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MOOC Design, Engagement, and Feedback: A Mixed Method Case Study from learners with a Health Science Background in the Kingdom of Saudi Arabia

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Abstract

MOOCs have grown tremendously in Saudi Arabia's higher education and training; however, most of the courses have faced low learner enrolment, engagement, retention, and satisfaction, casting doubt on how to design effective MOOCs for higher education learners. This paper presents a case study of a MOOC that had 714 learners with a healthcare background. This paper examined the Thinkific platform metrics and 45 learner reviews to examine the engagement patterns, perceived quality, design effects, benchmarking, and actionable improvements. The findings indicated a total mark of 4.2/5, 62% completion rate, and the average progress of 65% throughout the course. Thematic analysis revealed five key themes: *usefulness and practicality*, *organization and structure*, *quality and excellence*, *engagement and motivation, and content relevance.* Design mapping suggests that design features, such as structured content and short video segments, are more likely to contribute to higher course completion rates. Compared with large-scale MOOCs, the designed course showed that a single MOOC could achieve a high satisfaction rate. This paper proposes improvements to enhance the completion and satisfaction rates of MOOCs. The findings of this paper offer practical guidance for MOOC and instructional designers on implementing effective and engaging online courses.

Keywords: MOOCs, engagement, enrollment, reviews

1. Introduction

In an effort to accommodate diverse learners from various disciplines and with diverse learning preferences, Massive Open Online Courses (MOOCs) have become widely used in the Kingdom of Saudi Arabia for delivering education and training to higher education learners.

In higher education, MOOCs are used to provide convenient access, maximize participation, and explore innovative educational modules (e.g., microlearning units, gamified scenarios, and interactive videos). Despite the popularity of MOOCs in Saudi Arabia, many still face challenges related to learner engagement, retention, and satisfaction. Existing studies primarily emphasize free-access platforms, such as Rwaq and Doroob, while fewer studies investigate specific courses in detail, utilizing mixed data factors, including enrollment, ratings, and qualitative reviews. In other words, these studies lack evidence on how feedback from learners, combined with appropriate analytics, can be used to provide applicable improvements in MOOC design. The purpose of this paper is to explore a MOOC created at King Saud bin Abdulaziz University of Health Sciences (KSAUHS), where 714 students enrolled and the rating was 4.2 of 5, and 45 written reviews. The developed MOOC is an excellent case study to study the patterns of engagement, learner satisfaction, and course design in the KSAUHS.

Based on this context, this study addresses the following research questions:

1. What can we learn from the design, engagement patterns, and learner feedback of a single MOOC to inform future improvements?

2. What are the patterns of enrollment and participation?

3. How do ratings and reviews reflect learner satisfaction?

4. Which design aspects influence the outcomes?

5. How does this MOOC compare to other courses?

6. What improvements, ideas, and actions can be derived from this study?

Through a combination of quantitative measurements and qualitative analyses, this paper presents pragmatic knowledge on how MOOCs can be evaluated and optimized. The results of this research can be used to inform teachers and instructional designers in efforts to maximize MOOCs in Saudi Arabia.

2. Background & Related Work

MOOC is an online course which is meant to offer open access to the large scale participation whereby people can participate at their own convenience without being tied by time and geographical limitations (Kaplan and Haertlein, 2016). The most important characteristics of MOOCs are frequently described by Kaplan and Haenlein as massive (involving high numbers of learners), open (mostly free of cost), online (delivered through the internet) and structured (with a clear course structure, objectives, content, and assessments). Since 2012, research on MOOCs has been increasing, following the statement in the New York Times, Year of the MOOC (Pappano, 2012), and research has been done on the demographics of learners, MOOC completion rates, and methods of instructional design. In higher education, MOOCs have been described as an opportunity to facilitate access to higher education and support lifelong learning and innovation (Yuan & Powell, 2013) MOOCs in the context of the Kingdom of Saudi Arabia appear to be beneficial for improving learning outcomes. A study by N.Alhazzani (2020) investigated the impact of MOOCs in higher education in the Kingdom. The results of this study showed that MOOCs significantly improved educational outcomes (t

= 23.46, $p \leq 0.001$), resulting in a 65% improvement in academic outcomes. When it comes to MOOCs acceptance, Al-Rahmi et al. (2018) utilized a modified Unified Theory of Acceptance and Use of Technology UTAUT at Taif University and found that performance expectancy, social influence, and computer self-efficacy affect attitude and intention to accept and use MOOCs. Several studies on MOOCs have consistently found that despite high enrollment, a small number of learners remain active and complete the course, with reported completion rates below 10% (Jordan, 2015; Reich, 2015; Khalil & Ebner, 2014; Hone & El Said, 2016). When certain design elements are put in place, the completion rates in healthcare-focused MOOCs are higher than general MOOC averages. A recent survey of rehabilitation-based MOOCs found completion rates of 44-81% per course, which was significantly higher than the average completion rate of MOOCs in the world (~10%), due to such characteristics as orientation sessions, regular testing, and a discussion forum (Cunningham et al., 2024). Contrastingly, a long-term analysis of an MOOC in the nursing field with 69,642 students showed that the completion rate was only 5.99%, which once again confirms that engagement is extremely conditional on the course design, learner motivation, and contextual factors (Jiang et al., 2026). These results support the claim that scale is not the only important factor that can affect learner persistence, but instructional design factors. Many MOOCs are heavily evaluated by quantitative analytics; however, studies highlight the importance of learner satisfaction, indicating that course quality and clarity significantly influence persistence (Alraimi et al., 2015; Hew, 2016; Hone & El Said, 2016; Wang & Baker, 2018). It has been found that the ability to be interactive is one of the main factors that determine the engagement of learners in MOOCs, especially in the health education setting. Research that has included interactive components, including virtual patient simulations and applied clinical scenarios, has also shown better motivation and involvement of the learners, with interactivity contributing to better cognitive involvement and more practical relevancy (Stathakarou et al., 2018). Moreover, engagement has been positively associated with the learning outcomes, and more engaged learners demonstrate higher levels of performance in healthcare MOOCs (Dubois et al., 2024). These results support the need to consider interactive and applied learning strategies when designing MOOCs. Additionally, many studies suggest that design features such as short video segments, embedded interactive quizzes, and student-to-student interaction can enhance learner satisfaction in MOOCs (Guo et al., 2014; Hone & El Said, 2016) MOOCs have progressively been applied in health profession education to aid in continuing professional development and acquisition of clinical competency. An MOOC on patient safety with more than 30,000 participants showed substantial positive changes in various competency areas, such as communication ($p < 0.01$), teamwork ($p < 0.01$), risk management ($p < 0.01$), and 93% of the participants said that they found the content of the course useful (Gleason et al., 2021). Likewise, a healthcare redesign MOOC with structured modules, videos, and interactive activities showed high levels of satisfaction (81%) and intentions among participants (82%) to implement learned knowledge in practice, although the completion rate was low (~20%) (Dwyer et al., 2022). These results imply that MOOCs can be useful in improving knowledge and professional skills in healthcare settings but only when they are designed as modular units and complemented with interactive and practice-based elements. The gap is that, with most studies involving large datasets in multiple MOOCs, few studies have reviewed platform analytics, learner reviews, and design factors in a single case study with health science background learners, which might yield rich and valuable discussions. This paper fills this gap by offering a mixed-method case study of an MOOC that has 714 participants with a health science background and integrates measures of engagement, reviews of learners, and reflections on design. This research provides empirical data and practical advice to MOOC design by pinpointing data-driven improvements by benchmarking with other MOOCs.

3. Methods

The case study focuses on a MOOC course titled "E-Learning and Online Teaching." It was developed at the King Saud bin Abdulaziz University for Health Sciences. The research time frame was between January 1, 2022, and December 31, 2022, when the course was actively online, and the data about learners were gathered and stored on the MOOC platform, which is based on Thinkific. The course consists of 26 lessons, each of several types, including videos, readings, and quizzes. The course targeted learners with a background in health sciences from seven colleges (College of Medicine COM, College of Nursing CON, College of Dentistry COD, College of Applied Medical Sciences CAMS, College of Science and Health Professions COSHP, College of Pharmacy COP, and College of Public Health and Health Informatics CPHHI), covering three modules that incorporated short videos, quizzes, and readings—a total of 714 learners enrolled during the 1-year period that the MOOC was published. The study data were derived from platform-generated analytics and learner reviews. Quantitative data included enrollment counts, course ratings, and platform activity metrics (e.g., progress tracking and completion rates). The qualitative data was made up of 45 open-text learner reviews at the end of the course. The sampling strategy used was total population sampling whereby voluntary reviews were not excluded and all the available ones that were provided during the study period (January-December 2022) were considered. This method reduces selection bias and gives the complete representation of learner-generated feedback in the data set.. Ethical and privacy considerations were addressed by anonymizing learners' reviews and identifying information, and compliance with institutional ethical guidelines was ensured as no additional data were collected from learners.

The quantitative analysis was primarily descriptive, including enrollment counts, completion rates, ratings, and engagement metrics. In addition, a comparative pattern analysis was conducted across lesson types (videos, readings, and quizzes) and learner groups (colleges) to explore variations in engagement and completion. Owing to the case study design and dataset constraints, formal inferential statistical testing and effect size estimation were not performed. Therefore, the observed differences should be interpreted as indicative patterns rather than statistically confirmed relationships. Completion, retention, and activity patterns were visualized to support the interpretation. The thematic analysis methodology consists of six steps outlined by Braun and Clarke (2006) was used to perform a qualitative analysis. First, the reviews were read several times to familiarize with them. The inductive open coding was performed to find meaningful text units. A codebook was created to specify each code with clear inclusion and exclusion criteria. The codes were repeatedly revised, narrowed down and clustered into larger themes which were further synthesized into overall themes. All reviews were coded by the same framework to promote transparency and analytical rigour. Data was analyzed by two independent coders and the inter-coder reliability was estimated using Cohen kappa coefficient and showed a high level of agreement. Differences were decided by consensus and discussion. Sentiment analysis was done through a manual rule-based classification method, whereby each review was classified as either positive, neutral or negative, according to a set of pre-determined rules, such as evaluative language, tone, and overall judgment. A coding system of sentiment was created and used uniformly throughout all the reviews. In order to improve reliability, both coders independently evaluated a subset of reviews, and disagreements were discussed.

Benchmarking studies were chosen based on the purposive criteria, which included (1) the relevance to healthcare or professional education, (2) the reported completion rates and/or satisfaction rates, and (3) publication in peer-reviewed journals. Only studies that reported comparable outcome measures (e.g., completion and learner satisfaction ratings) were considered to ensure comparability. Nevertheless, due to the varying platform architecture, learner population and assessment, comparisons could only be made on descriptive benchmarking as opposed to direct statistical comparison.

This methodology improves the credibility, transparency, and reproducibility of the study which is in line with the best practices of mixed-methods research.

4. Results

Of the 714 learners who enrolled, 99.5% started engaging, meaning that they viewed at least one lesson from the MOOC or were able to access the first module, while 443 learners (62.04%) completed 100% of the MOOC (i.e., all modules were completed). The enrollment distribution by college shows that learners from CAMS were the most enrolled students in the MOOC, while learners from COP were the least enrolled. Figures 1, 2, and 3 illustrate the percentage of started engagements, completed modules, and enrollment distribution by college, respectively.

Figure1:Percentage of enrolled learners who started engaging with the MOOC

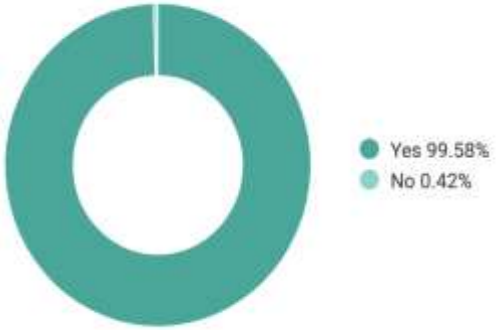


Figure 2: Percentage of enrolled learners who completed all modules of the MOOC

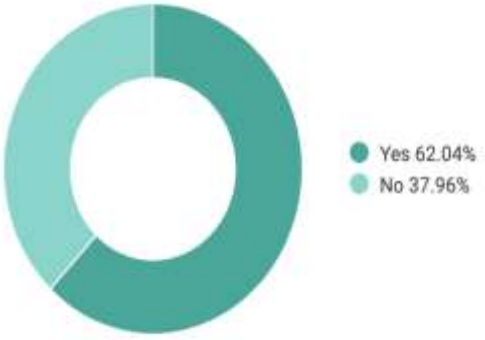
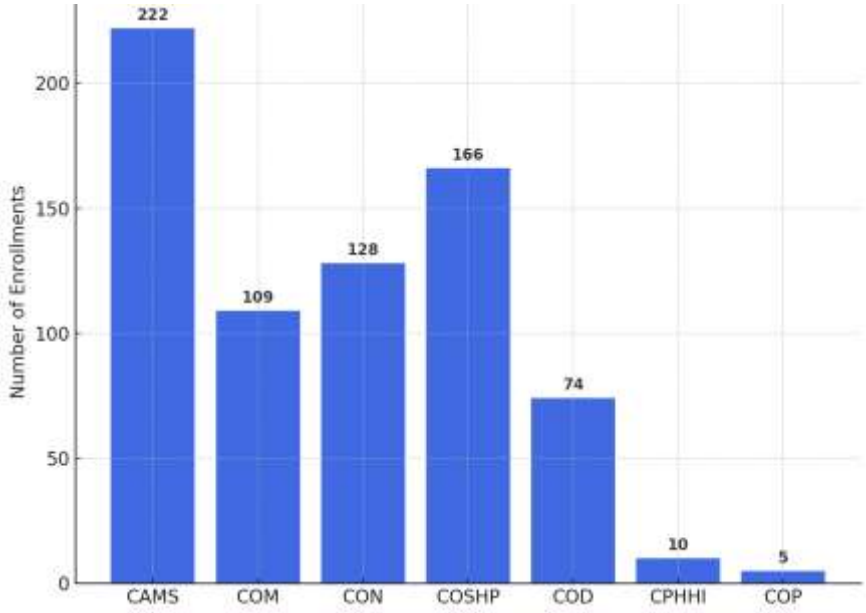
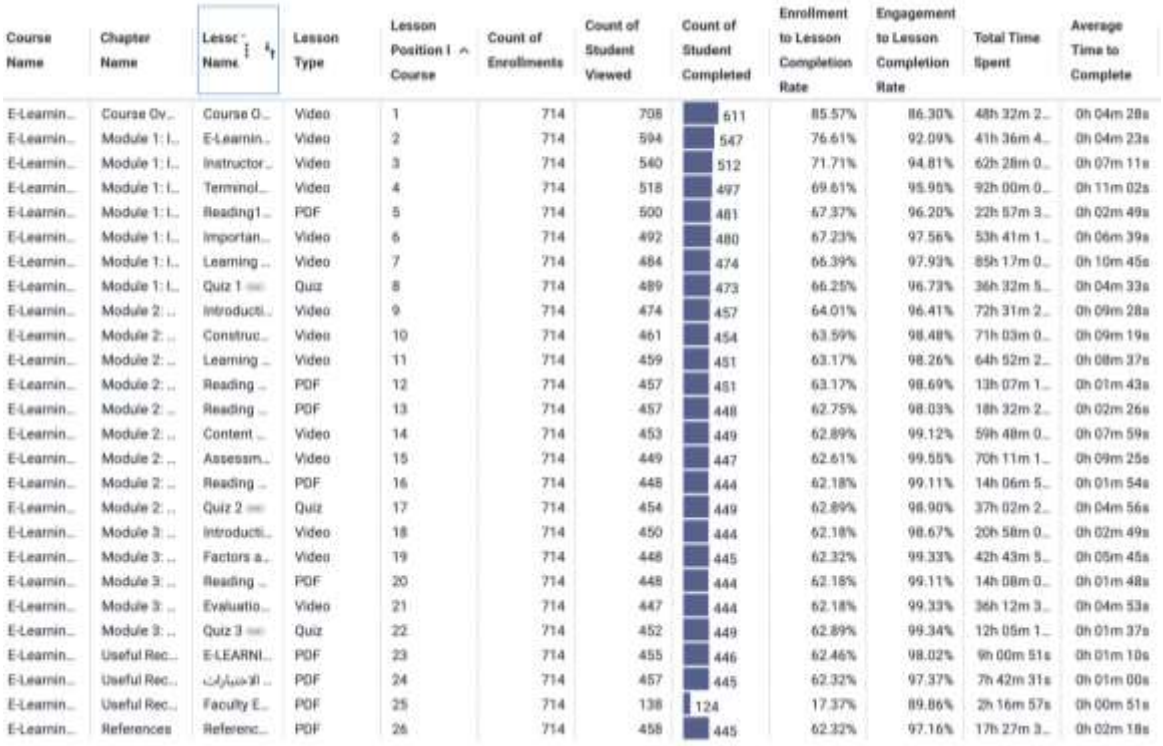


Figure 3:Enrollment distribution by colleges



Concerning the differences in lesson types, videos and quizzes show higher completion rates (63-72%). However, reading activities were slightly lower (62-67%). No inferential statistical tests were performed; thus, the differences seen were descriptive and are to be taken with caution. This is a research area that can be developed in the future. The average time spent per video was approximately 4-9 minutes, which aligns with the lesson duration, while readings took 2-3 minutes. The average time to complete the quizzes was ≃ 5 minutes. Figure 4 shows lesson engagement logs by module and type.

Figure 4: lesson engagement logs by modules and types



Course Name	Chapter Name	Lesson Name	Lesson Type	Lesson Position in Course	Count of Enrollments	Count of Student Viewed	Count of Student Completed	Enrollment to Lesson Completion Rate	Engagement to Lesson Completion Rate	Total Time Spent	Average Time to Complete
E-Learnin...	Course Ov...	Course O...	Video	1	714	708	611	85.57%	86.30%	48h 32m 2...	0h 04m 28s
E-Learnin...	Module 1: I...	E-Learnin...	Video	2	714	594	547	76.61%	92.09%	41h 36m 4...	0h 04m 23s
E-Learnin...	Module 1: I...	Instructor...	Video	3	714	540	512	71.71%	94.81%	62h 28m 0...	0h 07m 11s
E-Learnin...	Module 1: I...	Terminol...	Video	4	714	518	497	69.61%	95.95%	92h 00m 0...	0h 11m 02s
E-Learnin...	Module 1: I...	Reading1...	PDF	5	714	500	481	67.37%	96.20%	22h 57m 3...	0h 02m 49s
E-Learnin...	Module 1: I...	Importan...	Video	6	714	492	480	67.23%	97.56%	53h 41m 1...	0h 06m 39s
E-Learnin...	Module 1: I...	Learning ...	Video	7	714	484	474	66.39%	97.93%	85h 17m 0...	0h 10m 45s
E-Learnin...	Module 1: I...	Quiz 1	Quiz	8	714	489	473	66.25%	96.73%	36h 32m 5...	0h 04m 33s
E-Learnin...	Module 2: ...	Introducti...	Video	9	714	474	457	64.01%	96.41%	72h 31m 2...	0h 09m 28s
E-Learnin...	Module 2: ...	Construc...	Video	10	714	461	454	63.59%	98.48%	71h 03m 0...	0h 09m 19s
E-Learnin...	Module 2: ...	Learning ...	Video	11	714	459	451	63.17%	98.26%	64h 52m 2...	0h 08m 37s
E-Learnin...	Module 2: ...	Reading ...	PDF	12	714	457	451	63.17%	98.69%	13h 07m 1...	0h 01m 43s
E-Learnin...	Module 2: ...	Reading ...	PDF	13	714	457	448	62.75%	98.03%	18h 32m 2...	0h 02m 26s
E-Learnin...	Module 2: ...	Content ...	Video	14	714	453	449	62.89%	99.12%	59h 48m 0...	0h 07m 59s
E-Learnin...	Module 2: ...	Assessm...	Video	15	714	449	447	62.61%	99.55%	70h 11m 1...	0h 09m 25s
E-Learnin...	Module 2: ...	Reading ...	PDF	16	714	448	444	62.18%	99.11%	14h 06m 5...	0h 01m 54s
E-Learnin...	Module 2: ...	Quiz 2	Quiz	17	714	454	449	62.89%	98.90%	37h 02m 2...	0h 04m 56s
E-Learnin...	Module 3: ...	Introducti...	Video	18	714	450	444	62.18%	98.67%	20h 58m 0...	0h 02m 49s
E-Learnin...	Module 3: ...	Factors a...	Video	19	714	448	445	62.32%	99.33%	42h 43m 5...	0h 05m 45s
E-Learnin...	Module 3: ...	Reading ...	PDF	20	714	448	444	62.18%	99.11%	14h 08m 0...	0h 01m 48s
E-Learnin...	Module 3: ...	Evaluatio...	Video	21	714	447	444	62.18%	99.33%	36h 12m 3...	0h 04m 53s
E-Learnin...	Module 3: ...	Quiz 3	Quiz	22	714	452	449	62.89%	99.34%	12h 05m 1...	0h 01m 37s
E-Learnin...	Useful Rec...	E-LEARNI...	PDF	23	714	455	446	62.46%	98.02%	9h 00m 51s	0h 01m 10s
E-Learnin...	Useful Rec...	الاختبارات ...	PDF	24	714	457	445	62.32%	97.37%	7h 42m 31s	0h 01m 00s
E-Learnin...	Useful Rec...	Faculty E...	PDF	25	714	138	124	17.37%	89.86%	2h 16m 57s	0h 00m 51s
E-Learnin...	References	Referenc...	PDF	26	714	458	445	62.32%	97.16%	17h 27m 3...	0h 02m 18s

With an overall course average progress of 65% and an average completion time of 4.5 days, Figure 5 illustrates the distribution of course progress according to percentages, showing that eight learners completed between 40% and 79% of the MOOC. Another 33 learners completed between 20% and 39% of the course. One hundred thirty-six learners completed between 1% and 19%, while 94 learners were counted as having a 0% completion rate. Figure 6 shows the average progress distribution by college, indicating that CON has the highest progressed learners (128 learners) (95.2%), and CPHHI has the lowest progressed learners (10 learners) (25%). College-wide differences indicate that there may be disparities in the engagement or background readiness of learners. Nonetheless, these differences were not statistically analyzed using stratified analysis or inferential analysis as to whether they were statistically significant.

Figure 5: Course progress distribution based on percentage ranges

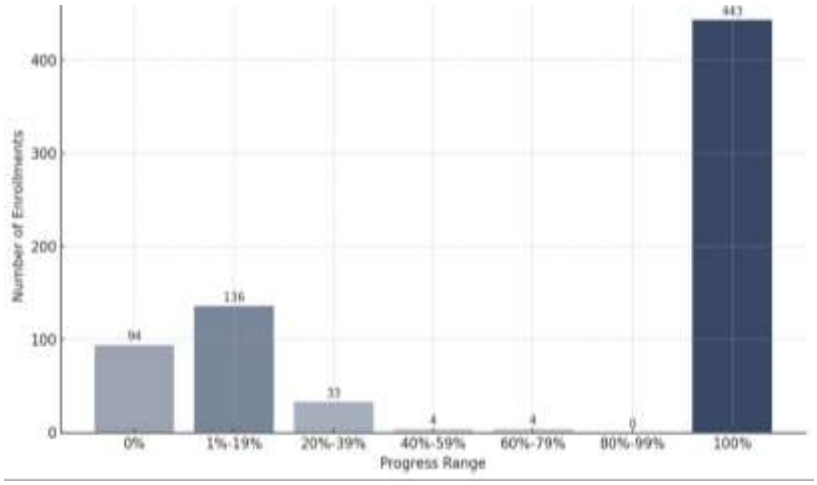
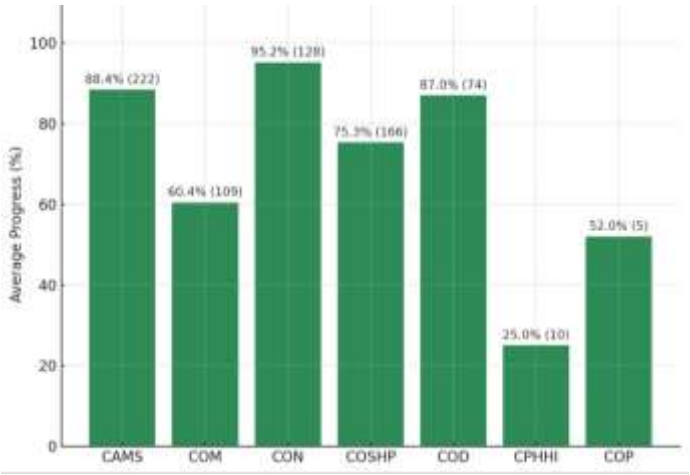


Figure 6: Average progress by colleges

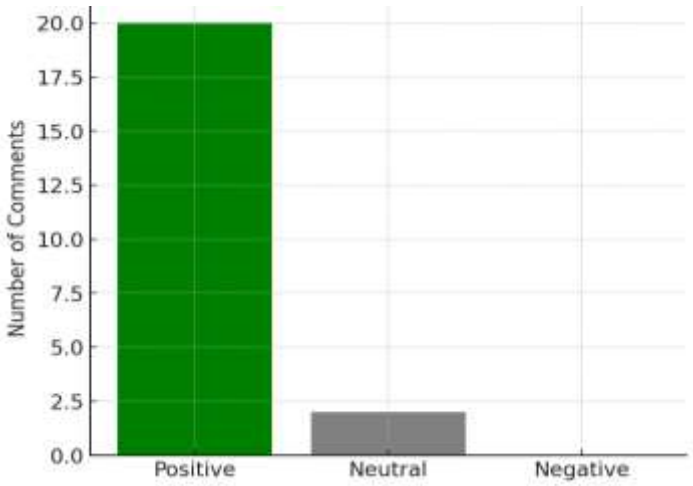


Overall satisfaction was high, with an average rating of 4.2 out of 5. Thematic analysis of the 45 reviews identified the following themes as the most frequently mentioned: usefulness and practicality, organization and structure, quality and excellence, and engagement and motivation (Table 1). A manual rule-based classification method was used to perform sentiment analysis where each review was labeled as a positive, neutral, or negative review using a set of pre-defined criteria, such as evaluative language, tone, and overall judgment. The results were overwhelmingly positive, with 20 positive, 2 neutral and little negative sentiments. (Figure 7).

Table 1: Thematic analysis of 45 reviews and themes identified

Theme	Count	Example Comments
Usefulness & Practicality	10	"Very useful", "The course was helpful and informative", "Beneficial to refresh instructors"
Organization & Structure	6	"Well-organized", "Clear and informative", "Excellent presentation"
Quality & Excellence	6	"Brilliant course", "Excellent course", "Amazing course"
Engagement & Motivation	3	"Engaging", "Thank you", "Wonderful course"
Improvement Suggestions	1	"Should address more…"

Figure 7: Sentiment analysis of course review



In addition to the well-known key design features of MOOCs, such as open access, scalability, and online platforms, several design features have contributed to positive outcomes. For example, structured content and short video segments are descriptively associated with higher observed completion rates. Other aspects, such as content relevance and practicality, were also mentioned in the reviews. Table 2 summarizes the mapping of the design aspects to the observed outcomes.

Table 2: Mapping of design aspects to observed outcomes

Design aspects	Evidence	Outcome
Structured content	Mentioned positively in reviews as "Well organized" and Course Overview was the most completed section by learners with 611 learners	Helped improved initial engagement
Short videos (≤ 10 Min> for most videos)	Positive comments such as: "Brilliant course" "Excellent course", "Amazing course"	Reduced cognitive load
Long videos (> 10 min)	In-depth topics such as instructional strategies and Terminologies was the highest viewed after course review with 518 view counts	Provide boarder comprehensive coverage for complex topics
Relevance	Positive comments documented as "Very useful", "The course was helpful and informative", "Beneficial to refresh instructors" "Engaging"	Increased perceived relevance and boosting motivation.

Compared with other MOOCs, the course in this study demonstrates competitive ability. For example, a study by Padilha et al. in 2025 with 2,629 learners reported a completion rate of 32.2% and a satisfaction rate of 4.4/5 for the COVID-19 healthcare MOOC. Although it has a higher number of learners, this study reports a very close satisfaction rate (4.2/5) with a 62% completion rate and 65% average course progress. Although review counts and contexts vary, a large-scale MOOC study (comprising 2.4 million reviews from multiple platforms) by Gomez

et al. (2022) found that high satisfaction rates are the norm in MOOCs. Another study by Johnston et al. (2025), which enrolled more than 96,000 learners across several MOOCs and achieved a high satisfaction rate, indicated that despite the significant difference in size, ratings were comparable between the two studies. Table 3 illustrates a comparison of the investigation of the studies among the three explored studies.

Table 3: A comparison table of the investigated study among the three explored studies

MOOC/study	Reported Enrolled Learners	Reported Completion rate	Reported Satisfaction rating	Reported Reviews count	Key differences
This study	714	62%	4.2/5	45	Single course healthcare background
Padilah et al. 2025	2629	32.2%	4.4/5	Survey	Learners are healthcare professionals
Gomez et al. 2022	Not available	Not available	4 to 5 stars	2.4 M reviews	Five different platforms
Johnston et al.	96,395	Not available	Not available	Depends on course	Four different MOOCs

5. Discussion

This study examined the design, engagement, and feedback of a single MOOC, targeting 714 learners with a health science background. It analyzes engagement patterns, learner feedback, and benchmarking against similar courses. The results indicated high initial enrollment, drop-offs, and high level of satisfaction (4.2/5). This pattern of engagement behavior and drop-offs reflects a common challenge in MOOCs, specifically the issue of early drop-offs (Jordan, 2015).

The observed drop-offs align with prior findings that MOOCs' completion rates are typically low (Padilha et al., 2025; Margaryan et al., 2014). However, the high satisfaction score suggests that learners who completed the course found the content valuable, supporting studies that emphasized the importance of usefulness and relevance (Hew, 201٤; Wang & Baker, 2018).

Recurring themes included usefulness and practicality, organization and structure, quality and excellence, and engagement and motivation, which were observed as they enhance user satisfaction and promote progress and participation. Learners from a healthcare background are goal-oriented and time-pressured. This indicates that they valued practical and relevant content. Thus, for MOOC designers targeting learners from the healthcare industry, the results show the importance of video-segmentation strategies, where short video segments are ideal for focused and simple topics, and long video segments are suitable for in-depth and detailed topics. Completion appears to be influenced by multiple interacting factors, including lesson type, content structure, and perceived relevance, suggesting that these are potential predictors of learner persistence. Although inferential statistical testing and predictive modeling were beyond the scope of this case study, the analysis extended beyond descriptive reporting by identifying systematic patterns and potential explanatory factors. Differences observed across lesson types and learner groups suggest that engagement is influenced by content format, course structure, and learner context. These findings provide preliminary evidence for potential predictors of completion, which future studies can validate using larger datasets and inferential approaches.

A highly engaged reading module titled "A systematic review of the factors- enablers and barriers affecting learning in health sciences educational" by Krishna Regmi and Linds Jones (2020) shows that relevancy in providing case-based activities that connect content to professional practice is appreciated by learners from a healthcare background.

Structured content is a crucial aspect of MOOC design. It enhances the learning experience, increases engagement, and supports higher course completion rates. MOOC designers should create 1) modular MOOCs (i.e., units that last 4 to 10 weeks), including a course overview; 2) a variety of content formats, such as video, interactive content, and readings; and 3) assessments, such as quizzes and assignments. On a bigger scale, the present research proves the significance of implementing platform analytics alongside learner reviews in order to obtain a more in-depth picture of the design and quality of MOOCs. In comparison with other courses, it demonstrates that even small and domain-specific MOOCs may lead to a high level of satisfaction, which means that quality does not always have to be determined by the scale

6. Practical Implications for MOOC Design

The results of this research offer a number of useful implications on MOOC designers, educators, and institutions that seek to increase the levels of learner engagement, retention, and satisfaction, especially in healthcare education. To begin with, the structure of the content has become a very important determinant of engagement. The findings indicate that a systemic approach to designing courses in transparent modular units with well-established learning goals and coherent progression helps learners navigate the course and minimizes cognitive load. The designers must consider the ease of navigation in course design, such as introduction to the course and well-defined modules. Secondly, video design is a key element in engagement among learners. The higher levels of completion and engagement were observed with short video segments (≤10 min), which implies that they are more appropriate in providing more focused and digestible information. The longer videos can also be useful in more complicated subjects and should be applied in a strategic manner and complemented with summaries or interactivity to keep the attention. Third, the relevance of the content and its practicality are two main factors that enhance learner satisfaction, especially in the case of healthcare learners, who tend to be goal-focused and time-sensitive. The perceived usefulness can be improved by

using case-based learning, real-world examples, and clinically relevant examples, which will encourage future involvement.

Fourth, the delivery of multiform content, such as videos, readings, and quizzes, addresses multiple learning styles and helps to retain knowledge. Nevertheless, the marginally less involvement in reading-based tasks implies that these materials are to be designed with brevity and interactivity.

Fifth, this paper emphasizes the role of combining learning analytics and qualitative feedback. Despite the useful information that platform metrics can offer on the behavior of learners, when they are used together with learner reviews, they allow evaluating the quality of the course and its effectiveness in design. This two-fold strategy assists in the development of MOOCs by means of data-driven decision-making.

Lastly, the results suggest that small domain-specific MOOCs may be highly satisfying and complete, which refutes the belief that scale is the key factor of success. Institutions ought to look at investing in specific, and high-quality courses that are specifically designed to meet the needs of particular learner groups as opposed to concentrating on mass implementation.

7. Limitation

This research has a number of limitations that must be taken into consideration when analyzing the results. First, the qualitative analysis was founded on a comparatively low number of learner reviews (n = 45), which might not be quite representative of the variety of experiences and views of learners. Second, the research concentrated on one MOOC in a particular institutional and disciplinary setting (health sciences), thus restricting the extrapolation of the results to other areas or platforms. Third, the patterns of engagement were measured with platform-generated analytics, but since no validated inferential statistical tests were conducted, one cannot make causal inferences about the correlation between design features and the outcomes of learners. Lastly, platform metrics (e.g., completion rates and progress tracking) do not capture extrinsic variables like learner motivation, previous experience, or time constraints, which can also have an effect on engagement and completion behavior. Also, the lack of inferential statistics analysis and estimation of the effect size prevents determining whether the observed relationships are statistically significant or providing the strength of the observed relationships. These limitations should be overcome by future research that uses larger and more diverse samples, uses strong inferential techniques and includes other data sources, e.g. surveys or interviews.

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