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PAPER

Students' Perception Towards Learning Massive Open Online Courses on Coursera Platform: Benefits and Barriers

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ABSTRACT

The advent of Massive Open Online Courses (MOOCs) has opened up new possibilities for students to access high-quality educational content worldwide faster and easier. Among these online learning platforms, Coursera is the most popular MOOC provider, with over a thousand courses in various fields of study. This study investigated the perception of students towards learning MOOCs on the Coursera platform, examining the benefits and barriers that influence their engagement in this mode of learning. The data were collected from a private university in Vietnam via online surveys with 200 MOOCS participants using a 7-point Likert scale questionnaire and semi-structured interviews with 30 participants. The findings indicated positive opinions of university students on the Coursera platform, including access to diverse topics, high-quality learning materials, a high level of academic support, flexible learning, and the ability to learn at their own pace. The findings revealed a number of benefits of learning Coursera MOOCs, such as earning high-quality certifications, improving knowledge and skills, enhancing personal development, and having chances for higher education and career advancement. In addition, the study identified some barriers to their learning, for example, a lack of interaction with instructors, an overload of information, a lack of motivation and concentration, and difficulties with study language and time management.

KEYWORDS

MOOC, Coursera, perception, benefits, barriers

1 INTRODUCTION

Open education has become a global trend as a new pedagogic approach for providing knowledge across boundaries. Massive Open Online Courses (MOOCs) are open education models that receive significant attention from higher educational institutions as an innovative system. They are considered an "alternative and supplement" to traditional courses [1]. MOOCs are courses designed to be accessed

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by unlimited learners worldwide via technological networks and platforms like Coursera, FutureLearn, edX, Iversity, and Open2Study [2]. Among these online learning platforms, Coursera is the biggest MOOC provider in the world, with over a thousand courses in a variety of disciplines [3].

Although MOOCs are widely acknowledged as a great opportunity for educational practices, the actual benefits they have for learners are difficult to define and measure. Despite a large amount of research having been done to identify factors for improving the effectiveness of MOOCs, there are many unanswered questions about how MOOCs could satisfy the learners' requirements and how well they promote the studying performance and interest of online learners [4]. In addition to their advantages, for example, giving the learners chances to take advantage of qualified study programs that are promoted by top universities all over the world, these e-learning platforms still have some pitfalls leading to high dropout rates, such as a lack of motivation and academic skills among the learners, low commitment, and content difficulty [5].

Since MOOCs have been adopted in the curriculum of many higher educational institutions, understanding the needs and difficulties that students face in learning MOOCs will help universities figure out solutions to improve student learning outcomes and create motivation for active learning through these platforms. Therefore, this study was carried out to investigate university students' perceptions of the benefits and barriers of learning MOOCs through the Coursera platform. This study focused on addressing the following questions:

1. How do university students perceive learning MOOCs on the Coursera platform?
2. What do students identify as the benefits of learning MOOCs on the Coursera platform?
3. What do students consider as barriers to learning MOOCs on the Coursera platform?

2 LITERATURE REVIEW

2.1 Massive open online courses (MOOCs)

Massive Open Online Courses were introduced in 2012 as a more recent innovation in distance education. MOOCs use scientific and technological advances applied to online education to optimize learning environments where students can participate in courses on a variety of subjects with the ability to study at their own pace and with the fewest restrictions and financial burdens [6]. MOOCs distinguish themselves by having a large number of students in each class, being open to anyone who wishes to register, providing learning opportunities at any time or place, and having set beginning and ending points for each course [7][8]. Additionally, it enables students to enroll in top-tier courses offered by colleges all over the world without paying additional tuition or going through separate admissions procedures [6]. Furthermore, no prerequisites, fees, certification requirements, or additional levels of involvement are required for MOOC registrants [9].

Over the years, MOOCs have expanded in a remarkable way. According to a study conducted by Liyanagunawardena, Adams, and Williams [10], there were over 200 MOOCs available in 2012, with over 5 million people registering for them. Furthermore, according to Jordan [11], there were over 1,000 MOOCs available by

2013, with over 10 million people enrolling in them. These statistics demonstrate the popularity of MOOCs and their potential impact on education.

2.2 Coursera platform

Coursera is one of the most popular Massive Open Online Course (MOOC) platforms that has grown in popularity in the past few years [12]. Andrew Ng and Daphne Koller, two Stanford University computer science professors, founded it in 2012, and it has since expanded to include courses from various fields and disciplines [13]. It is well-known for its extensive and powerful partnerships with higher education institutions to provide a wide range of curricula on topics such as science, information technology, geography, management, computer science, languages, arts, humanities, and business [14]. According to Wang and Baker [15], Coursera has been successful in forming partnerships with higher education institutions in order to provide high-quality curricula that cater to diverse learners.

Coursera courses are designed to be completed in four to six weeks and include video lessons, quizzes, and assignments. There are due dates for completing coursework and passing the entire course, but there is flexibility to transfer to the next session. Students highly appreciate this learning flexibility [16]. The most notable difference is that Coursera is no longer completely free. If taken individually, each course costs between $29 and $99. Despite this change, many students continue to choose Coursera as an affordable and stable platform for learning high-quality courses [17].

2.3 Previous studies on Coursera platform

The previous studies on Coursera have addressed a wide range of aspects of the platform, including course design, pedagogy, student involvement, outcomes, and the potential of MOOCs in higher education. In one of the earliest studies on Coursera, Kizilcec, Piech, and Schneider [18] examined data from two of the platform's courses and discovered that those who engaged in discussion forums had higher completion rates. This study underlined the importance of social learning in MOOCs and found that the inclusion of social components could increase student engagement and retention. The efficacy of peer grading in Coursera courses was the subject of a different study by Ho et al. [19]. Peer grading, according to the authors, can be a useful technique for evaluating student work and can result in higher levels of performance.

The early research on Coursera has mostly relied on interviews and surveys with course creators or academics [20]. Recently, several studies have been undertaken to analyze students' satisfaction with Coursera courses [21][22]. Nevertheless, most of these studies focus on identifying factors that determine learners' satisfaction with MOOCs while neglecting the factors that affect students' motivation to enroll in Coursera MOOCs, the barriers to MOOCs, and the solutions to enhance learners' effectiveness on the Coursera platform.

There were some notable studies on the advantages and disadvantages of students taking MOOCs on Coursera. A study by Liyanagunawardena, Adams, and Williams [10] highlighted the lack of interaction and feedback in MOOCs as a major disadvantage. The study suggested that while MOOCs may be suitable for highly

motivated, self-directed learners, they may not be ideal for students who require more support and guidance. Another study by Khalil and Ebner [23] suggested that the high student dropout rates in MOOCs may be due to a lack of personalization and the absence of a clear learning path for students. The study recommended that MOOCs incorporate more personalized features, such as adaptive learning algorithms, to address this issue. Furthermore, a study by Alraimi, Zo, and Ciganek [16] discovered that Coursera MOOCs may offer a wide choice of course topics and that they can give students flexibility and convenience in terms of study time and location. In addition, the study found that students encountered a number of issues, such as difficulty maintaining motivation and engagement throughout the course, as well as a lack of interaction with peers and instructors [16].

2.4 Conceptual framework

The goals of this study were to explore students' perceptions towards learning MOOCs on the Coursera platform, focusing on the benefits and barriers that they perceive. The theoretical models used for this study include the following key elements:

Technology Acceptance Model (TAM): The TAM model created by Masrom [24] suggests that perceived usefulness (PU) and perceived ease of use (PEOU) are key factors in users' acceptance of a technology. In the context of this study, students' perceptions of the Coursera platform will be assessed based on the perceived usefulness of the platform in terms of its benefits and barriers.

Social Learning Theory (SLT): The SLT proposed by Akers and Jenning [25] suggests that individuals learn by observing others and their behavior. In the context of this study, students' perceptions of learning MOOCs on the Coursera platform will be examined based on the influence of instructors and other learners on their learning experience.

Expectancy-Value Theory (EVT): The EVT, developed by Nagle [26], suggests that individuals' motivation to engage in a task is influenced by their expectations of success and the perceived value of the task. In the context of this study, students' perceptions of the Coursera platform will be assessed based on their expectations of success in learning and the perceived value of the courses offered on the platform.

Self-Efficacy: The belief in one's capacity to execute a certain activity, known as self-efficacy, has been demonstrated to be a strong predictor of students' academic achievement [27]. In the context of this study, students' perceptions of the Coursera platform will be examined based on their self-efficacy beliefs and their capacity to learn effectively on the platform.

Demographics: The demographics of the students, such as age, gender, and education level, will also be considered in this study. These demographic variables may influence students' perceptions of learning MOOCs on the Coursera platform and their likelihood of using the platform [28].

In addition to the above theoretical models, the conceptual framework for this study was based on the frameworks of previous studies on learners' perceptions of learning MOOCs. To identify the perception of students toward learning Coursera MOOCs, the findings of several studies suggested that MOOCs are friendly, convenient, flexible, and accessible [29][30][31][32]. A study by Breslow et al. [17] showed the importance of effective course design and implementation in online learning environments. Besides, instructors' support and interaction for student learning in online courses were crucial [33]. Regarding the benefits of learning Coursera MOOCs,

Aharony and Bar-Ilan [30] indicated that students' perceived usefulness of MOOCs included English improvement, practical knowledge, and the ability to watch lectures again and again. Moreover, some authors found that online learning facilitates personal growth and skill development [11][32][34] and others said online learning promotes self-directed learning, self-regulated learning, and lifelong learning [35]. In terms of challenges to learning Coursera MOOCs, Dang et al. [36] identified a number of barriers preventing students from participating in continuous study MOOCs, such as course complexity and difficulties, poor content and boring lecture presentations, a lack of interaction with instructors, and a lack of video lecture subtitles. Conole et al. [37] also verified that the complexity and difficulty of online course content can be barriers to student learning.

By using this framework, the study aimed to provide a thorough overview of students' opinions of the benefits and obstacles of taking MOOCs on the Coursera platform. The research will provide information that may be used to improve the design and delivery of MOOCs and the educational experiences of students.

3 METHODOLOGY

3.1 Research context and participants

Massive Open Online Courses have gained popularity over the past few years, providing students with flexible and accessible opportunities to learn new skills and knowledge from a variety of sources. Coursera, one of the leading providers of MOOCs, has collaborated with universities worldwide to provide a broad variety of online courses. FPT University, a private university in Vietnam, is one such institution that has partnered with Coursera to provide MOOCs to its students as part of the mainstream curriculum. The objective of this research is to investigate the use of Coursera MOOCs at FPT University, with a focus on assessing students' perceptions of the benefits and barriers to learning Coursera MOOCs.

Participants in this study were university students who had completed MOOCs on the Coursera website. A convenience selection method was utilized to choose participants, and their consent was sought before including them in the study. This research survey included 200 university students, with 52.5% being male, 44.5% female, and 3.0% being students of other genders. The study's participants ranged in age from 16 to 26 years old. 1% of students are between the ages of 16 and 18, 92.5% are between the ages of 19 and 22, and 6.5% are between the ages of 23 and 36. The participants came from four main academic fields, including business (42.0%), information technology (30.5%), linguistics (16.5%), and graphic design (11.0%).

In addition, 30 of the 200 survey participants were chosen to take part in a semi-structured interview in order to gain a better understanding of students' perceptions of the Coursera platform in MOOC learning, as well as its benefits and barriers.

3.2 Instruments and procedure

The study' survey questionnaire was mainly based on the questionnaire of Dang et al. [36], Aharony and Bar-Ilan [38], and Liaw, Huang, & Chen [32]. The questionnaires were modified to better reflect the reality of learning MOOCs on Coursera as well as the general situation in the locality. The questionnaire had a total of 30 items

divided into three main categories for learning Coursera: general perception, benefits, and barriers. The Likert scale was used to evaluate a sequence of assertions or queries from 1 to 7, with 1 signifying "strongly disagree" and 7 indicating "strongly agree."

Prior to data collection, the questionnaire was piloted with 69 responses. The online survey was carried out by distributing the questionnaire to respondents via Google Forms. To assess the questionnaire's trustworthiness, Cronbach's alpha was used. Cronbach's alpha is a statistical indicator of reliability and internal agreement commonly used in research to assess the degree to which items in a scale or questionnaire are related to each other. With 69 responses, 0.966 was Cronbach's alpha rating, a very substantial level of reliability. Cronbach's alpha coefficient was recalculated with 200 participants after data collection in the empirical study. All items had a Cronbach's alpha higher than 0.9, demonstrating the questionnaire's high reliability.

SPSS version 26 was used to analyze the data. Summary statistics such as frequency distributions, means, and standard deviations were calculated for each individual item. The mean scores of the categories were also examined using analysis of variance (ANOVA), with the goal of comparing the means across various groups in order to determine whether differences between groups are statistically significant [39].

After obtaining responses from 200 students, 30 participants with high mean values were chosen for individual interviews. The answers were recorded, coded, and transcribed for later analysis.

4 RESULTS

This study aimed to investigate the perceptions of students towards Massive Open Online Courses (MOOCs) on the Coursera platform, with a particular focus on identifying the benefits and barriers associated with this mode of learning. Data was collected using a 7-point Likert scale questionnaire with a total of 200 participants.

The descriptive statistics for the overall perception, benefits, and barriers are shown in Table 1. The overall mean score for general perception was 4.57 (M = 4.57, SD = 1.25). The average benefit score was 4.71 (M = 4.57, SD = 1.48), indicating that students perceived a high level of benefits associated with learning MOOCs on the Coursera platform. In contrast, the mean score for the barrier was 4.33 (M = 4.33, SD = 1.57), indicating that students thought there were moderate difficulties using the Coursera platform to access MOOCs.

Table 1. Mean scores of participants' perceptions of Coursera MOOCs

Items	N	Mean (M)	Std. Dev. (SD)
General Perception	200	4.84	1.49
Benefits	200	4.71	1.48
Barriers	200	4.33	1.57
General Means	200	4.57	1.25

A One-sample t-test was conducted to determine whether the mean score for general perception was significantly different from the neutral value of 4 (Table 2).

The results revealed a significantly higher mean score for general perception than the neutral value (t = 6.483, p = 0.000), with a mean difference of 0.57. This indicated that students generally have a positive perception of Coursera MOOCs.

Table 2. One-sample t-test of general mean (Test value = 4)

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
General Mean	6.483	199	.000	.57417	.3995	.7488

4.1 The analysis of participants' general perception on learning MOOCs on the Coursera platform

As seen in Table 1, the high mean score and significant difference from the neutral value suggested that the participants' general perception of learning MOOCs on the Coursera platform was largely positive. The mean scores for the benefits variable (M = 4.71) and barriers variable (M = 4.33) suggested that participants believed that the benefits of learning MOOCs on Coursera outweighed the barriers.

Table 3. One-sample t-test of general perception (Test value = 4)

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
General perception	8.016	199	.000	.84429	.6366	1.0520

The results of Table 3 showed a significantly higher mean score for general perception than the neutral value (t = 8.016, p = 0.000), with a mean difference of 0.84.

Table 4. Mean scores of general perceptions towards learning MOOCs on the Coursera platform

Items	Mean (M)	SD
Coursera provides useful courses and learning materials	4.97	1.652
Coursera has a wide range of courses and degrees	5.10	1.606
Coursera platform is friendly and convenient	4.86	1.664
There is a high quality of personal connections on Coursera	4.52	1.707
There is a high standard of course moderation on Coursera	4.73	1.706
There is a high level of expert, academic support on Coursera	5.08	1.629
Learning Coursera MOOCs promote lifelong learning	4.66	1.693
General perception	4.84	1.490

Additionally, in Table 4, the items related to the specific features of the Coursera platform, such as its wide range of courses and degrees (M = 5.10, SD = 1.606), and high level of expert and academic support (M = 5.08, SD = 1.629), had higher mean scores than other items. This further supports the participants' positive perception

towards the Coursera platform. These results were consistent with prior research that has found that MOOCs can provide a high-quality learning experience for students [31]. Moreover, the positive perception of expert academic support on the Coursera platform was in line with prior studies on the significance of instructor support and interaction for student learning in online courses [33][40]. The majority of participants indicated that Coursera provides useful courses and learning materials (M = 4.97, SD = 1.652). This finding aligns with previous research suggesting that the quality of content and resources provided in MOOCs is a key factor that drives learner engagement and satisfaction [11]. Participants also agreed that the "Coursera platform is friendly and convenient" (M = 4.86, SD = 1.664), which was in accordance with prior studies that highlighted the user-friendliness and accessibility of MOOCs [41]. Besides, the results indicated that participants perceived a high standard of course moderation (M = 4.73, SD = 1.706) on the Coursera platform, which is supported by previous research that identified the importance of effective course design and implementation in online learning environments [17].

Furthermore, the results showed that the mean score for the items "Learning Coursera MOOCs promote lifelong learning" (M = 4.66, SD = 1.693) and "There was a high quality of personal connections on Coursera" (M = 4.52, SD = 1.707), which were moderately positive but relatively low compared to other items. This may be due to the fact that MOOCs generally offer limited opportunities for interaction and collaboration among learners [23]. While the item "Learning Coursera MOOCs promote lifelong learning" (M = 4.66, SD =1.693) indicates that respondents generally agreed that MOOCs, such as those offered on Coursera, can promote lifelong learning. This was supported by research that has found that MOOCs can provide accessible and affordable education to learners of all ages and backgrounds [16]. MOOCs can also offer flexible learning opportunities that allow learners to continue their education while balancing work and family responsibilities [42].

To further assess the general perception of students about learning MOOCs on the Coursera platform, 30 participants were invited to semi-structured interviews. The majority of students (90%) agreed that Coursera is an open platform that allows them to access global courses in a variety of fields with high-quality learning materials and practical course content. Furthermore, many students found Coursera courses to be convenient and flexible. However, some participants claimed that they were forced to take Coursera courses as part of their schoolwork.

"The Coursera platform is simple to use with plenty of qualified materials. It offers excellent academic support."

"I enjoy studying on Coursera because the courses have high quality and provide me with practical knowledge in a variety of fields."

"Coursera MOOCs are designed to be easy to understand. I found learning on Coursera to be convenient and flexible. I can study whenever and wherever I want."

When asked what they liked about the Coursera platform, students most frequently stated "good material quality" (30.0%), "convenient/active learning" (25.0%), "course format" (19.5%), and "course diversity" (18.7%). The results suggested that participants value high-quality course content as well as convenient and active learning experiences. The fact that the course format was also frequently mentioned suggested that the way courses are structured and presented is also an important factor in participant satisfaction. In contrast, when asked what they disliked about the Coursera platform, 38.1% of respondents did not have a specific reason to dislike it. Among those who had a reason to dislike Coursera, poor course design and

system-related issues were the most common reasons (15.2% each), followed by feeling overwhelmed (9.5%) and a lack of connection (7.1%).

4.2 The analysis of participants' general perception on the benefits of learning MOOCs on the Coursera platform

The benefits indicator, which measured the positive outcomes of learning on Coursera, had a mean score of 4.71 and a standard deviation of 1.485 (Table 6). The One-sample t-test (Table 5) showed that the mean score of the benefits variable was significantly higher than the midpoint of the scale (test value = 4), with a mean difference of 0.7085 (t = 6.749, p = 0.000).

Table 5. One-sample t-test of benefits of learning Coursera MOOCs (Test value = 4)

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Benefits	6.749	199	.000	.70850	.5015	.9155

Table 6. Mean scores of benefits of learning MOOCs on Coursera platform

Items	Mean (M)	SD
Participating in Coursera contributed positively to our personal development	4.81	1.713
There is a high quality of personal connections on Coursera	4.47	1.770
Learner autonomy is one of the main reasons for people enrolling on Coursera	4.58	1.667
We could replay and review the lecture multiple times	5.08	1.682
I think learning MOOCs give chance for higher education and career advancement	4.71	1.741
Learning MOOCs helps me to improve my knowledge	4.77	1.729
I feel it convenient to study MOOCs	4.66	1.667
I feel learning MOOCs help me build confident	4.53	1.748
I find that MOOCs is easy to understand	4.30	1.762
I learn MOOCs for certification	5.18	1.680
Benefits	4.71	1.485

Overall, the results indicated that participants perceived many benefits from learning on Coursera. Among the benefit items, "I learn MOOCs for certification" had the highest mean score (M = 5.18, SD = 1.680), followed by "We could replay and review the lecture multiple times" (M = 5.08, SD = 1.682), "Participating in Coursera contributed positively to our personal development" (M = 4.81, SD = 1.713), and "Learning MOOCs helps me to improve my knowledge" (M = 4.77, SD = 1.792). These findings were consistent with previous studies, which reported that online learning provides learners with a flexible and convenient way to earn credentials and improve

their skills and knowledge [9][32]. The item "Participating in Coursera contributed positively to our personal development" received a mean score of 4.81, indicating that the participants generally agreed with the statement. The positive perception of the personal development benefits of participating in Coursera was consistent with previous research that has highlighted the potential for online learning to facilitate personal growth and skill development [34]. Studies have found that online learning can promote self-directed learning, self-regulated learning, and a commitment to lifelong learning [32][43], which can contribute to personal development.

In addition, learners in this study also reported that MOOCs could enhance their autonomy (M = 4.58, SD = 1.770) and provide them with education and career opportunities (M = 4.71, SD = 1.741). This finding was in line with the literature, which showed that online learning can provide learners with greater control over their learning process and access to diverse educational resources [44]. Furthermore, learners also reported that they found MOOCs easy to understand (M = 4.30, SD = 1.762), which was consistent with previous research that has showed that MOOCs are effective in providing accessible and interactive learning experiences [31][32].

According to the results of the interviews, most students were aware of the numerous advantages of learning on the Coursera platform, such as gaining new knowledge, improving English proficiency, assisting future education and career development, receiving course completion certificates, connecting with other learners, improving skills, and making self-study sense.

"Coursera allows me to improve my English while also earning certificates from reputable universities for a reasonable fee."

"Learning on Coursera helps improve my knowledge, skills and self-study sense."

"What I like most about Coursera is that it provides a platform for learners to connect, share information, and discuss topics of interest to them."

4.3 The analysis of participants' general perception on the benefits of learning MOOCs on the Coursera platform

The mean score for the barrier indicator was 4.33 (SD = 1.573), illustrating a moderate level of perceived barriers to learning (refer Table 2).

The One-sample t-test (Table 7) was conducted to determine whether the mean score for the item "Barriers" (M = 4.33) significantly differed from the hypothesized test value of 4. The analysis's results showed a statistically significant difference between the test value and the observed mean score (t = 2.925, p = 0.004). The statistically significant difference suggested that participants thought there were more obstacles to online learning than the hypothesized test value of 4.

Table 7. One-sample t-test of barriers (Test value = 4)

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Barriers	2.925	199	.004	.32538	.1060	.5447

In Table 8, the lowest mean scores were found for the items "I feel that the material used in online courses is not relatable or reliable" (M = 4.01, SD = 1.89) and "I feel that the content quality of online lectures is not good" (M = 3.95, SD = 1.85). These

results suggested that some participants may have concerns about the quality and relevance of the course materials provided in online lectures.

Other items that received relatively low mean scores include "I have trouble maintaining focus on the topic discussed online" (M = 4.55, SD = 1.67) and "I have trouble understanding concepts in online lectures due to a lack of real-time interaction with instructors" (M = 4.63, SD = 1.68). These results were in line with earlier studies that underlined the difficulties of maintaining attention and engagement in online learning environments, especially given the lack of instructor face-to-face interaction [45].

Other studies have also found that the perceived complexity and difficulty of online course content can be a barrier to learning [46], as reflected in the mean scores for "I think that the topics covered in online lectures are complicated and difficult to understand" (M = 4.37, SD = 1.68) and "The teaching pedagogy utilized in online lectures is hard for me to keep up with" (M = 4.39, SD = 1.67).

Table 8. Mean scores of barriers toward learning MOOCs on Coursera platform

Items	Mean (M)	SD
I think that the topics covered in online lectures are complicated and difficult to understand	4.37	1.675
The teaching pedagogy utilized in online lectures is hard for me to keep up with	4.39	1.668
I find that many video lectures do not have any subtitles	4.20	1.908
I feel that the content quality of online lectures is not good	3.95	1.849
I often feel that online lectures contain irrelevant information that is not related to the topic	4.12	1.825
I feel that the tasks assigned in online lectures are often excessively long and redundant	4.30	1.710
I think that the presentation of online lectures lacks of creativity	4.42	1.711
I have trouble maintaining focus on the topic discussed online	4.55	1.671
I have trouble understanding concepts in online lectures due to lack of real-time interaction with instructors	4.63	1.675
I feel the information on online lectures is overwhelming	4.55	1.739
I feel the learning schedule on the online platform is too intense for me to follow	4.46	1.798
I feel that the online lectures contain little practical knowledge	4.28	1.790
I feel that the material used in online courses are not relatable or not reliable	4.01	1.894
Barriers	4.33	1.573

Some participants also expressed concerns about the workload and pacing of online courses, as indicated by moderate mean scores for "I often feel that online lectures contain irrelevant information that is not related to the topic" (M = 4.12, SD = 1.83), "I feel that the tasks assigned in online lectures are often excessively long and redundant" (M = 4.30, SD = 1.71), "The learning schedule on the online platform was too intense for me to follow" (M = 4.46, SD = 1.80), and "I feel the amount of information on online lectures was overwhelming" (M = 4.55, SD = 1.74).

Table 9. One-way ANOVA test for the barriers to learning Coursera MOOCs (Factor: Gender)

		Sum of Square	df	Mean Square	F	Sig.
Barriers	Between Groups	19.113	2	9.557	3.978	.020
	Within Groups	473.321	197	2.403		
	Total	492.434	199			

Furthermore, a One-way ANOVA test for the variable "Barriers" showed a statistically meaningful distinction between the means of the three gender groups (male, female, and other) at $p = 0.020$ (Table 9). The results indicated significant differences between male and female students' perceptions of Coursera's MOOC learning barriers. These results aligned with other research that proposed gender differences may influence students' perceptions of barriers to learning in online education [47].

Table 10. Problems encountered by participants taking Coursera MOOCs (multiple responses)

Problems	Responses		Percent of Cases
	N	Percentage	
Lack of energy/effort	117	19.9%	58.5%
Language	88	15.0%	44.0%
Lack of time	86	14.7%	43.0%
Personal life	52	8.8%	26.0%
Online format	42	7.1%	21.0%
Less or not self-direct	39	6.6%	19.5%
Lack of resources	37	6.3%	18.5%
Bad previous experience	33	5.6%	16.5%
Inadequate background	27	4.6%	13.5%
Lack of self-confident	25	4.3%	12.5%
Course credibility	24	4.1%	12.0%
Lack of equipment	11	1.9%	5.5%
Other	7	1.2%	3.5%
Total	**588**	**100%**	**294%**

To further investigate the problems encountered by participants while taking Coursera MOOCs, the frequency of various problems was analyzed (see Table 10). The most common problem reported by participants was "Lack of energy/effort" (19.9%). This was followed by the problems "Language" and "Lack of time," with 15% and 14.7% of responses, respectively.

It was worth noting that some problems, such as "Bad previous experience," "Inadequate background," and "Lack of equipment," were mentioned by a relatively small percentage of participants. This suggested that these issues were not significant for most learners.

In the interview section, 58% of the participants admitted that they lack motivation to study MOOCs and that language is a major barrier to absorbing the knowledge.

"Video lectures in English make it difficult for me to keep up and understand the content. This frustrates me and sometimes makes me unmotivated to study."

"I can't keep up with the learning progress because the lesson content is too extensive and time consuming."

"I get bored watching video lectures and not interacting with lecturers and peers."

Despite the fact that there were numerous perceived barriers to learning Coursera MOOCs, 64% of students said they would continue to study courses on the platform.

5 DISCUSSION

The study's results showed that on the first aspect, students' overall perception of learning MOOCs on the Coursera platform was positive (M = 4.84, SD = 1.490). Specifically, students perceived that Coursera has many high-quality courses and degrees (M = 5.10, SD = 1.606). This was consistent with several previous studies by Chansanam et al. [48] and Scott [49], who found that Coursera provided learners with access to a variety of courses and degrees from top universities that cater to different learning needs and interests. Students also stated that Coursera has a high expert level and good academic support (M = 5.08, SD = 1.629), which was consistent with research by Alraimi, Zo, and Ciganek [16] and Jansen et al. [50] that found Coursera learners value the diversity of experts who instruct courses on the platform because it gives them access to different viewpoints and insights. In addition, the participants agreed that Coursera provides useful courses and learning materials (M = 4.97, SD = 1.652). This finding was in accordance with several previous studies recognizing that students appreciated the quality of the content offered on Coursera and found it helpful in their learning [45]. Furthermore, participants claimed that Coursera was a user-friendly and convenient platform (M = 4.86, SD = 1.664). This result was similar to findings by Yuan, Powell, and Olivier [51] and Rohloff et al. [52] that showed Coursera's user interface and platform design were user-friendly and convenient, contributing to a positive learning experience for learners. Furthermore, in their research, Jordan [11] found that learners appreciate the flexibility offered by Coursera, which allows them to tailor their learning around other commitments. Overall, these results suggested the advantages of learning on the Coursera platform, such as the high-quality learning materials, wide range of courses and degrees, high level of expert and academic support, convenience and active learning.

The second aspect was the students' perception of the benefits of learning MOOCs on the Coursera platform (M = 4.71, SD = 1.485). This study's results indicated that participants perceived many benefits of learning MOOCs on Coursera, which was in line with previous studies that have discovered that students see many benefits when learning on the Coursera platform. Specifically, Aparicio, Bacao, and Oliveira [53] and M. Rafiq et al. [54] claimed that Coursera allows students to earn certificates from prestigious universities, helping to improve their job prospects and career development. Participants also reported benefits of being able to review and repeat lectures on Coursera (M = 5.08, SD = 1.682), which coincided with the finding that students appreciate the ability to repeat and review lectures on Coursera, which allows for more effective learning [55]. Furthermore, students claimed that taking Coursera MOOCs had a positive impact on their personal development, which also coincided with previous studies. For example, Zhu, Bonk, and Doo [56] found that courses on Coursera can enhance learners' self-efficacy, improve their knowledge and skills, and increase motivation and satisfaction, leading to greater personal development. Most

students agreed with the assertion that learners valued Coursera's high standard of personal connections, which was consistent with earlier findings. Several studies by Manca and Ranieri [57] and Toven-Lindsey et al. [58] revealed that Coursera learners valued their ability to connect with other learners, as well as with instructors, and engage in discussion and cooperative learning to exalt the learning experience. Overall, the results of this study section showed that participants perceived many benefits from learning on Coursera, including the ability to earn certifications, increase job prospects and career development, and review and repeat lectures for more effective learning and mastering of the material. Moreover, taking Coursera courses has been found to have positive impacts on personal development, including enhancing learners' self-efficacy, improving personal connections, and building confidence.

Finally, the aspect of students' perception of barriers to learning MOOCs on the Coursera platform obtained a mean score of 4.33 (M = 4.33, SD = 1.573). This value represented a moderate level of barriers to learning. This study's results expressed that students faced several barriers while learning Coursera courses. Specifically, students often have difficulty grasping concepts in online courses owing to the lack of face-to-face interaction with instructors (M = 4.63, SD = 1.675). This was in line with some previous studies. For example, according to Johnson [59] and Nguyen [60], students felt it difficult to understand complex concepts during virtual sessions due to a lack of direct contact with instructors, leading to lower learning outcomes. Besides, it was found that students thought the amount of information in the lectures was too much for them (M = 4.55, SD = 1.739). This result was in line with an earlier study emphasizing the difficulties students encounter when learning online, particularly when handling huge volumes of information [61]. In a study that examined the experiences of students taking online courses, Fan et al. [62] discovered that learners were frequently overwhelmed by the volume of material offered in online lectures, which made it difficult to retain and absorb the knowledge properly. In addition, students felt the online schedule was too tight for them to keep up (M = 4.46, SD = 1.798) which was also consistent with many studies. For example, a study by Lee and Mendlinger [63] discovered that students often struggle to manage their time effectively when taking online courses, which can lead to feelings of frustration and overwhelm. In addition, Ulum [64] found that learners may perceive the pace of online courses as too fast, causing them to struggle to keep up with the material. These studies suggested that the intense schedule of online courses can be a significant barrier to learning for some students, highlighting the need for online educators to provide adequate support and guidance to learners to help them manage their time and stay on track. Overall, this section's findings highlighted students' perceived barriers to learning Coursera courses, such as difficulties grasping concepts in online sessions owing to a lack of live interaction with instructors, overwhelming information on online lectures, a lack of motivation and concentration, problems with study language, and time management.

6 CONCLUSION AND RECOMMENDATION

The study investigated the perceptions of university students about learning MOOCs on the Coursera platform, focusing on both the benefits and barriers. Findings showed that participants had a generally favorable opinion of taking MOOCs on the Coursera platform, citing access to a wide range of courses and degrees,

high-quality materials, and a high level of support from experts as significant advantages. Participants also praised the convenience and flexibility of Coursera MOOCs.

The study revealed students' perceived benefits from Coursera MOOCs. Most students regard Coursera as a user-friendly, simple-to-use platform that provides numerous valuable and high-quality certificates from prestigious universities worldwide. They realized that learning on Coursera allows them to learn at their own pace and to watch videos over and over again. Furthermore, students perceived Coursera as a MOOCs platform that allowed them to improve their knowledge while also developing essential personal skills for further study and career advancement.

The study discovered numerous barriers to university students learning Coursera MOOCs. The most concerning barrier was a lack of interaction with the instructor, which made it difficult for learners to understand the lecture. Besides that, the large amount of information made it difficult for students to absorb it in the short time allotted for lecture videos. Moreover, many barriers were found that were related to the instructor's ability to transmit information and assess the learner's capacity to absorb it, such as lecturers' lack of creative presentation, students' inability to concentrate on lectures, or a lack of motivation. While taking Coursera MOOCs, many students reported language difficulties. Furthermore, students discovered that study schedules are too dense, making it difficult to arrange class schedules and study MOOCs.

This study's limitation was its sole dependence on the self-reported opinions of subjects, which might be skewed or not completely accurate. This paper discussed students' perceptions of learning MOOCs on Coursera based on extensive research into the benefits integrated into Coursera and the barriers that learners faced. But given the small amount of research, the study only obtained a sample of 200 students from a university in Vietnam, so the generalization is limited. Nonetheless, this study's results add to the general consensus about the benefits and drawbacks of MOOCs learners, particularly from the perspective of students, who constitute the majority of Coursera learners.

The authors suggest that Coursera can improve the effectiveness of its learning environment by addressing several key areas. These areas include improving communication between learners and instructors, improving the course design to include more appropriate schedules and multilingual subtitles, encouraging instructors to use more engaging delivery styles, and summarizing lecture content to help learners achieve their learning goals. Additionally, conducting surveys to understand user needs and satisfaction can lead to improvements in the accessibility and overall experience of MOOCs. The authors recommend that future studies consider using metrics such as dropout and completion rates to assess the effectiveness of MOOCs.

7 REFERENCES

[1] R.C. Sharma, "How to offer a massive open online course. Commonwealth education media centre for Asia," *EduComm Asia*, vol. 18, no. 1, pp. 19–20, 2013. https://www.academia.edu/5505040/How_to_Offer_a_Massive_Open_Online_Course_page_19_20_

[2] M. Srivastava, "MOOCs: A new pedagogical approach for Indian higher education," *University News–University of Victoria*, vol. 52, no. 16, 2014. https://www.academia.edu/12740007/MOOCs_A_New_Pedagogical_Approach_for_Indian_Higher_Education

[3] J. Reutemann, "Differences and Commonalities – A comparative report of video styles and course descriptions on edX, Coursera, Futurelearn and Iversity," *European Stakeholders Summit on Experiences and Best Practices in and Around MOOCs* [online]. pp. 383–392, 2016. http://dx.doi.org/10.26041/fhnw-874

[4] S. Zheng, M.B. Rosson, P.C. Shih, and J.M. Carroll, "Understanding Student Motivation, Behaviors and Perceptions in MOOCs. The 18th ACM Conference on Computer Supported Cooperative Work & Social Computing," pp. 1882–1895, 2015. https://doi.org/10.1145/2675133.2675217

[5] R. Corrado, E. Pretorius, and G. van der Westhuizen, "Undergraduate students' experiences of the use of MOOCs for learning at a cambodian university," *Educ. Sci.*, vol. 11, p. 336, 2021. https://doi.org/10.3390/educsci11070336

[6] G. Veletsianos, A. Collier, and E. Schneider, "Digging deeper into learners' experiences in MOOCs: Participation in social networks outside of MOOCs, notetaking and contexts surrounding content consumption," *British Journal of Educational Technology (BJET)*, vol. 46, no. 3, pp. 570–587, 2015. https://doi.org/10.1111/bjet.12297

[7] F.M. Hollands and D. Tirthali, "MOOCs: Expectations and reality. Full report," Center for Benefit-Cost Studies of Education, Teachers College, Columbia University, 2014. https://www.researchgate.net/publication/271841177_MOOCs_Expectations_and_reality

[8] F.M. Hollands and D. Tirthali, "Why do institutions offer MOOCs?" *Online Learning*, vol. 18, no. 3, pp, 1–19, 2014. Retrieved at https://www.researchgate.net/publication/271516787_Why_do_Institutions_Offer_MOOCs; https://doi.org/10.24059/olj.v18i3.464

[9] A. McAuley, B. Stewart, G. Siemens, and D. Cormier, "The MOOC model for digital practice," 2010. Retrieved at https://www.oerknowledgecloud.org/archive/MOOC_Final.pdf

[10] T.R. Liyanagunawardena, A.A. Adams, and S.A. Williams, "MOOCs: A systematic study of the published literature 2008–2012," *The International Review of Research in Open and Distributed Learning*, vol. 14, no. 3, pp. 202–227, 2013. https://doi.org/10.19173/irrodl.v14i3.1455

[11] K. Jordan, "Initial trends in enrolment and completion of massive open online courses," *The International Review of Research in Open and Distributed Learning*, vol. 15, no. 1, pp. 133–160, 2014. https://doi.org/10.19173/irrodl.v15i1.1651

[12] M. Zotova, T. Likhouzova, L. Shegai, and E. Korobeynikova, "The use of MOOCS in online engineering education," *International Journal of Engineering Pedagogy (iJEP)*, vol. 11, no. 3, pp. 157–173, 2021. https://doi.org/10.3991/ijep.v11i3.20411

[13] D. Koller, A. Ng, C. Do, and Z. Chen, "Retention and intention in massive open online courses: In depth," *EDUCAUSE review*, vol. 48, no. 3, pp. 1–14, 2013. Retrieved at https://er.educause.edu/articles/2013/6/retention-and-intention-in-massive-open-online-courses-in-depth

[14] J. Wochner, "Electronic resource review: Coursera, www.coursera.org," *Music Reference Services Quarterly*, vol. 21, no. 4, pp. 223–225, 2018. https://doi.org/10.1080/10588167.2018.1536191

[15] Q. Wang and R. Baker, "Content or platform: Why do students complete MOOCs?" *MERLOT Journal of Online Learning and Teaching*, vol. 11, no. 1, pp. 17–30, 2015. Retrieved at https://jolt.merlot.org/vol11no1/Wang_0315.pdf

[16] K.M. Alraimi, H. Zo, and A.P. Ciganek, "Understanding the MOOCs continuance: The role of openness and reputation," *Computers & Education*, vol. 80, pp. 28–38, 2015. https://doi.org/10.1016/j.compedu.2014.08.006

[17] L. Breslow, D. Pritchard, J. DeBoer, G. Stump, A. Ho, and D. Seaton, "Studying learning in the worldwide classroom: Research into edX's first MOOC," *Research in Practice and Assessment*, vol. 8, pp. 13–25, 2013. Retrieved at ResearchGate. https://www.researchgate.net/publication/237091973

[18] R.F. Kizilcec, C. Piech, E. Schneider, "Deconstructing disengagement: Analyzing learner subpopulations in massive open online courses," In *Proceedings of the Third International Conference on Learning Analytics and Knowledge*, pp. 170–179, 2013. https://doi.org/10.1145/2460296.2460330

[19] A. Ho, I. Chuang, J. Reich, C. Coleman, J. Whitehill, C. Northcutt, J. Williams, J. Hansen, G. Lopez, R. Petersen, "HarvardX and MITx: Two years of open online courses fall 2012–summer 2014," *SSRN Electronic Journal*, 2015. https://doi.org/10.2139/ssrn.2586847

[20] K. Ayyanar, M. Mercy, and N. Rathika, "Current status of massive open online course (MOOC): An overview," *SSRN Electronic Journal*, 2019. https://doi.org/10.2139/ssrn.4188385

[21] B.G. Gameel, "Learner satisfaction with massive open online courses," *American Journal of Distance Education*, vol. 31, no. 2, pp. 98–111, 2017. https://doi.org/10.1080/08923647.2017.1300462

[22] K.S. Hone and G.R.E. Said, "Exploring the factors affecting MOOC retention: A survey study," *Computers & Education*, vol. 98, pp. 157–168, 2016. https://doi.org/10.1016/j.compedu.2016.03.016

[23] H. Khalil and M. Ebner, "MOOCs Completion Rates and Possible Methods to Improve Retention – A Literature Review," In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2014*, vol. 2013, pp. 1236–1244, 2014. https://www.researchgate.net/publication/263348990_MOOCs_Completion_Rates_and_Possible_Methods_to_Improve_Retention_-_A_Literature_Review

[24] M. Masrom, "Technology acceptance model and E-learning," *Education, Computer Science*, 2007. https://www.semanticscholar.org/paper/Technology-Acceptance-Model-and-E-learning-Masrom/8f8ccf5dcfb60df66dbf2c18fc9b130c63ddce4a

[25] R.L. Akers and W.G. Jennings, "Social Learning theory," *The Handbook of Criminological Theory*, pp. 230–240, 2015. https://doi.org/10.1002/9781118512449.ch12

[26] C.L. Nagle, "Using expectancy value theory to understand motivation, persistence, and achievement in university-level foreign language learning," *Foreign Language Annals*, vol. 54, no. 4, pp. 1238–1256, 2021. https://doi.org/10.1111/flan.12569

[27] A. Bandura, W.H. Freeman, and R. Lightsey, "Self-efficacy: The exercise of control," *Journal of Cognitive Psychotherapy*, vol. 13, no. 2, pp. 158–166, 1999. https://doi.org/10.1891/0889-8391.13.2.158

[28] G. Gower, A.P. Ragsdale, G. Bisschop, R.N. Gutenkunst, M. Hartfield, E. Noskova, S. Schiffels, T.J. Struck, J. Kelleher, and K.R. Thornton, "Demes: A standard format for demographic models," *Genetics*, vol. 222, no. 3, 2022. https://doi.org/10.1093/genetics/iyac131

[29] R. Royaee, S.A. Ahmadi, and A. Jari, "Students' and faculty members' perceptions of the importance of business ethics and accounting ethics education: Iranian case," *Asian Journal of Business Ethics*, vol. 2, no. 2, pp. 163–171, 2012. https://doi.org/10.1007/s13520-012-0023-7

[30] N. Aharony and J. Bar-Ilan, "Learners' perceptions toward MOOCs and their effect on the professional development of nursing educators," *Journal of Professional Nursing*, vol. 32, no. 6, pp. 494–500, 2016. https://doi.org/10.1016/j.profnurs.2016.03.008

[31] K.F. Hew and W.S. Cheung, "Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges," *Educational Research Review*, vol. 12, pp. 45–58, 2014. https://doi.org/10.1016/j.edurev.2014.05.001

[32] S. Liaw, H. Huang, and G. Chen, "Surveying instructor and learner attitudes toward e-learning," *Computers & Education*, vol. 49, no. 4, pp. 1066–1080, 2007. https://doi.org/10.1016/j.compedu.2006.01.001

[33] P. Shea, C.S. Li, and A. Pickett, "A study of teaching presence and student sense of learning community in fully online and web-enhanced college courses," *The Internet and Higher Education*, vol. 8, no. 2, pp. 95–108, 2005. https://doi.org/10.1016/j.iheduc.2006.06.005

[34] P.A. Kirschner and A.C. Karpinski, "Facebook® and academic performance," *Computers in Human Behavior*, vol. 26, no. 6, pp. 1237–1245, 2010. https://doi.org/10.1016/j.chb.2010.03.024

[35] K. Saks and A. Leijen, "Distinguishing self-directed and self-regulated learning and measuring them in the e-learning context," *Procedia – Social and Behavioral Sciences*, vol. 112, pp. 190–198, 2014. https://doi.org/10.1016/j.sbspro.2014.01.1155

[36] A. Dang, S. Khanra, and M. Kagzi, "Barriers towards the continued usage of massive open online courses: A case study in India," *The International Journal of Management Education*, vol. 20, no. 1, p. 100562, 2022. https://doi.org/10.1016/j.ijme.2021.100562

[37] G. Conole, M. de Laat, T. Dillon, and J. Darby, "'Disruptive technologies', 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology," *Computers & Education*, vol. 50, no. 2, pp. 511–524, 2008. https://doi.org/10.1016/j.compedu.2007.09.009

[38] N. Aharony and J. Bar-Ilan, "Students' perceptions on MOOCs: An exploratory study," *Interdisciplinary Journal of e-Skills and Life Long Learning*, vol. 12, pp. 145–162, 2016. https://doi.org/10.28945/3540

[39] A. Field, "Discovering statistics using IBM SPSS statistics," *Sage Publications*, 2013. http://repo.darmajaya.ac.id/5678/1/Discovering%20Statistics%20Using%20IBM%20SPSS%20Statistics%20%28%20PDFDrive%20%29.pdf

[40] K. Swan, "Learning effectiveness: What the research tells us," In *Elements of Quality Online Education, J. Bourne and J. C. Moore (Eds.), Practice and Direction*, pp. 13–47, 2003. Retrieved at https://www.researchgate.net/publication/237590499

[41] K.S. Yuen and K.C. Li, "MOOCs: A review of the state-of-the-art," *Journal of Educational Technology Development and Exchange*, vol. 9, no. 1, pp. 1–16, 2016. Retrieved at https://www.academia.edu/22265385/MOOCs_A_Review_of_the_State_of_the_Art

[42] I. Bingöl, E. Kursun, and H. Kayaduman, "Factors for success and course completion in massive open online courses through the lens of participant types," *Open Praxis*, vol. 12, no. 2, pp. 223–239, 2019. Retrieved at https://files.eric.ed.gov/fulltext/EJ1267248.pdf

[43] C.-M. Chen, H.-M. Lee, and Y.-H. Chen, "Personalized e-learning system using item response theory," *Computers & Education*, vol. 44, no. 3, pp. 237–255. 2005. https://doi.org/10.1016/j.compedu.2004.01.006

[44] J.-H. Park and H.J. Choi, "Factors influencing adult learners' decision to drop out or persist in online learning," *Educational Technology & Society*, vol. 12, pp. 207–217, 2009. Retrieved at https://www.researchgate.net/publication/220374458

[45] R.F. Kizilcec, M. Pérez-Sanagustín, and J.J. Maldonado, "Self-regulated learning strategies predict learner behavior and goal attainment in massive open online courses," *Computers & Education*, vol. 104, pp. 18–33, 2017. https://doi.org/10.1016/j.compedu.2016.10.001

[46] G. Conole, M. Dyke, M. Oliver, and J. Seale, "Mapping pedagogy and tools for effective learning design," *Computers & Education*, vol. 43, no. 1, pp. 17–33, 2004. https://doi.org/10.1016/j.compedu.2003.12.018

[47] C.-S. Ong and J.-Y. Lai, "Gender differences in perceptions and relationships among dominants of e-learning acceptance," *Computers in Human Behavior*, vol. 22, no. 5, pp. 816–829, 2006. https://doi.org/10.1016/j.chb.2004.03.006

[48] W. Chansanam, K. Poonpon, T. Manakul, and U. Detthamrong, "Success and challenges in moocs: A literature systematic review technique," *TEM Journal*, vol. 10, no. 4, pp. 1728–1732, 2021. https://doi.org/10.18421/TEM104-32

[49] P. Scott, "Globalisation and higher education: Challenges for the 21st century," *Journal of Studies in International Education*, vol. 4, no. 1, p. 3–10, 2000. https://doi.org/10.1177/102831530000400102

[50] D. Jansen, R. Schuwer, A. Teixeira, and C.H. Aydin, "Comparing MOOC adoption strategies in Europe: Results from the HOME project survey," *eLearning Papers*, vol. 42, pp. 1–10, 2015. https://doi.org/10.19173/irrodl.v16i6.2154

[51] L. Yuan, S. Powell, and B. Olivier, "Beyond MOOCs: Sustainable online learning in institutions," *Computers & Education*, vol. 78, pp. 147–151, 2014. https://doi.org/10.13140/2.1.1075.1364

[52] T. Rohloff, F. Schwerer, N. Schenk, and C. Meinel, "openSAP: Learner behavior and activity in self-paced enterprise MOOCs," *International Journal of Advanced Corporate Learning (iJAC)*, vol. 13, no. 2, pp. 30–40, 2020. https://doi.org/10.3991/ijac.v13i2.16531

[53] M. Aparicio, F. Bacao, and T. Oliveira, "Grit in the path to e-learning success," *The Internet and Higher Education*, vol. 33, pp. 58–66, 2017. https://doi.org/10.1016/j.chb.2016.10.009

[54] K.R.M. Rafiq, H. Hashim, M. Md Yunus, and H. Norman, "ìSPEAK: Using mobile-based online learning course to learn 'English for the Workplace'," *International Journal of Interactive Mobile Technologies (iJIM)*, vol. 14, no. 8, pp. 19–31, 2020. https://doi.org/10.3991/ijim.v14i08.13185

[55] M.S. Roslan and C.J. Chen, "Exploring on-campus student satisfaction on learning via Mooc," *International Journal of Academic Research in Business & Social Sciences*, vol. 11, no. 14, pp. 142–153, 2021. https://doi.org/10.6007/IJARBSS/v11-i14/8535

[56] M. Zhu, C.J. Bonk, and M.Y. Doo, "Self-directed learning in MOOCs: Exploring the relationships among motivation, self-monitoring, and self-management," *Educational Technology Research and Development*, vol. 68, no. 5, pp. 2073–2093, 2020. https://doi.org/10.1007/s11423-020-09747-8

[57] S. Manca and M. Ranieri, "Is Facebook still a suitable technology-enhanced learning environment? An updated critical review of the literature from 2012 to 2015," *Journal of Computer Assisted Learning*, vol. 32, no. 6, pp. 503–528, 2016. https://doi.org/10.1111/jcal.12154

[58] B. Toven-Lindsey, R.E. Rhoads, and J.B. Lozano, "Virtually unlimited classrooms: Pedagogical practices in massive open online courses," *Internet and Higher Education*, vol. 24, pp. 1–12, 2015. https://doi.org/10.1016/j.iheduc.2014.07.001

[59] S.D. Johnson, "Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments," *Learning & Technology Library (LearnTechLib)*, 2000. https://www.learntechlib.org/p/8371/

[60] V.T. Nguyen, "The impact of online learning activities on student learning outcome in blended learning course," *Journal of Information & Knowledge Management*, vol. 16, no. 4, p. 1750040, 2017. https://doi.org/10.1142/S021964921750040X

[61] R. Del Valle and T.S. Duffy, "Online learning: Learner characteristics and their approaches to managing learning," *Instructional Science*, vol. 37, no. 2, pp. 129–149, 2009. https://doi.org/10.1007/s11251-007-9039-0

[62] S. Fan, L. Chen, M.S. Nair, S. Garg, S. Yeom, G. Kregor, Y. Yang, and Y. Wang, "Revealing impact factors on student engagement: Learning analytics adoption in online and blended courses in higher education," *Education Sciences*, vol. 11, no. 10, p. 608, 2021. https://doi.org/10.3390/educsci11100608

[63] J/W. Lee and S. Mendlinger, "Perceived self-efficacy and its effect on online learning acceptance and student satisfaction," *Journal of Service Science and Management*, vol. 4, no. 3, pp. 243–252, 2011. https://doi.org/10.4236/jssm.2011.43029

[64] H. Ulum, "The effects of online education on academic success: A meta-analysis study," *Education and Information Technologies*, vol. 27, no. 1, pp. 429–450, 2022. https://doi.org/10.1007/s10639-021-10740-8

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