), but 76.62% did not agree with it. It shows that most of the respondents were satisfied with the feedback provided by the course instructor during the course. In the opinion of 77.92% of the respondents, learning was in a collaborative manner with a peer group in this course. It reveals that most of the respondents learn collaboratively in this course with their peer group with the help of discussion forums; this also boosts the observation on the statement related to responses on the discussion forum of other participants. The responses to statements in this section reflect that the instructor's interaction with the respondents was satisfactory. The instructor helped the respondents to solve their queries as soon as possible. Respondents learned collaboratively in this course by sharing their views in the discussion forum. There were quality discussions in the forum that enhanced the respondents' understanding through each other's experiences.

Assessment

In the sub-section on 'Assessment,' respondents have given their opinion regarding the assessment strategies used in the course. The responses on seven (07) statements have been summarised in the following table.

Table 4: Feedback on Assessment

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
Assessment									
1.	Assessment tools were well designed to measure learning outcomes.	211	68.51	92	29.87	3	0.97	2	0.65

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
2.	During the course, a variety of methods was used to assess the performance of respondents.	196	63.64	97	31.49	12	3.90	3	0.97
3.	The Terminal assignment was clearly explained.	198	64.29	97	31.49	11	3.57	2	0.65
4.	The terminal assignment was not based on reflective thinking.	34	11.04	15	4.87	126	40.91	133	43.18
5.	The quizzes helped to check the understanding related to the module.	231	75.00	71	23.05	4	1.30	2	0.65
6.	Detailed instructions for completing assignments were provided.	221	71.75	79	25.65	7	2.27	1	0.32
7.	Assessments were used throughout the course. (i.e., quiz, activities, and terminal assignment)	231	75.00	69	22.40	5	1.62	3	0.97

Mapping of assessment tools with the learning outcomes was appreciated by 97.38% of respondents, which reflects that respondents were satisfied with the assessment tools used to measure learning outcomes in MOOC. Use of various assessment techniques during the course was also appreciated by 95.13% of respondents, which means that using quizzes, activities, and reflections in the discussion forum and terminal assignments contributes to maintaining the quality of the MOOC. The terminal assignment was taken positively by 95.78% of the respondents, which means respondents did not face any problems in the terminal assignment except a few. In the opinion of 84.09% of the respondents, the terminal assignment was based on

reflective thinking in which respondents were expected to write an article using all the techniques (paraphrasing, putting quotation marks, etc.) that they have learned in this course and then need to check its similarity using any plagiarism checker software. 98.04% of respondents found quizzes helpful in assessing their understanding related to the modules. The detailed instructions for completing assignments helped in reducing the problems in completing the assignments, with 97.40% giving their positive opinion about it. Distribution of assessments throughout the course (i.e., quizzes, activities, and terminal assignments) was appreciated by 92.40% of respondents. It indicates that respondents were satisfied with the assessment in the course.

It reflects various methods used for assessment in the course that have helped the respondents to assess their learning or understanding. Activities and quizzes helped the respondents to analyse their performance or learning. For the terminal assignment, clear instructions were provided to complete the task, and the terminal assignment was based on reflective learning in which respondents were supposed to apply all the skills/techniques they have

learned in the course to complete the terminal assignment.

Feedback on the Content of Course/ Modules

In this section, respondents were given statements related to the content of the course/modules, and they were expected to rate each statement based on their level of satisfaction/experience by clicking the relevant column against the item in each row.

Table 5: Feedback on content of course/modules

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree		
		N	%	N	%	N	%	N	%	
1.	Introductory videos have provided a clear overview of the modules.	215	69.81	89	28.90	4	1.30	0	0.00	
2.	The distribution of the modules into sections was organised meaningfully.	213	69.16	91	29.55	4	1.30	0	0.00	
3.	The videos used in modules clearly communicated the content.	215	69.81	89	28.90	4	1.30	0	0.00	
4.	The text was not appropriately placed in the modules	31	10.06	15	4.87	134	43.51	128	41.56	
5.	The questions asked in the discussion forum were reflective in nature.	161	52.27	139	45.13	6	1.95	2	0.65	
6.	Activities used in modules helped in clearing the doubts.	197	63.96	103	33.44	8	2.60	0	0.00	

S. No.	Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
		N	%	N	%	N	%	N	%
7.	The quiz was useful to recapitulate the learning in each module.	227	73.70	76	24.68	5	1.62	0	0.00
8.	The summary given at the end of the modules did not give an effective overview of the module.	40	12.99	18	5.84	113	36.69	136	44.16

98.71% of the respondents agreed with the role of the “introductory video” in providing a clear overview of the modules. Researchers made a course intro video and one for each module, giving a clear overview of the modules’ structure. 69.16% of respondents strongly agreed, and 29.55% agreed with the distribution of modules into sections, i.e., providing the content in small chunks, which has helped learners to understand the concept easily at their own pace. The role of videos in communicating the content clearly was appreciated by 98.71% of the respondents. It reflects that videos used in the modules clearly communicated the content, and respondents were satisfied with the videos used in the modules. 85.07% of respondents disagreed with the statement, ‘The text was not appropriately placed in the modules.’ It shows that the text was placed logically in the modules so that respondents can understand the module’s content.

Out of 308 respondents, 52.27% strongly agreed, and 45.13% of respondents agreed with the statement, ‘The questions asked in the discussion forum were reflective in nature.’

This ascertains that the questions asked in the discussion forum were reflective, where respondents shared views and commented on the views of other respondents. Integration of activities was appreciated by 97.40% of the respondents, i.e., 97.40%. Respondents have enjoyed the activities in the modules, which helped them understand the concept and clear the doubts related to the concept in the module. Appreciation of weekly module-end quizzes by 98.38% of respondents reflects that these quizzes have helped the respondents in self-assessment of their learning and recapitulation. 80.65% of respondents did not agree with the statement that the module-end summary was not giving an effective overview of the module. This means that the module summary helped them to recapitulate the module’s concept and make their understanding stronger.

Analysis of this section gives the impression that overall, respondents were satisfied with the course content. The course followed a modular approach. Each module started with an introductory video that gave the module’s overview and explained the

module's objectives, activities, and conditions for the quiz. Module content was facilitated with the videos, which were helpful to understand the concept for the respondents. At the end of the module, there was a module-end quiz, which helped the respondents assess their understanding. After each module, a module summary was provided to the respondents to quickly recapitulate the complete module, which was very helpful to understand the concept. Therefore, most of the respondents were completely satisfied with the course content and the modules' design.

Significant Outcomes: Making A Mooc Effective

From the analysis of different dimensions related to the design and delivery of MOOCs as a determinant of quality, it can be concluded that for making an effective MOOC, the following things are essential:

- A good MOOC should be tailored according to the needs of the respondents. This argument is well supported by observations of Mishra (2018), who recommended need-based MOOCs for teacher professional development. Joosten (2013) also mentioned that MOOCs should be designed and delivered by the instructor based on expertise and personal interest in a specific topic interesting to respondents for learning and discussion. Yushan and Quong (2017) specified that MOOCs are used in different countries to overcome various challenges related to the professional development of teachers because they are a viable alternative as they are scalable and cost-effective to fulfil the needs of teachers for professional learning. Liu et al. (2020) have also recommended that understanding the needs and perspectives of learners is critical if a MOOC needs to be successful.
- It is crucial to carefully plan and present the course content in an engaging manner. This point is well supported by researchers like Vivian, Falkner, and Falkner (2014); and Kumari (2016), who recommended that the specific design and implementation process of a MOOC aimed at supporting teachers for a specific implementation and MOOC facilitates the professional development of teachers by giving accessible, flexible, and fast-track completion of certified courses. Suriyapaiboonwattana and Hone (2023) also agreed that design, course content (Du, 2023), assessment, and learner-to-learner interaction significantly affect learner satisfaction positively in MOOCs.
- An effective MOOC should be accessible, interactive, easy to navigate, and have updated information. Teacher-student interaction is essential to developing a positive learning environment in online courses (Mingming and Yanli, 2014). Simple, interactive activities will enhance the enthusiasm and passion of teachers to teach effectively. Powell and Bodur (2019) have also highlighted six essential features: relevancy, authenticity, usefulness, collaboration and interaction, reflection, and context. Zhu (2021) also found that MOOC instructors providing navigation instruction helps students to manage learning resources and support in the course.
- Interesting and relevant short-duration videos are essential for an effective MOOC. This suggestion is in tune with Khalil et al. (2018). Effective video adds the pedagogical worth to any MOOC, as learning success in MOOCs is associated with videos (Stoica et al. 2021). A compelling video should include quizzes, exams, and venues and forums where

learners can ask questions and discuss the material. Mingming and Yanli (2014) have also suggested that MOOCs should limit the duration of videos to no more than ten minutes. Studies have suggested that after ten minutes, the high concentration of people's attention declines, so the time for each video should be maintained up to 10 minutes.

- A discussion forum should be reflective, and all learners should be allowed to interact with each other along with the instructor, so a good discussion forum should promote learner-content interaction, learner-learner interaction, and learner-tutor interaction. This finding is in tune with the findings of Ayoub et al. (2020) and Shao and Chen (2021), who were of the opinion that it encourages and improves their learning involvement.
- Assessment should be a more continuous and comprehensive assessment type. The learners view any component as an essential part of the assessment; otherwise, they skip it. This course has suggested that participation in discussion forums, quizzes and activities, and terminal assignments should be part of a comprehensive assessment plan. Yousef et al. (2014) identified learning analytics and assessment as one of the prominent indicators for the effectiveness of MOOCs. Sebbag and El-Faddouli (2024) found assessments contributing to MOOC quality and facilitating their continuous improvement.
- In the Indian scenario, a multilingual course or courses in different Indian languages need to be offered.

Worldwide also, the language issue is one of the concerns. Sanchez-Gordon and Luján-Mora (2014) highlighted that most of the MOOCs are offered in English only (Mohan et al., 2020). This is the big reason to discourage many learners of MOOCs with other linguistics backgrounds. Language is a significant barrier and core challenge (Bralić and Divjak, 2018). The students who have good knowledge of the English language can complete the course efficiently, but for students who do not have a good English command, language is still a primary challenge to completing the MOOC. Most of the present MOOCs are in English, but for students who cannot understand English properly, there is a need to discontinue this barrier. So, in the future, this issue of language should be kept in mind while developing MOOCs, and action should be taken to remove it. Kennedy et al. (2023) suggested using AI for overcoming language barriers.

Delimitations

The major delimitations of the present study are:

- This study is delimited to only teacher educators who are working in Indian teacher education institutions.
- There was no control on the enrolment of course participants; however, only teacher educators are considered as a part of the sample.
- Only those participants who have participated and completed the course are considered as part of the sample.

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