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Challenges and Implications of Blended Learning Adoption in the Age of Communication Technology: A Case Study of Vietnamese Universities During the COVID-19 Pandemic

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Abstract
The pervasive influence of communication technology has profoundly shaped contemporary life, significantly impacting global education. The COVID-19 pandemic accelerated the adoption of technologies like social media platforms and massive open online courses (MOOCs) as substitutes for traditional in-person education, exposing shortcomings, particularly in regions with limited online infrastructure. Although extensive research exists on online education, including blended learning models, the challenges associated with their effective implementation remain underexplored. This study aims to address these gaps by examining the adoption of blended learning within Vietnamese universities during the pandemic through the lens of Activity Theory. This framework, which analyzes the dynamic interactions between individuals, tools, and their sociocultural environment, provides a deeper understanding of how students, educators, and institutions navigate blended learning. This study employed semi-structured interviews with administrators, lecturers, curriculum developers, and students across four campuses of a university in Vietnam. The findings highlight key challenges related to student engagement, academic dishonesty, and constraints in institutional infrastructure, underscoring the need for targeted strategies to enhance blended learning outcomes.

INTRODUCTION

The Vietnamese government has strongly emphasised the importance of developing human resources in the field of information technology (Hayden & Thiep, 2010). In response to the government effort, a privately-owned Vietnamese higher education institution (HEI) was established in 2006 with the main objective of enhancing human resources in the field of information technology. This HEI introduced undergraduate education programs specifically

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designed to focus on various aspects of information technology. The primary focus of this study is on the students currently enrolled in the information technology undergraduate program.

This Higher Education Institution (HEI) has introduced the information technology programme, which provides students with a comprehensive curriculum that includes science, technology, engineering, and mathematics (STEM) courses. Additionally, students have been also required to take core courses that cover subjects such as communication, softskills, politics, philosophy, and ethics. Additionally, students have been obligated to partake in physical education activities such as Vovinam (a Vietnamese martial art) and involved themselves in artistic endeavours, including traditional Vietnamese music. The primary goal of this comprehensive curriculum is to emphasise inclusivity and provide graduates with the essential information and skills required to fulfil the requirements of the global job market. Additionally, it aims to cultivate adaptability in order to effectively manage changes in the labour market. Recognizing the growing demand for diverse skill sets in the evolving labor market, it has later expanded its offerings to include non-STEM majors such as English linguistics, business administration, hospitality management, multimedia communications, and graphic design. This shift aligns with the government's broader ambition to develop well-rounded human resources, fostering interdisciplinary competencies that support both economic growth and the nation's digital transformation agenda.

In 2019, the Higher Education Institution (HEI) in Vietnam initiated a digital transformation strategy with the aim of offering students a holistic educational experience and fostering a digital learning environment and culture. In order to improve the learning experience of students, the institution searched for a well-regarded supplier of massive open online courses (MOOCs) that may be advantageous for both students and the higher education institution (HEI). The official contract with Coursera, a reputable provider of Massive Open Online Courses (MOOCs), was executed in August 2019. As a component of this shift, 20% of the curriculum at the higher education institution (HEI) currently comprises of blended courses that integrate Coursera Massive Open Online Courses (MOOCs). Every student who is registered in any of the six programmes (Information Technology, Business Administration, Graphic Design, English Linguistics, Multimedia Communications, and Hospitality Management) must successfully finish one blended course per semester on the Coursera MOOC platform.

This study, conducted across the university's four campuses in Hanoi, Ho Chi Minh, Da Nang, and Can Tho, focuses on the challenges faced by administrators, educators, and students during the integration of blended learning with MOOCs. Given the current state of digital transformation in education, it is essential to analyze how these stakeholders navigated the implementation process and addressed the difficulties that arose. This study aims to investigate and tackle the crucial research issue of comprehending and resolving these difficulties in the era of communication technology and evolving educational paradigms. The term "evolving educational paradigms" refers to the changing methods and approaches in education that are influenced by new technologies, shifting educational objectives, and innovative teaching strategies (Dara & Kesavan, 2024).

Research on MOOCs spans multiple streams, each addressing distinct dimensions of their development and impact (Moreno-Marcos et al., 2018). One critical stream focuses on the

pedagogical efficacy of MOOCs, assessing how these courses influence learning outcomes and student engagement (Deng et al., 2020; Jung & Lee, 2018). Studies in this area analyze the instructional strategies and course structures used in MOOCs to determine their effectiveness in different educational settings. Another stream examines the technological components of MOOCs, including the design and functionality of platforms, the use of technologies such as artificial intelligence and learning analytics, and the capacity of MOOC infrastructure to support large-scale participation (Govea et al., 2023; Kelkar, 2016).

Additionally, research explores equity and accessibility, investigating the barriers that prevent specific populations from participating in MOOCs, such as language, socioeconomic status, or geographic limitations (Van de Oudeweetering & Agirdag, 2018; Zafras et al., 2020). This stream also seeks ways to enhance MOOC accessibility to ensure inclusive learning opportunities for a global audience. A growing body of research addresses the business and policy dimensions of MOOCs, including the economic models supporting MOOC platforms, the implications for educational policies, and the transformative potential of MOOCs to reshape traditional higher education systems (Bozkurt et al., 2017; Yuan & Powell, 2013).

Despite the expansion of research on MOOCs, significant gaps remain—particularly regarding the challenges of integrating MOOCs within traditional educational models, especially in non-Western and developing country contexts. While much of the existing research focuses on MOOCs' theoretical potential, fewer studies offer empirical insights into their practical adoption within blended learning models, where MOOCs are combined with in-person teaching. This study aims to bridge this gap by examining the real-world integration of MOOCs in a Vietnamese higher education institution, providing a context-specific perspective on the opportunities and obstacles that arise during such transitions.

The theoretical framework of Activity Theory (Engeström, 1987) serves as a lens for understanding the interactions between students, educators, institutional structures, and digital tools. This framework identifies contradictions and tensions within the learning environment, offering insights into areas where improvements are needed to ensure the successful adoption of MOOCs. By applying Activity Theory, this study extends the body of knowledge on MOOCs, contributing to the still-emerging field of blended learning models. The research emphasizes the importance of multi-stakeholder perspectives, including administrators, lecturers, curriculum developers, and students, to provide a holistic understanding of the digitalization process.

Ultimately, this study offers practical recommendations for policymakers, educational institutions, and MOOC providers on how to effectively incorporate MOOCs into traditional higher education. In doing so, it adds to the global conversation on educational innovation and technology-enhanced learning, aiming to guide future efforts to achieve sustainable digital transformation in education systems worldwide.

This study explores the integration of MOOCs into blended learning at a Vietnamese university, addressing key challenges and stakeholder experiences. It begins with an Introduction outlining the study's context and objectives. The Literature Review summarizes existing research on MOOCs and identifies gaps related to their use in blended learning and non-Western contexts.

The Theoretical Framework introduces Activity Theory to analyze interactions between students, educators, and technology. Methodology explains the qualitative approach using stakeholder interviews across four campuses. Findings highlight challenges faced by students, lecturers, and the institution. The Discussion links these findings to theory and suggests improvements. Finally, Conclusion and Recommendations offer insights for institutions, policymakers, and MOOC providers, followed by Limitations and Future Research suggestions.

LITERATURE REVIEW

1. Blended learning and blended MOOCs

Blended learning and blended MOOCs have been subjects of extensive discussion and experimentation in higher education. While Massive Open Online Courses (MOOCs) have created disruptions in traditional education, there's growing acceptance of their integration into current higher education systems, especially through blended learning approaches (Bordoloi et al., 2021).

Blended learning, which combines MOOC content with traditional face-to-face activities, has gained traction as a novel approach in higher education. Albó and Hernández-Leo (2020) introduced MOOCs as part of conventional university courses in a blended learning style. This approach has received attention for its potential to overcome the limitations of standalone MOOCs. Blended MOOCs, also known as bMOOCs, aim to combine in-class interactions and online learning components (Yousef et al., 2015). They have emerged as an alternative model for teaching and learning in higher education. These blended MOOCs address various challenges associated with standalone MOOCs, including pedagogical issues related to feedback and assessment, the lack of interaction between learners and video content, high dropout rates, and the need for direct personal engagement (Grünewald et al., 2013; Hill, 2013; Hollands & Tirthali, 2014; Yousef et al., 2015).

Studies on the advantages of blended MOOCs emphasize their potential benefits. For instance, a model piloted at Vanderbilt University integrated a Coursera MOOC with a graduate machine learning course, resulting in positive student feedback and the development of self-paced learning skills (Bruff et al., 2013). Blended MOOCs allow instructors more time for classroom activities, such as discussions and problem-solving (Estévez-Ayres et al., 2015). Blended learning using MOOCs is seen as a way to provide high-quality learning experiences that are affordable and suitable for culturally diverse students (Bralić & Divjak, 2018). Furthermore, effective offline teaching combined with MOOCs can raise educational standards and the quality of education in various contexts (Virani et al., 2020). Collectively, these findings highlight the potential and benefits of blended learning and blended MOOCs in higher education.

2. Challenges of blended learning

Blended learning has introduced several challenges for students, lecturers, and institutions, as identified in prior research. Students face difficulties in organizing their virtual and real-world

schedules and need to commit more time to actively participate in discussion (Lotrecchiano et al., 2013). Issues related to self-discipline and time management emerged as common problems (Shand & Farrelly, 2018). Additionally, some students struggled with autonomy in their online learning and active engagement in offline classes. They found it challenging to stay focused while studying at home, often leading to incomplete video content absorption and unpreparedness for in-person sessions (Ho et al., 2021). Furthermore, procrastination and technological difficulties further compounded these challenges (Kenney & Newcombe, 2011).

Institutional challenges of blended learning have also been documented in the existing literature. Institutions had to address the need to change the mindsets and practices of lecturers (Ma'arop & Embi, 2016) and invest in enhancing lecturer quality (Carmona & Irgang, 2020). Lecturers cited a lack of support from their institutions, including issues like policy and guideline gaps, insufficient facilities, inadequate technical support, limited training, financial constraints, and collaboration deficits (Nguyen et al., 2018). These challenges align with identified barriers to implementing blended learning, such as the absence of formal implementation guidelines, guaranteeing technology and infrastructure availability, inadequate logistical and technical support, limited training opportunities, reduced wages for lecturers due to decreased class hours, and too little interaction among lecturers (Hunt et al., 2014; Korr et al., 2012; Ma'arop & Embi, 2016). Furthermore, language barriers, poor promotion incentives, and difficulty determining the right blend of face-to-face and online learning added to the challenges for lecturers (Aldosemani et al., 2019; Shah, 2020). Moreover, blended learning has imposed a considerable physical and mental burden on lecturers, particularly in the time-consuming design and development of web-based learning materials (Ma'arop & Embi, 2016).

Existing research (Aldosemani et al., 2019; Ma'arop & Embi, 2016; Shah, 2020) primarily focused on identifying the challenges of blended learning from the perspectives of students, lecturers and institutions separately. In contrast, this study adopts an integrated approach by considering the viewpoints of administrators, lecturers, curriculum developers, and students to comprehensively examine the challenges faced such participants. It encompasses challenges related to learning material development, teaching, learning, and assessing students in both MOOCs and face-to-face sessions. This holistic perspective allows higher education institutions in developing nations to make informed decisions about effectively implementing blended learning using MOOCs.

It is essential to examine the challenges encountered in the implementation of blended learning, specifically in the context of blended learning using MOOCs. These issues mostly revolve around the teaching and learning process, encompassing the pursuit of MOOCs and mentoring sessions. Additionally, the assessment of student performance in MOOCs and mentoring sessions, as well as the development of learning materials, are areas that require investigation. Previous research has focused mostly on developing and implementing the integration of MOOCs into traditional classrooms (Bogdan et al., 2017; Bralić & Divjak, 2018), as well as investigating the level of satisfaction among students. In the study conducted by Israel (2015) examining five models of blended MOOCs, it was observed that students expressed diminished satisfaction with the online learning component as a result of the absence of direct interpersonal engagement with their instructor. The aforementioned matter was also substantiated in the research

conducted by Dale and Singer (2019). Prior studies have indicated that these obstacles exist regarding the suitability of MOOCs, including their content and methods of student assessment, for integration into educational institutions' curricula (Bao & Zhao, 2020). Significantly, implementing blended learning has lacked multiple perspectives of stakeholders at higher education institutions.

3. Solutions for resolving challenges in blended learning

Blended learning, integrating traditional face-to-face instruction with online components, presents unique challenges that need to be addressed for optimal efficiency.

Improving student engagement and self-discipline

Enhancing student engagement requires the incorporation of interactive elements such as live seminars, discussion forums, and group projects, which promote active participation and community (Hew, 2016). Consistent feedback through formative assessments and peer evaluations helps sustain motivation and accountability (Bliuc et al., 2010). To foster self-discipline, online content should be structured into manageable modules with clear deadlines (Shand & Farrelly, 2018). Providing real-world relevant course materials and time management tools, such as digital planners, can further promote intrinsic motivation (Broadbent & Poon, 2015).

Enhancing technical infrastructure and support

Robust technical infrastructure is crucial. Investment in digital platforms that integrate multimedia tools seamlessly is recommended (Carmona & Irgang, 2020). Establishing dedicated technical support teams to promptly resolve issues, along with providing comprehensive technical training for both students and educators, is essential (Ma'arop & Embi, 2016; Nguyen et al., 2018).

Improving instructor training and support

Ongoing professional development for instructors is imperative. Training should cover both technical and pedagogical components of online instruction (Carmona & Irgang, 2020; Ma'arop & Embi, 2016). Facilitating the sharing of best practices and ongoing support through peer support networks and communities of practice is beneficial (Bates & Sangrà, 2011). Institutions should provide incentives for excelling in the implementation of blended learning (Hunt et al., 2014).

Addressing the challenges of academic integrity and assessment

To mitigate academic dishonesty, stringent academic integrity policies and sophisticated plagiarism detection software should be implemented (Perkins et al., 2020). Students should be educated about academic integrity through workshops (Sefcik et al., 2020). Assessment methods should be diversified to include both formative and summative assessments, ensuring

comprehensive evaluations (Brown & Race, 2012). Transparency in assessments can be achieved through the use of explicit rubrics and guidelines (Wollenschläger et al., 2016).

Improving collaboration and interaction

Synchronous online sessions, such as live lectures and questions and answers, should complement asynchronous activities to enhance interaction (Yamagata-Lynch, 2014). Collaborative tools like online discussion platforms and shared documents facilitate peer learning and group work (Søndergaard & Mulder, 2012). Hybrid sessions providing opportunities for in-person interactions can strengthen the community (Korr et al., 2012).

Policy development and institutional strategies

Comprehensive blended learning strategies should align with educational objectives and available resources (Garrison & Vaughan, 2008). Policies must encompass instructor responsibilities, academic integrity, technology use, and assessment standards (Aldosemani et al., 2019). Continuous evaluation and feedback mechanisms are necessary for ongoing improvement (Garrison & Vaughan, 2008).

By employing these strategies, educational institutions can establish effective and engaging blended learning environments that cater to the diverse needs of both students and educators.

4. Theoretical framework: Activity theory

This study on the adoption of blended learning during the COVID-19 pandemic is guided by Activity Theory, which analyzes the entire work/activity system, including the subject, tools, and object, within the socio-cultural context (Engeström, 1987). Activity Theory helps understand the interactions between students, educators, technology, and the institutional environment in blended learning settings, identifying contradictions and areas for improvement.

Activity Theory's core components include the subject (students, educators, curriculum developers), the object (successful adoption of blended learning), and the tools (digital platforms like MOOCs, classroom resources, technological devices). The community comprises the higher education institution and its influences, while the rules involve academic policies and guidelines. The division of labor refers to the roles of administrators, lecturers, and students.

This study uses Activity Theory to examine these interactions. For instance, it explores how MOOCs impact educators' roles and the challenges students face with self-discipline and engagement. Identifying contradictions, such as inadequate technological infrastructure or unclear academic guidelines, helps uncover potential areas for improvement, like enhancing tech support, clearer guidelines, and better training for educators.

In conclusion, Activity Theory provides a robust framework for analyzing blended learning by focusing on the interactions between students, educators, technology, and the institutional environment, identifying tensions and suggesting improvements (Engeström, 1987).

METHODOLOGY

This study employs a qualitative research design guided by Activity Theory to explore the interactions between students, educators, administrators, and institutional tools during the implementation of blended learning using MOOCs. The research utilizes semi-structured interviews (SSIs) with open-ended questions to gather in-depth insights from key stakeholders at a private university in Vietnam. The SSIs aim to uncover both opportunities and challenges in adopting blended learning, as well as to identify contradictions between the subjects (students, educators, and administrators), tools (MOOCs, Coursera platforms, plagiarism detection software), and institutional environment in pursuit of the object (successful implementation of blended learning).

The choice of SSIs aligns with the study's objectives by enabling consistent data collection across participants through a core set of questions, while still allowing flexibility to explore specific experiences relevant to each group (Fraenkel & Wallen, 2000). This consistency ensures reliable identification of themes and patterns across the responses of students, lecturers, curriculum developers, and administrators. To enhance the validity of the interview questions, the questions were developed based on an extensive literature review and expert consultations. Additionally, a pilot test was conducted with a subset of participants representative of the study population, and their feedback was used to refine the questions, ensuring clarity, relevance, and alignment with the study's theoretical framework and objectives.

The semi-structured approach mitigates potential interviewer bias by following a flexible framework, allowing interviewers to probe deeper into participants' responses. This flexibility is essential for identifying systemic contradictions within the activity system—such as misalignments between MOOCs as a learning tool and students' engagement, or between plagiarism detection tools and institutional policies (Patton, 2002). The SSIs are especially effective in this context, where the complexities of integrating MOOCs into traditional educational systems require detailed exploration beyond surface-level responses.

Furthermore, the SSI method enables real-time adaptation during interviews, allowing questions to be adjusted based on emerging themes. This adaptability ensures the capture of nuanced data that reflects participants' experiences with both digital tools (e.g., Coursera platforms, MOOCs, and plagiarism detection software) and institutional processes. These tools are integral to the learning environment and reflect the university's efforts to achieve the object of the activity system—the successful implementation of a blended learning model.

Finally, the SSI approach aligns with Activity Theory by enabling the integration of diverse stakeholder perspectives, capturing how different roles interact with tools and objectives within the institutional environment. This method is also common in mixed-methods research, providing qualitative insights that can complement quantitative data for a more comprehensive understanding of the research problem (Povee & Roberts, 2015). By employing this approach, the study ensures a deep and robust analysis, contributing to practical recommendations for improving the use of MOOCs and other digital tools in blended learning environments.

This study was conducted at a private university in Vietnam to explore the challenges and opportunities of integrating MOOCs into blended learning. The selected university was chosen for its early adoption of MOOCs, making it a valuable case for examining the implementation of blended learning. To enhance the transferability of the research, it is essential to consider the settings and specifics of the blended learning model involving MOOCs (bMOOC) at the Vietnamese higher education institution under study. The study spans four campuses located in Hanoi, Ho Chi Minh City, Can Tho, and Da Nang, reflecting a diverse yet homogeneous academic environment. The duration of using bMOOC at this institution is crucial, as it covers the initial adoption phase through the COVID-19 pandemic, providing insights into both implementation challenges and evolving practices over a critical period.

Additionally, the English proficiency levels among participants are varied, with most educators and students demonstrating intermediate to advanced proficiency, which is necessary for engaging with MOOC content delivered in English. This diversity in English proficiency levels among participants highlights the institution's efforts to enhance language skills alongside technical education. The inclusion of 30 participants—10 administrators, 11 lecturers, three curriculum developers, and six students—ensures a comprehensive understanding of the blended learning experience from multiple perspectives. This number of participants is justified given the study's aim to capture a wide range of insights while maintaining manageability for in-depth qualitative analysis.

The administrative body of the university consists of Vice-Rectors, Academic Directors, and Heads of Departments across disciplines such as Information Technology, Business Management, and English Language. Full-time lecturers from departments including Computing Fundamentals, Software Engineering, Information Assurance, Business and Management, and English Linguistics were also interviewed. The student participants were pursuing degrees in Information Technology, Business Administration, Hospitality Management, English Linguistics, Graphic Design, and Multimedia Communications.

The purposive sampling technique was employed to select participants who possessed in-depth knowledge and experience relevant to the research topic, ensuring the richness and relevance of the data. This method allowed the study to capture a wide range of perspectives and experiences, which is critical for understanding the challenges and implications of blended learning adoption in the higher education context.

The study followed the guidance of Braun and Clarke (2006) for conducting thematic analysis, which is a widely accepted method for qualitative research as illustrated in Figure 1. It is essential to note that the six-step thematic analysis process outlined by Braun and Clarke (2006) is intended to be a recursive one, allowing researchers to revisit earlier steps in response to new data or emerging themes. This approach enhances the validity and reliability of the analysis.

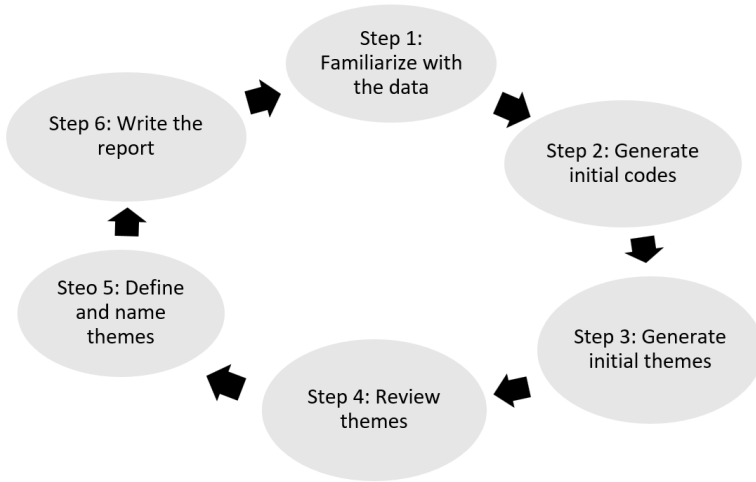

Figure 1 A 6-step guide to doing thematic analysis (Braun & Clarke, 2006)

The study used purposive sampling to select participants who possessed in-depth knowledge and experience relevant to the research topic, ensuring the data's richness and relevance. To maintain the quality of interviews, interviewers were trained to conduct interviews effectively, reducing the potential for bias or inconsistency. The interviews were of sufficient length to explore participants' perspectives thoroughly, providing comprehensive data for analysis.

To enhance the credibility of the research, triangulation methods were used in both data collection and analysis. Data triangulation involved gathering information from multiple sources, including administrators, lecturers, curriculum developers, and students, to ensure a comprehensive understanding of the blended learning experience. Methodological triangulation was applied by combining interviews with document analysis and observations, which provided a more robust and nuanced perspective on the research topic.

The interviews were conducted in Vietnamese to ensure that participants could express their views and experiences more comfortably and accurately. Conducting interviews in the native language of the participants reduces the risk of misinterpretation and enhances the authenticity of the responses. This approach is particularly important in a Vietnamese higher education context, where nuanced cultural and contextual factors can significantly influence the data. Kindly refer to Appendix A for the interview questions.

This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of FPT University, Vietnam. All participants provided their informed consent to participate in this study. Prior to participation, each participant was informed about the study's aims, the procedures involved, potential risks, and the confidentiality of the data collected. Written informed consent was obtained from all participants.

FINDINGS

Following the rigorous manual coding of 30 interview transcripts, the analysis yielded three overarching theme that encapsulated the challenges encountered in blended learning. These themes were (1) Challenges confronted by students in blended learning, (2) Challenges encountered by lecturers during offline mentoring sessions, and (3) Challenges faced by the higher education institution regarding Coursera MOOCs. Each of these themes is further elucidated by corresponding sub-themes, offering a comprehensive view of the multifaceted challenges in this institution.

Theme 1: Challenges faced by students in blended learning

Under this primary theme, two distinct sub-themes emerged as significant challenges experienced by students participating in blended learning:

1.1 Lack of self-discipline, cheating, and plagiarism: In this study, the term "lack of self-discipline" refers to students' difficulties in managing their time, motivation, and engagement within the blended learning environment, rather than a generalized inability to control behavior. These challenges arise from the need for students to take greater responsibility for their learning in online settings, where traditional in-class structures, such as scheduled lectures and direct supervision, are absent. Students often struggle with procrastination, meeting deadlines, and maintaining consistent effort throughout their courses, leading to disengagement from learning activities.

These issues are further compounded by academic dishonesty, including cheating and plagiarism, which threaten the integrity of the educational process. Some students resort to copying or unauthorized collaboration, undermining the intended learning outcomes. These behaviors highlight the complexities of promoting academic integrity in blended learning, where students must navigate both independent study and institutional expectations with limited face-to-face guidance.

1.2 Unwillingness to interact: Within this sub-theme, we explore students' reluctance or disinclination to actively engage and interact within the blended learning framework. It sheds light on barriers hindering meaningful student participation and collaboration.

Theme 2: Challenges of offline mentoring sessions faced by lecturers

The second overarching theme delves into the challenges confronted by lecturers during offline mentoring sessions, offering insights into their professional experiences. This theme encompasses the following sub-themes:

2.1 Issues of mentoring: This sub-theme examines the complexities and hurdles associated with the mentoring aspect of offline sessions, shedding light on the various challenges educators face in guiding and supporting students effectively.

2.2 Student performance assessment: Under this sub-theme, the focus shifts towards assessing student performance. It explores the intricacies and challenges of evaluating students' progress and academic achievements within blended learning.

Theme 3: Challenges of coursera MOOCs faced by the higher education institution

The third overarching theme delves into the challenges the higher education institution encounters concerning being integrated with Coursera MOOCs. This theme encompasses the following sub-themes:

3.1 Constraints of coursera MOOCs learning materials and plagiarism checker software: This sub-theme represents the constraints inherent in the learning materials provided by Coursera MOOCs. Additionally, it explores the success and challenges of plagiarism checker software employed within this educational framework.

3.2 Issues of peer review in assignments: Within this sub-theme, the focus is directed towards the challenges and intricacies associated with the peer review process in assignments facilitated by Coursera MOOCs. It elucidates the multifaceted issues surrounding peer assessment and its impact on the educational institution.

By systematically categorizing these emergent themes and sub-themes, our analysis provides a comprehensive understanding of the diverse challenges encountered in blended learning, thus offering valuable knowledge for educators, institutions, and policymakers in higher education.

Table 1

Themes and sub-themes on challenges of blended learning

Themes	Definition of themes	Sub-themes
Theme 1: Challenges faced by students	The challenges encountered by students pertain to deficiencies in self-regulation, instances of academic dishonesty such as cheating and plagiarism inside their MOOCs, as well as a hesitancy to engage with instructors and fellow students both in the virtual learning environment and during in-person sessions.	Sub-theme 1.1: Lack of self-discipline, cheating, and plagiarism Sub-theme 1.2: Unwillingness to interact
Theme 2: Challenges of offline mentoring sessions faced by lecturers	The challenges encountered by lecturers in offline mentoring sessions pertain to the difficulties associated with organizing and evaluating face-to-face sessions, as well as analyzing the progress made by students in their MOOCs.	Sub-theme 2.1: Issues of mentoring and student performance assessment

Themes	Definition of themes	Sub-themes
Theme 3: Challenges of Coursera MOOCs faced by the higher education institution	The obstacles faced by higher education institutions in implementing Coursera MOOCs encompass various aspects, including as constraints related to learning resources and plagiarism detection software, as well as difficulties encountered in the process of peer reviewing assignments.	Sub-theme 3.1: Limitations of Coursera MOOCs learning materials and plagiarism

1. Theme 1: Challenges faced by students

Within the overarching theme of "Challenges Faced by Students" within blended learning, two prominent sub-themes emerged, reflecting the difficulties encountered by students. These sub-themes are elucidated as follows:

Sub-theme 1.1: Lack of self-discipline, cheating, and plagiarism

The study revealed that students often grapple with a lack of self-discipline, which manifests in several ways within the context of MOOCs. The Vice Rector (VR) of the higher education institution highlighted that many students approached learning in MOOCs merely as a means to pass courses, lacking the motivation to genuinely explore knowledge and develop skills.

> *Learners self-discipline is not high, they are not ready for active learning (not being forced to learn means not learning at all, learning only to pass the course, cheating, and plagiarizing) (VR)*

This lack of self-discipline was further exemplified by instances of cheating and plagiarism in Coursera MOOCs. In-depth insights from various stakeholders shed light on this issue:

The Head of the Curriculum Development Office (CD2) shared that students often displayed low levels of self-regulation, frequently delaying their engagement with MOOCs until the last minute, or even missing deadlines for certificate submissions.

> *It also challenges for students as there are students who have never self-managed their learning. Previously, lecturers had to remind them about the deadlines even in the class. Switching from passive learning to active learning is challenging for students. If students do not study seriously, they may fail the course and have to retake it. So, students lose money. (CD2)*

Lecturers from different campuses (L3, L10, L11) echoed this sentiment, asserting that students' initial lack of autonomy in managing their MOOCs hindered their transition from passive to active learning. Some students resorted to copying or plagiarism when faced with academic challenges.

> *Students are not autonomous in studying Coursera MOOCs, and the assessments might not be controlled. Thus, students might not truly study at all. (L3)*

> *Students do not take the initiative, do not arrange their study, miss the deadline to submit a certificate of completion, depending on others to copy. When being flagged for plagiarism, they look for mentors support. (L10)*

> *Some students are learning with the sense of being forced, so the implementation has not been achieved as the university's expectation. (L11)*

Students (S1, S2, S3, S4) corroborated these observations, expressing concerns about procrastination and the negative consequences of not taking their Coursera MOOCs seriously. They noted that students who postponed their studies until the end of the course often struggled to manage the accumulated workload efficiently.

> *It's a challenge for students who don't want to study. (S1)*

> *Now, talking about challenges is the time arrangement, especially for those who cannot manage it like I do. If students are not motivated to study from the beginning and wait until the end of the course to study, then they will get loads of accumulated work and will not be able to handle it efficiently. Especially since Coursera MOOCs are the prerequisite for other subjects, it will be a disadvantage. (S2)*

Several participants highlighted instances of cheating, with students either paying others to complete their MOOCs on their behalf or resorting to shortcuts to pass quizzes. These actions not only raised concerns about academic ethics but also led to a situation where students relied on group efforts rather than individual learning.

Plagiarism emerged as a significant challenge, with students often failing to cite sources properly and engaging in copy-and-paste practices when completing assignments. This lack of awareness and understanding of plagiarism's consequences highlighted the need for better academic integrity education.

The multifaceted nature of these challenges, encompassing self-discipline, cheating, and plagiarism, signifies the complexity of student experiences in MOOCs. Addressing these issues necessitates a concerted effort to promote student autonomy, ethical conduct, and a deeper commitment to learning within blended learning.

Sub-theme 1.2: Unwillingness to interact

This sub-theme underscores the reluctance of students to interact meaningfully, both with their peers and lecturers, both in virtual and face-to-face settings. The following observations and perspectives from various stakeholders shed light on this issue:

The Academic Director from Ho Chi Minh campus (AD1) highlighted the absence of social interaction between students and their instructors or peers in online learning. This lack of interaction hindered the development of essential skills, such as presentation skills.

The Former Head of Curriculum Development (CD3) expressed concerns about students' reticence to ask questions, attributing it not to comprehension but rather to laziness. The promotion of interactive aspects of learning remained a challenge.

The Head of the Fundamental Computing Department in Hanoi campus (H1) pointed out that asynchronous learning made it challenging for students to interact, as they were not studying simultaneously. Furthermore, the course forums lacked shared collaboration.

> *Online learning lacks the social interaction between students-students and students-lecturers. It does not help students develop presentation skills on Coursera. (AD1)*
>
> *Due to the online learning culture, sometimes students do not ask questions. We often think they don't ask because they already understand, but it is rather because they are lazy. The exchanging of interactions is extremely important, but I'm not sure if we have promoted that aspect yet. (CD3)*
>
> *Everyone does not learn synchronously so it is difficult to interact like in traditional classes. It is also difficult to interact in the forum because it is not concurrent. (H1)*

Department Heads and lecturers (H2, H5, L5, L6) observed that students, particularly those from Vietnamese and East Asian backgrounds, exhibited a reluctance to ask questions, viewing interactions as unnecessary or of limited value. These students often only sought instructor intervention when facing issues related to plagiarism. The interaction barriers were also noted by participants (H1, H2, H4, L4, L8), who cited factors, such as the absence of group activities in Coursera MOOCs, the evolving role of lecturers as facilitators rather than central figures, few in-person mentoring hours, and students' lack of questions due to inadequate comprehension of course material.

The disinclination of students to engage in interactions, whether through course forums or face-to-face sessions, was a recurring theme. This reluctance not only impacted their immediate learning experiences by depriving them of guidance but also threatened their long-term development of essential skills. Collaborative efforts are required to address these challenges and encourage students to actively participate in interactions that foster learning and skill development.

2. Theme 2: Challenges of offline mentoring sessions faced by lecturers

Within the thematic analysis, a singular sub-theme emerged under "Challenges of Offline Mentoring Sessions Faced by Lecturers," which was designated as "Issues of Mentoring and Student Performance Assessment."

Sub-theme 2.1: Issues of mentoring and student performance assessment

This sub-theme reflects the challenges that instructors encountered during the transition from traditional teaching to blended learning, thus emphasizing the shift from being lecturers to mentors and supporters:

The Vice Rector (VR) and the Academic Director of Can Tho campus (AD2) highlighted how instructors were more accustomed to traditional lecturing than coaching, mentoring, guiding, and supporting students.

> *Lecturers are often familiar with teaching (lecturing) more than spending time coaching, mentoring, and supporting, and guiding learners. (VR)*

> *I see that instructors are used to being the star in the lecture hall. They like to give lectures; do you understand? Without giving lectures, they would feel irritated. They enjoy lecturing in class more than creating an environment for students to learn and explore knowledge. This is the second challenge. In my opinion, The good instructor is one who does not teach anything in class but creates an environment for the students to learn and do things on their own. (AD2)*

The Head of Business and Management Department, the Head of English Linguistics Department, the Management lecturer at Ho Chi Minh campus (H2, H5, L10), and the Software Engineering lecturer at Can Tho campus (L1) shed light on obstacles related to in-person mentoring sessions. These included limitations in conveying ideas effectively within the constraints of course structures and interaction spaces.

It was noted by some lecturers that students primarily asked technical questions during offline mentoring sessions, concentrating on grading and assignment submissions rather than course content. The ability of instructors to self-study effectively, possess in-depth professional knowledge, and comprehensively understand Coursera course content was identified as a challenge.

Department Heads and lecturers (L3, L4, CD3, H3, H6) voiced concerns about evaluating student performance after completing MOOCs. They noted that students often focused on passing exams rather than holistic learning. Challenges in adequately assessing the quality of learners were mentioned, including the reliance on friends or others to complete courses.

> *Quiz and peer reviews have not fully evaluated whether students are good or not. (L3)*

> *For the new type of learning, blended learning, students can be more self-disciplined and proactive. However, some of my students have achieved it, some students have not. But we can't evaluate it properly. I could feel it from each offline mentoring session; they have not asked anything about professional matters. (L4)*

> *It is really difficult to assess the quality of learners: In the process of online learning, some students can ask friends or other people to study for them rather than self-study. (H3)*

In essence, this sub-theme highlights the difficulties that the instructors faced in adapting to the evolving role of mentorship in blended learning environments. It also highlights the challenges associated with conducting in-person mentoring sessions successfully, as well as the complexities of assessing student performance accurately. Addressing these challenges requires thoughtful strategies and a shift in instructional approaches.

3. Theme 3: Challenges of coursera MOOCs faced by the higher education institution

The examination of challenges faced by the higher education institution within the context of Coursera MOOCs revealed two prominent sub-themes:

Sub-theme 3.1: Limitations of coursera MOOCs learning materials and plagiarism checker

Under this sub-theme, concerns regarding the learning materials and the functionality of the plagiarism checker were raised:

The Head of the English Linguistics Department at the Can Tho campus (H4) and others highlighted instances where the learning content, particularly in English and Marketing programs, was perceived as inadequate or inappropriate. Students faced challenges when the material did not align with the specific cultural, economic, and educational context of their local environment. This misalignment led to confusion and necessitated offline instructors to provide additional clarification and expansion to make the content relevant and comprehensible to the students.

> *The condensed knowledge is confusing; therefore, the offline instructor needs to explain again. (H4)*

> *The subjects that were not really okay were my major. Their learning contents were designed to be used in the US. Digital marketing in Vietnam, for the moment, is concentrated on Facebook and TikTok. The learning content focused on Twitter, but here in Vietnam, we cannot really apply it very much, even though the content will be updated in 2021. It's not suitable for the reality here. (S6)*

A few lecturers indicated that some courses on Coursera primarily transmitted theoretical knowledge through videos, lacking practical activities and real-life applications. For instance, students majoring in English Linguistics required practical demonstrations and in-person instruction for skill-related courses.

> *This format is not suitable for students majoring in English Linguistics who study presentation skills on Coursera (e.g., Dynamic Public speaking). These students need an on-site instructor for skill-related courses. Students need demonstrations from the instructors on the spoken and body language during the presentation. (L2)*

The low diversity in quizzes and fixed assignment topics raised concerns about students potentially copying each other's work and compromising the integrity of the assignment peer review process.

An issue was raised regarding the accuracy and reliability of the plagiarism checker software on Coursera. Students reported instances where they were flagged for plagiarism despite completing assignments independently. This undermined confidence in the plagiarism detection function.

> *The plagiarism checker software is not entirely reliable. Also, lecturers complain about this issue when submitting their papers to the system. The system informs him/her that another document already exists when he/she submits the work for the second time after revision. (H1)*

> *The anti-plagiarism function of the MOOC system is not really effective. For example, the anti-plagiarism system rated my assignment 0% (of plagiarism). However, when I submitted that assignment, I then received an email flagging me for plagiarism. I had to the system support team to manually check and remove the flags from the system. (L6)*

> *Like I said in the survey once, I was practicing my grammar on Coursera. I did the whole assignment by myself. However, I submitted it to Coursera, I got flagged for plagiarism. (S2)*

Sub-theme 3.2: Issues of peer review assignments

This sub-theme applied to students' attitudes and behaviors regarding peer review assignments:

Several respondents expressed concerns about students' lackadaisical approach to peer review assignments, characterized by careless and inadequate reviews. Students were often observed providing high ratings to their peers without thorough examination, diminishing the value and credibility of the evaluation process.

> *For example, when doing peer-review, students review each other on Coursera in a careless manner. (H5)*

> *Students' peer-reviews are compromised. They give very high reviews to each other, and the quality of reviews cannot be ensured. (H6)*

> *Also, the students' responsibility in peer review is not high. (CD3)*

> *Peer-review: students do not have to read. They only need to mark 3-5 assignments, which they can do without careful reviewing. (L2)*

Instructors and students alike noted that peer reviews were not consistently meaningful, as some students appeared to simply fulfill the criteria without genuine engagement. This had implications for the quality of feedback provided and the effectiveness of the peer review mechanism.

A detailed account was provided by the marketing lecturer in Hanoi campus (L5), who highlighted the challenges of peer review assignments. The lecturer pointed out issues, such as students providing random or incomplete reviews, the practice of exchanging peer-review links among students, and the need for students to take the peer-review process more seriously.

> *The peer review mechanism is not very good because many students review recklessly. This is a graded component and students do not read carefully but review very randomly to fulfill the criteria. Before, it was possible to send peer-review links to each other and the grades from peer-review were very high. Now, such a thing is no longer possible. However, students who study together still give each other very high grades. Those who only put 'haha, hihi, hoho' in their assignments are still graded. Peer review like that is not effective. Although Coursera has provided the guidelines and rubric for peer review, I think our students read them both but still review very carelessly. Currently, when implementing Coursera, peer review does not give a proper evaluation. (L5)*

The primary findings from the interviews regarding the challenges of blended learning are encapsulated in Figure 2, which delineates three principal dimensions: (i) Challenges encountered by students, (ii) Challenges associated with offline mentoring sessions as experienced by lecturers, and (iii) Challenges pertaining to the integration of Coursera MOOCs within the higher education institution.

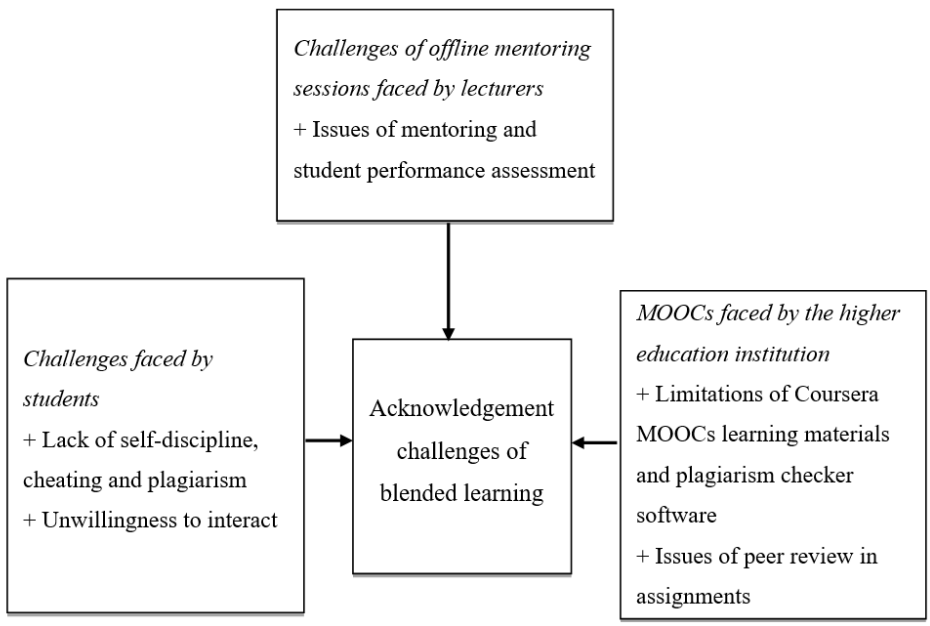

Figure 2 Challenges of blended learning

DISCUSSION

This study explored the challenges in implementing MOOCs within a blended learning model, using Activity Theory as a framework to analyze contradictions between subjects (students, educators, and administrators), tools (MOOCs, Coursera platforms, plagiarism detection software), and the object (successful implementation of blended learning). The findings highlight how these contradictions create systemic tensions that impact student engagement, academic integrity, mentoring, and performance assessment.

1. Contradictions in self-discipline, cheating, and plagiarism

The lack of self-discipline observed among students reflects a contradiction between the subject (students) and the tools (MOOCs), as students struggled to independently manage their learning without the structure provided by traditional face-to-face education. MOOCs require learners to be self-motivated and organized, yet the absence of external supervision and structured schedules led many students to procrastinate and miss deadlines. This highlights a tension between the flexibility offered by MOOCs and the students' need for structured learning environments, aligning with prior studies (Nguyen et al., 2021; Shand & Farrelly, 2018).

Further, academic dishonesty, including cheating and plagiarism, reflects another contradiction between the object (achieving authentic learning outcomes) and the tools (plagiarism detection software and Coursera quizzes). Students often focused on passing courses through shortcuts rather than engaging with the material meaningfully, undermining the object of learning. As Karasavvidis (2009) points out, this conflict between "what to learn" (object) and "how to learn" (MOOCs as tools) can affect both academic integrity and learning outcomes. Additionally, while collaboration among students can foster learning, some students took advantage of teamwork by sharing answers to secure certificates, introducing further contradictions between peer collaboration and individual accountability.

2. Contradictions in student engagement and interaction

This study also found a lack of meaningful interaction between students and instructors during offline mentoring sessions. This reflects a misalignment between the subject (educators) and object (effective blended learning), as educators were expected to shift from traditional lecturing to mentoring roles. However, the absence of clear guidelines for student engagement in MOOCs led to inconsistent interaction patterns, with students only seeking help when faced with plagiarism issues or deadlines. This lack of interaction points to a contradiction between the institutional rules (which did not require active participation in mentoring sessions) and the desired object (student-centered learning).

Students' reluctance to engage in Coursera forums due to asynchronous learning schedules highlights further tension between tools (MOOCs) and community (the collaborative learning environment). The asynchrony of online activities limited the opportunity for real-time collaboration, resulting in minimal peer engagement. These findings align with prior studies (Gamage et al., 2020; Yin, 2016), which observed similar interaction barriers in MOOC platforms.

3. Challenges in mentoring and assessment

The findings revealed that some lecturers struggled to transition from traditional teaching methods to roles focused on mentoring students within a blended learning framework. This shift represents a contradiction between the subject (lecturers) and tools (MOOCs), as lecturers felt their new roles were undervalued by students, who were accustomed to instructor-led learning. Instructors also expressed concerns about limited opportunities for meaningful interactions during mentoring sessions, which further strained their ability to provide adequate guidance and support.

The division of labor within the institutional environment created additional tensions. While lecturers were responsible for mentoring students and facilitating their use of Coursera materials, students were often focused solely on obtaining completion certificates to pass their courses, leading to a disconnect between students' priorities and the institution's learning objectives. This conflict reduced the effectiveness of mentoring sessions and weakened the assessment of student performance, as students relied on shortcuts to meet course requirements.

4. Limitations of coursera MOOCs and tools

The study identified limitations in Coursera's MOOC content and tools, reflecting a misalignment between the tools (MOOCs) and the object (successful learning outcomes). Coursera courses often lacked practical applications relevant to the Vietnamese context, which limited their effectiveness. Furthermore, the use of fixed assignment topics and limited test banks did not adequately assess students' understanding, creating frustration among both students and instructors.

Instructors tried to bridge these gaps by supplementing MOOCs with additional materials during face-to-face sessions, reflecting efforts to resolve contradictions between the MOOC platform (tool) and the institutional rules governing curriculum delivery. However, the plagiarism detection tool on Coursera also introduced challenges by incorrectly flagging assignments as plagiarized, reflecting tensions between automated evaluation tools and the nuanced nature of student work. These contradictions emphasize the need for more adaptable tools to align with local educational contexts.

5. Issues with peer review assignments

The findings also highlighted challenges in peer review assignments, which revealed contradictions between the subject (students) and the community (the collaborative learning environment). Many students provided careless and superficial feedback, compromising the value of peer reviews. This behavior reflects a misalignment between the intended object (collaborative learning and meaningful assessment) and the way students used the peer review tool, treating it as a formality to complete rather than an opportunity for learning.

The peer review mechanism also created tension between rules (grading criteria) and the tools (peer review platform), as students often exchanged high grades without careful evaluation, reducing the credibility of the process. These findings are consistent with previous research

(Cambre et al., 2018; Nguyen, 2022), which identified similar challenges in maintaining quality and fairness in peer assessments.

The findings of this study reveal systemic tensions within the activity system involved in implementing blended learning with MOOCs. These tensions arise from misalignments between students, educators, tools, rules, and institutional objectives. The use of Activity Theory provides a valuable lens to identify and understand these contradictions, offering insights into how they impact student engagement, academic integrity, mentoring practices, and performance assessments. Addressing these contradictions requires clearer institutional guidelines, enhanced mentoring support, improved assessment tools, and the integration of more contextually relevant learning materials.

CONCLUSION

This study provides a comprehensive examination of the complexities and challenges faced by a higher education institution when implementing a blended learning approach utilizing Coursera MOOCs. Several key themes and sub-themes emerged from the research, shedding light on critical areas that require attention and improvement.

One of the central themes revolves around the reluctance of students to engage meaningfully with both their lecturers and peers. This reluctance translates into deficiencies in both online and offline interactions, hindering students' ability to seek help, ask questions, or actively participate in discussions. This passivity not only affects their learning experience but also impedes the development of vital 21st-century skills like collaboration, communication, critical thinking, and creativity. Another significant theme delves into the challenges faced by lecturers during offline mentoring sessions. The transition from traditional lecture-centered teaching to supporting students' self-directed learning and mentoring presents a substantial adjustment for some educators. The effectiveness of face-to-face mentoring is hindered by several barriers, including limited course frameworks, one-way interactions, and a focus on grading rather than fostering engagement. Issues related to student performance assessment represent yet another crucial theme. Overreliance on final exams as the sole determinant of student grades diminishes motivation for deep engagement with course materials, thorough assignment completion, and active participation in peer assessments. The limitations of Coursera MOOCs' learning materials and platform functionalities, particularly plagiarism checking and peer review assignments, also emerged as significant concerns.

In conclusion, this study highlights the necessity for a comprehensive approach to address the inherent challenges of blended learning using MOOCs. Encouraging active student-lecturer and student-student interaction, offering support and training for lecturers, and revising assessment strategies are critical steps that higher education institutions should take. By adopting these measures, institutions can unlock the full potential of blended learning with MOOCs, providing students with a high-quality education tailored to the demands of the modern world.

LIMITATIONS AND RECOMMENDATIONS

This study has certain limitations that should be acknowledged. Firstly, the research was restricted to six undergraduate programs within a single Vietnamese private university. Consequently, the findings should be considered with caution when applying them to other universities in Vietnam or different countries. Instead, the focus should be on the transferability of the insights, taking into account the specific contexts and similarities between institutions. The specific educational context and cultural factors unique to this institution may not be representative of other settings. Secondly, the investigation focused on a specific case of blended learning, specifically the integration of Coursera MOOCs with offline mentoring. The applicability of these findings to other MOOC providers or alternative blended learning models may vary, as different platforms and instructional designs could present distinct challenges and opportunities that were not captured in this study. Additionally, the COVID-19 pandemic necessitated the use of online interviews via Microsoft Teams and email in 2021, preventing face-to-face interviews. Online interviews may obscure certain personal qualities and lack the real-time interaction found in face-to-face interviews, potentially impacting the depth and nuance of the data collected.

To address these limitations and enhance future research, several recommendations are proposed. Expanding the research scope to include multiple universities across different regions and educational contexts could enhance the generalizability of the findings. Comparing public and private institutions, as well as universities from various cultural backgrounds, would provide a more comprehensive understanding of the challenges and solutions in blended learning. Moreover, investigating other MOOC providers and alternative blended learning models would offer insights into the applicability of the findings across different platforms. Exploring various instructional designs and technological integrations could highlight best practices and innovative solutions.

Enhancing interview methods is also crucial. Future research should incorporate a mix of interview methods, including face-to-face interviews when possible, to capture more detailed and nuanced data. This approach would allow for richer analysis, as body language and immediate feedback could be better observed. Additionally, longitudinal studies could track changes over time, providing insights into the evolving dynamics of blended learning adoption.

Institutions should invest in robust technical infrastructure to support blended learning. This includes ensuring high-quality digital platforms and providing comprehensive technical support for both students and educators. Regular updates and maintenance of the infrastructure can mitigate technical challenges and enhance the overall learning experience. Continuous professional development programs for educators are essential. Training should cover both technical aspects and pedagogical strategies for online and blended learning. Creating peer support networks and communities of practice among educators can facilitate the sharing of best practices and ongoing support.

Promoting academic integrity is another key recommendation. Implementing stringent academic integrity policies and utilizing advanced plagiarism detection software are crucial. Educating students about academic integrity and the consequences of dishonest behavior

through workshops and seminars can help foster a culture of honesty and responsibility. Enhancing student engagement through interactive and participatory elements in online components is also vital. Incorporating live seminars, discussion forums, and group projects can promote active participation and a sense of community. Structuring online content into manageable modules with clear deadlines can help students manage their time and stay disciplined.

Finally, revising assessment strategies is necessary. Diversifying assessment methods to include both formative and summative assessments can provide a more comprehensive evaluation of student learning. Clear guidelines and rubrics for online assessments ensure transparency and fairness. Encouraging peer assessments and self-assessments can enhance learning and accountability. By addressing these recommendations, educational institutions can overcome the challenges identified in this study and create more effective and engaging blended learning environments that meet the diverse needs of students and educators.

Conflict of interest

We certify that there is no conflict of interest with any financial, personal or other relationships with other people or organizations related to the material discussed in the manuscript.

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Appendix 1

Vice rector interview protocol

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential.

Section 1: Background information

1. Please introduce yourself.
2. Where do you work?
3. What is your position?
4. How many years have you worked as the Vice Rector at the Higher Education Institution (HEI)?
5. What is your educational background?

Section 2: Challenges of blended learning

6. What do you see as the weaknesses of curriculum design, teaching & learning, assessment, and lecturers' professional development in blended learning (BL) implementation within undergraduate programs at Higher Education Institution (HEI)?
7. In your opinion, what are the challenges of using BL in undergraduate programs at the Higher Education Institution (HEI)?
8. In your view, what are the solutions to overcome these challenges?

Appendix 2

Academic director interview protocal

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential.

Section 1: Background information

1. Please introduce yourself.
2. Where do you work?
3. What is your position?
4. How many years have you worked as the Academic Director at the Higher Education Institution (HEI)?
5. What is your educational background?

Section 2: Challenges of blended learning

6. What do you see as the weaknesses of teaching & learning, assessment, and lecturers' professional development in blended learning (BL) implementation within undergraduate programs at your HEI?
7. In your opinion, what are the challenges of using BL in undergraduate programs at your HEI?
8. In your view, what are the solutions to overcome these challenges?

Appendix 3

Head of the department interview protocal

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate benefits and challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential.

Section 1: Background information

1. Please introduce your name.
2. Where do you work?
3. What is your position?
4. How many years have you worked at the Higher Education Institution (HEI)?
5. What is your educational background?
6. How long have you experienced blended learning?
7. How many blended courses do you instruct/manage?

Section 2: Challenges of blended learning

8. What do you see as the weaknesses of teaching & learning, assessment, and lecturers' professional development in blended learning implementation within undergraduate programs at your HEI?
9. In your opinion, what are the challenges of using BL in undergraduate programs at your HEI?
10. In your view, what are the solutions to overcome these challenges?

Appendix 4

Lecturer interview protocal

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate benefits and challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential.

Section 1: Background information

1. Please introduce your name.
2. Where do you work?
3. What is your position?
4. How many years have you worked at the Higher Education Institution (HEI)?
5. What is your educational background?
6. How long have you experienced blended learning?
7. How many blended courses do you instruct?

Section 2: Challenges of blended learning

8. What do you see as the aweaknesses of teaching & learning, assessment, and lecturers' professional development in blended learning implementation within undergraduate programs at your HEI?
9. In your opinion, what are the challenges of using BL in undergraduate programs at your HEI?
10. In your view, what are the solutions to overcome these challenges?

Appendix 5

Curriculum developer interview protocal

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate benefits and challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential.

Section 1: Background information

1. Please introduce your name.
2. Where do you work?
3. What is your position?
4. How many years have you worked at the higher education institution (HEI)?
5. What is your educational background?

Section 2: Challenges of blended learning

6. What do you see as the weaknesses of curriculum design for blended learning at your HEI?
7. In your opinion, what are the challenges of using BL in undergraduate programs at your HEI?
8. In your view, what are the solutions to overcome these challenges?

Appendix 6

Student interview protocal

Role of the interviewee: ……
Location of the interview: ……
Date of the interview: …… Time of the interview: ……..

Thank you for participating in this study. The purpose of this research is as follows: *To investigate benefits and challenges faced in implementing blended learning in undergraduate programs*

The interview should last approximately 45-60 minutes. Some follow-up questions might be inquired for additional clarity during the interview. This interview will be recorded and later transcribed by the interviewee.

The interviewee may avoid answering any of the questions, or change the answers and stop the interview at any time. The information during the interview will be confidential

Section 1: Background information

1. What is your name?
2. Which campus are you studying?
3. What is your program?
4. What year are you in?

Section 2: Challenges of blended learning

5. In your opinion, what are the challenges of using BL in undergraduate programs at your HEI?