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The impacts of Massive Open Online Courses (MOOCs) on teaching and learning in the Digital World. A case of Wisconsin International University College, Ghana

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Abstract:
In response to the significant advancements in digital learning, especially accelerated by the COVID-19 pandemic, this paper presents a focused investigation into the implications of Massive Open Online Courses (MOOCs) on teaching and learning practices. A thorough literature review on e-learning, drawing from various researchers and educational institutions, sets the stage for this exploration. The study emphasizes the use of MOOCs as a pivotal component in supporting educational endeavours within academic settings. Adopting a quantitative research methodology, the paper analyzes data from 500 participants, including 450 students and 50 lecturers, primarily from Wisconsin International University College, Ghana. This analysis sheds light on the nature of course content, time allocation, preferred MOOC platforms, and pedagogical styles, as well as comparisons between popular free and paid platforms. The findings reveal a distinct preference among students for YouTube, an unstructured MOOC platform, while lecturers show a preference for Coursera, known for its hybrid approach. This dichotomy in platform preferences offers insights into the diverse ways MOOCs are being utilized in academic contexts.

Keywords:
Massive Open Online Courses (MOOCs); Digital Learning; E-Learning; Pedagogical Styles.

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1. Introduction

The education landscape has undergone a significant transformation in recent years, largely propelled by advancements in technology, especially in the realm of digital learning. The traditional education model, characterized by its reliance on physical classrooms and face-to-face instruction, has increasingly shown limitations in meeting the evolving needs of learners in a rapidly changing world. The onset of the COVID-19 pandemic brought these limitations into sharp focus, as educational institutions worldwide were compelled to pivot towards remote learning methods. This shift, necessitated by unprecedented global disruption, highlighted the urgency of adopting more flexible and accessible instructional approaches capable of transcending physical space limitations (Hodges et al., 2020). In response to these evolving educational demands, Massive Open Online Courses (MOOCs) have emerged as a promising and innovative solution. MOOCs offer learners the opportunity to engage in self-paced, online learning experiences from various locations, including the comfort of their own homes. This modality of learning has been recognized for its potential to democratize access to education and foster lifelong learning, as noted in research by Liyanagunawardena et al. (2013). Moreover, Margaryan et al. (2015) explored the motivations and learning experiences of MOOC participants, underscoring the flexibility and scalability of MOOCs in catering to a diverse array of learner needs.

Further studies have delved into the various advantages of MOOCs, such as enhancing learner engagement, improving knowledge retention, and facilitating collaboration among learners (Yousef et al., 2014; Yuan et al., 2013). However, these studies have also brought to light certain challenges associated with MOOCs, including high attrition rates and the necessity for effective pedagogical strategies to promote active learning and interaction among learners (Jordan, 2015; Koller et al., 2013).Given the growing prominence and potential impact of MOOCs on both teaching and learning, it becomes increasingly crucial to conduct a comprehensive examination of their implications within the context of a digital world. This research article aims to contribute to the existing body of knowledge by critically evaluating the role of MOOCs in transcending the boundaries of traditional education. It focuses specifically on exploring the implications and impacts of MOOCs within the digital educational landscape, drawing insights from various studies and practical implementations.

Specifically, the following were the objectives of the study:

1) To assess the adoption and usage of MOOCs platforms in teaching and learning.
2) To investigate preferences for MOOCs pedagogy styles amongst lecturers and students.
3) To identify preferences for MOOCs payment types amongst lecturers and students.
4) To explore the impact of MOOCs on achieving teaching and learning goals.

This study holds significant importance within the academic realm, as it contributes to the existing body of knowledge surrounding e-learning and Massive Open Online Courses (MOOCs). By examining research data and engaging in policy development, this study aims to shed light on the practice of integrating MOOCs in teaching and learning contexts. The findings obtained through this study have the potential to yield valuable insights for various stakeholders, including educational institutions, students, and lecturers. Specifically, the study may emphasize the importance of incorporating MOOCs as a pedagogical tool and highlight the benefits they offer in enhancing the teaching and learning experience. Additionally, policymakers within the education sector can benefit from the study's findings, as they can inform decision-making processes regarding the application of learning Information Systems, thereby guiding the development of effective policies and strategies in this domain. By exploring the significance of integrating MOOCs in teaching and learning, this study contributes to the advancement of scholarly understanding and practical implementation in the field of e-learning and MOOCs.

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2. Review of related literature

2.1 Evolution of digital learning

The emergence of e-learning has revolutionized education, transformed traditional instructional methods, and provided new opportunities for learners. Early forms of e-learning, such as computer-based training (CBT) and web-based training (WBT), laid the foundation for digital learning experiences (Alessi & Trollip, 2001; Cooper, 2002). However, the development of Learning Management Systems (LMS) played a crucial role in the growth of e-learning, offering centralized platforms for managing and delivering online courses (Ally, 2004). LMS platforms like Moodle, Blackboard, and Canvas facilitated content organization, learner tracking, and communication, driving the adoption of e-learning in educational institutions. Theoretical frameworks, such as the Community of Inquiry (CoI) model (Garrison et al., 2000) and the Technology Acceptance Model (TAM) (Davis, 1989), have shaped the design and implementation of e-learning. Technological advancements, including high-speed internet, multimedia authoring tools, and mobile devices, have further enhanced the accessibility and interactivity of online learning experiences (Johnson et al., 2016). The integration of emerging technologies like virtual reality, augmented reality, and artificial intelligence holds promise for future innovations in e-learning. The adoption of e-learning in higher education has been significant, with universities incorporating online courses, blended learning models, and fully online degree programs (Allen & Seaman, 2017).

2.1.1 Conceptual frameworks in understanding MOOCs: from community of inquiry to TPACK

In the rapidly evolving domain of digital education, Massive Open Online Courses (MOOCs) stand out as pivotal in democratizing access to learning worldwide. Characterized by their scalability, open access, and interactive formats, MOOCs offer diverse and flexible learning opportunities (Veletsianos & Shepherdson, 2016). Central to the conceptual understanding of MOOCs is George Siemens' theory of connectivism, which posits that learning in the digital age is networked and distributed (Siemens, 2014). This theory has profoundly influenced MOOCs' design, particularly connectivist MOOCs (cMOOCs), emphasizing collaborative and network-driven learning experiences (Tschofen & Mackness, 2016). Siemens' insights into digital learning environments provide an essential framework for understanding the impact of MOOCs in educational settings, underscoring the shift towards more autonomous, collaborative, and technology-mediated learning modalities (Downes, 2016). Consequently, MOOCs, aligned with connectivist principles, represent a significant paradigm shift in education, facilitating broad access to knowledge and collaborative learning opportunities (Joksimović et al., 2016). Massive Open Online Courses (MOOCs), a significant innovation in digital education, are defined by scholars in various ways, reflecting their multifaceted nature. George Siemens (2013), a pioneer in the field, describes MOOCs as online courses characterized by free and open registration, a publicly shared curriculum, and open-ended outcomes, highlighting their accessibility and scalability. Stephen Downes (2012), who co-developed the first MOOC with Siemens, focuses on their connectivist aspects, emphasizing learning through networks and the expansive capacity of the internet. Mackness, Waite, Roberts, & Lovegrove (2013) view MOOCs as internet-based courses designed for large-scale participation, extending educational opportunities beyond traditional settings. Yuan & Powell (2013) highlight MOOCs' role in offering unlimited participation and open access, making education more affordable and flexible. Finally, Conole (2013) sees MOOCs as a new model for delivering learning content online, accommodating an unlimited number of participants and supporting diverse learning styles and environments. Collectively, these definitions encapsulate the essence of MOOCs as platforms that democratize education, emphasizing open access, scalability, and the utilization of digital networks for learning.

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The conceptual framework of Massive Open Online Courses (MOOCs) provides a theoretical lens for understanding the design, delivery, and impact of these online learning experiences. MOOCs have gained significant attention in the field of education due to their scalability, open access, and potential to reach a global audience. One prominent conceptual framework for studying MOOCs is the Community of Inquiry (CoI) model, proposed by Garrison, Anderson, and Archer (2000). This framework emphasizes the interplay between cognitive presence, social presence, and teaching presence in online learning environments. Cognitive presence refers to the extent to which learners can construct meaning through critical thinking and reflection. Social presence focuses on the sense of connectedness and interaction among learners and instructors, fostering a collaborative learning community. Teaching presence involves the design and facilitation of learning activities by instructors to support meaningful learning experiences. Other conceptual frameworks, such as the Self-Determination Theory (Deci & Ryan, 1985) and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), have also been used to examine various aspects of MOOCs, including learner motivation and the integration of technology and pedagogy. These conceptual frameworks provide a theoretical foundation for researchers and practitioners to explore the unique characteristics and outcomes of MOOCs.

2.2 The evolutionary journey of MOOCs

The emergence of e-learning has marked a revolutionary shift in the education sector, fundamentally transforming traditional instructional methods and offering unprecedented opportunities for learners worldwide. The early stages of e-learning were characterized by formats such as computer-based training (CBT) and web-based training (WBT), which set the initial groundwork for what would evolve into more sophisticated digital learning experiences (Alessi & Trollip, 2001; Cooper, 2002). The advent of Learning Management Systems (LMS) like Moodle, Blackboard, and Canvas, represented a significant milestone in e-learning's evolution, providing centralized platforms that streamlined the management and delivery of online courses (Ally, 2004; Watson & Watson, 2007). These platforms have been instrumental in facilitating content organization, learner tracking, and communication, thereby bolstering e-learning's adoption across various educational institutions. Theoretical frameworks have played a pivotal role in shaping e-learning's development. Notably, the Community of Inquiry (CoI) model (Garrison et al., 2000) and the Technology Acceptance Model (TAM) (Davis, 1989) have informed the design and implementation strategies of e-learning environments, emphasizing the importance of social presence, cognitive presence, and teaching presence in creating effective online learning communities.

Technological advancements have continually enhanced the scope and quality of e-learning. The advent of high-speed internet, sophisticated multimedia authoring tools, and the ubiquity of mobile devices have significantly increased the accessibility and interactivity of online learning experiences (Johnson et al., 2016). The integration of cutting-edge technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) is poised to further revolutionize the field, offering immersive and personalized learning experiences (Fowler, 2015; Lee & Hung, 2015). The global adoption of e-learning, especially in higher education, has been profound. Universities around the world have increasingly embraced online courses, blended learning models, and fully online degree programs to cater to a diverse student population (Allen & Seaman, 2017). This trend has been further accelerated by global events such as the COVID-19 pandemic, which necessitated a rapid shift to online modes of learning and underscored the need for resilient and adaptable educational models (Marinoni et al., 2020).

Looking towards the future, e-learning is expected to continue evolving, integrating more adaptive learning technologies and data analytics to offer more personalized and effective learning experiences. This evolution

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promises not only to enhance the quality of education but also to make it more inclusive and accessible to learners across different geographical, social, and economic backgrounds (Zawacki-Richter et al., 2019).

The history of MOOCs illustrates a significant shift in the way education is accessed and delivered. Originating from correspondence courses to becoming sophisticated online platforms, MOOCs have continually adapted to the changing demands of learners worldwide. They stand as a symbol of the democratization of education, reflecting the ongoing transformation towards more inclusive and adaptable learning models.

In exploring the adoption, usage, and impact of MOOCs in the context of Wisconsin International University College, Ghana, the study integrates contemporary insights from the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Recent advancements in these theoretical models provide a nuanced understanding of technological acceptance in educational settings. TAM, initially proposed by Davis (1989), has been further developed in recent years. Studies by Venkatesh et al. (2016) have extended TAM to include factors like user experience and service quality, offering a deeper understanding of user engagement with technologies like MOOCs. Additionally, the work of Cheung and Vogel (2013) on TAM in e-learning contexts provides valuable insights into the specifics of online learning technology acceptance. Moreover, UTAUT, as expanded upon by Williams et al. (2015), incorporates elements such as habit and hedonic motivation, which are particularly relevant in the context of MOOCs. This expanded model helps in understanding the comprehensive set of factors that influence learners' and educators' engagement with MOOC platforms. By applying these updated theoretical perspectives, the study aims to uncover the multifaceted factors influencing the adoption and effective use of MOOCs, thereby contributing to the broader discourse on digital learning technologies in higher education.

2.3 Impact of MOOCs on teaching and learning

The impact of Massive Open Online Courses (MOOCs) on teaching and learning has been a topic of significant research and discussion. MOOCs have introduced new possibilities for education by offering open access to high-quality courses from renowned institutions to learners worldwide. One of the key impacts of MOOCs is their potential to democratize education, breaking down traditional barriers of access and allowing learners from diverse backgrounds to engage in learning opportunities (Kop, 2011). MOOCs have also facilitated self-directed learning, enabling learners to pursue their interests and acquire knowledge at their own pace (Liyanagunawardena et al., 2013).

Moreover, MOOCs have encouraged the adoption of innovative instructional approaches, such as blended learning models and flipped classrooms, where educators can leverage MOOC content as a resource to enhance in-class interactions and engage students (Rodriguez, 2012). However, it is important to note that the impact of MOOCs on teaching and learning is not without challenges, including issues related to learner motivation, course completion rates, and the need for effective pedagogical design to ensure meaningful learning experiences (Daniel, 2012). Overall, the impact of MOOCs on teaching and learning is a dynamic area of research, highlighting both the opportunities and complexities associated with this transformative form of online education. MOOCs have also influenced pedagogical practices by encouraging instructors to explore new instructional strategies and engage in online teaching and facilitation (Bonk & Khoo, 2014). The collaborative nature of MOOCs, often facilitated through discussion forums and peer assessment, promotes active learning and knowledge sharing among participants (Veletsianos & Shepherdson, 2016). Additionally, MOOCs have allowed educators to reach a wider audience and extend their expertise beyond the traditional classroom setting, fostering professional development and knowledge dissemination (Liyanagunawardena et al., 2014). The flexibility and adaptability of MOOCs have also led to the emergence of lifelong learning opportunities, allowing individuals to engage in continuous education and skill development throughout their lives (Yousef et al., 2014). However, it is important to address concerns regarding the quality assurance and

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accreditation of MOOCs, as well as the need for ongoing support and training for educators to effectively design and deliver MOOCs (Hew & Cheung, 2014). These considerations will contribute to maximizing the positive impact of MOOCs on teaching and learning.

2.4 Statistical overview of various MOOCs platforms.

There are different pedagogy styles when it comes to the design of various MOOCs platforms. This study groups them into three pedagogy styles namely, structured, hybrid (semi-structured) and unstructured styles.

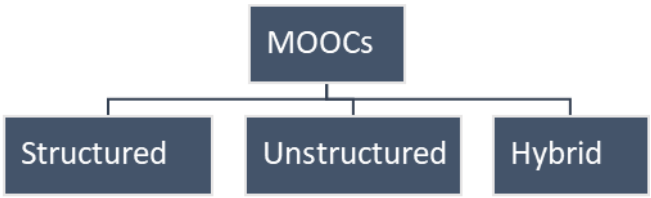

Fig. 1. MOOCs Pedagogy styles.

Table 1. List of popular MOOCs and their Pedagogy styles.

MOOC	Pedagogy Style
Alison	Structured
Canvas Network	Hybrid
Coursera	Hybrid
edX	Hybrid
FutureLearn	Hybrid
The Great Courses	Structured
iversity	Hybrid
Kadenze	Hybrid
Khan Academy	Hybrid
Linkedin Learning	Hybrid
MIT OCW	Hybrid
OpenClassrooms	Hybrid
openHPI	Hybrid
OpenLearning	Hybrid
OpenSAP	Hybrid
Open Universities Australia	Structured
Shaw Academy	Hybrid
Stanford Online	Hybrid
SWAYAM	Hybrid
Udacity	Hybrid
Udemy	Hybrid
Youtube	Unstructured

Source: Authors' construct (2023)

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Table 2. List of popular MOOCs and their corresponding number of users.

MOOC	Number of Users (Millions)
Alison	25
Canvas Network	5
Coursera	92
edX	40
FutureLearn	17
The Great Courses	8
iversity	1
Kadenze	-
Khan Academy	70
Linkedin Learning	27
MIT OCW	170
Open Classrooms	2.5
openHPI	40,000 (thousand)
Open Learning	2.17
Open SAP	5
Open Universities Australia	5,000 (thousand)
Shaw Academy	12
Stanford Online	-
SWAYAM	13
Udacity	1.6
Udemy	57
YouTube	Over 100

Source: Authors' construct (2023)

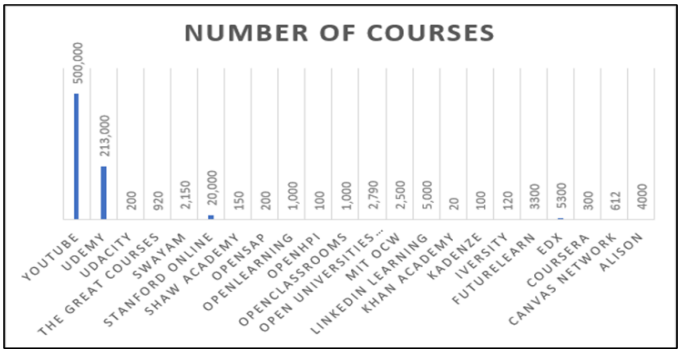

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Fig. 2. Number of courses (Source: Authors' construct (2023)

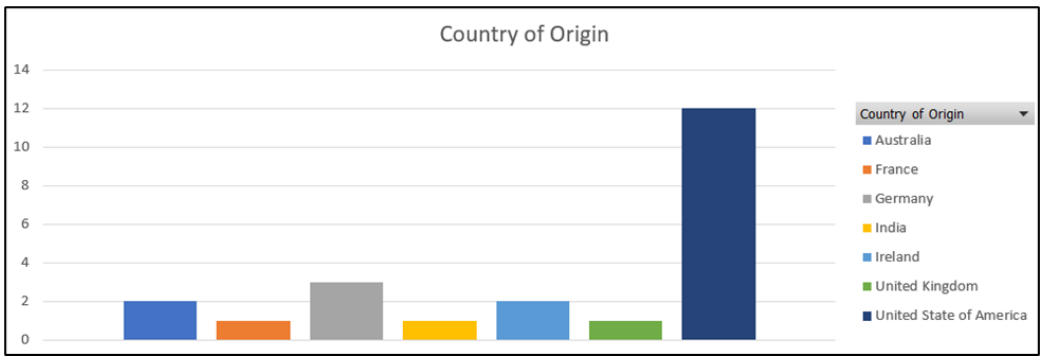

Fig. 3. MOOCs country of origin
Source: Authors' construct (2023)

3. Data collection and methods

The research design of this study centered on assessing the impact of Massive Open Online Courses (MOOCs) on teaching and learning, employing a quantitative approach. This method was chosen to analyze numerical data to understand MOOC utilization's various aspects and implications comprehensively. Participants in the study included 450 undergraduate and graduate students and 50 lecturers from Wisconsin International University College, Ghana. Selected through convenience sampling, this group provided a practical and relevant sample given the constraints of the study period. Data were collected via online surveys tailored to extract quantifiable information. The surveys comprised close-ended questions, focusing on variables such as the nature of the content delivered through MOOCs, the duration of engagement with these platforms, the preferred MOOC platforms, pedagogical styles, and preferences for free or paid platforms. The analysis of the quantitative data was conducted using descriptive statistical techniques. This approach allowed for identifying clear patterns and trends, offering a quantified view of MOOCs' usage and perception among the participants. Survey responses were meticulously cleaned and processed using Microsoft Excel, which ensured the accuracy and integrity of the study's findings. In examining the impact of Massive Open Online Courses (MOOCs) on teaching and learning practices at Wisconsin International University College, Ghana, the selection of specific MOOC platforms was driven by their relevance to our educational context and the patterns of digital learning adoption observed among our target participants. Platforms such as Coursera, edX, Khan Academy, and YouTube were chosen based on their widespread popularity and diverse pedagogical offerings, which are reflective of the global MOOC landscape. Coursera and edX, renowned for their structured courses and affiliations with prestigious universities, offered insights into formalized online education, aligning with the academic pursuits of our students and faculty. Khan Academy's focus on a broad range of subjects and its flexibility catered well to self-paced and informal learning preferences. Additionally, YouTube, serving as an unstructured MOOC platform, was included due to its extensive use for educational purposes, especially in a context where informal and non-traditional learning methods are gaining traction. This selection provided a comprehensive understanding of the varied ways in which MOOCs are utilized and perceived in our academic setting, ensuring that the study encompassed a broad spectrum of MOOC usage scenarios, from formal course enrolment to informal self-directed learning.

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Throughout the research, ethical considerations were rigorously adhered to. Participants were informed about the study's purpose and assured of their responses' confidentiality and anonymity, upholding the study's ethical integrity.

4. Results and discussions

4.1 Profile of Research Participants.

Out of the 450 total research participants, 50 were teachers and 400 were students who participated in the study. Table 3 and 4 present the profiles of the research participants.

Table 3. Profile of Students Participants

Demographics	Variable	Frequency	Percentage
Gender	Male	288	64%
	Female	162	36%
Age	15 – 25	279	62%
	26 – 35	158	35%
	36 – 45	13	3%
	Above 45	-	-
Student Category	Undergraduate	338	75%
	Masters	112	25%
Mode of Study	Regular (Day)	342	75.9%
	Evening	75	16.7%
	Weekend	33	7.4%
Department	Business	117	25.9%
	Computer Science / IT	233	51.9%
	Nursing/Medicine/ Pharmacy	16	3.7%
	Engineering	9	1.9%
	Creative Arts	-	-
	Economics	59	13%
	Social Science	16	3.7%
	Total	**450**	**100%**

Source: Field data (2023)

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Table 4. Profile of Lecturers Participants**.**

Demographics	Variable	Frequency	Percentage
Gender	Male	39	78%
	Female	11	22%
Age	25 – 30	8	16%
	31 - 40	30	60%
	41 – 50	10	20%
	51 – 60	2	4%
	Above 45	-	-
Lecturer Category	Lecturer	38	76%
	Senior Lecturer	10	20%
	Assistant Professor	2	4%
	Professor	-	-
Department	Business	15	30%
	Computer Science / IT	20	40%
	Nursing/Medicine/ Pharmacy	3	6%
	Engineering	2	4%
	Creative Arts	-	-
	Economics	8	16%
	Social Sciences	2	4%
	Total	**50**	**100%**

Source: Field data (2023)

4.2 Adoption and usage of MOOCs platforms in teaching and learning.

The findings derived from the online survey yielded valuable insights into the adoption of Massive Open Online Course (MOOC) platforms in facilitating educational endeavors. The survey encompassed both educators and students, who were questioned regarding their firsthand encounters with MOOC platforms and their respective integration of these platforms within their teaching and learning practices. The data analysis as shown in figure 4 and figure 5 revealed that a significant majority of the participants, specifically 347 students, equivalent to 77% of the sample, reported adopting MOOC platforms to support their learning activities. In contrast, a minority of the respondents, consisting of 77 students (17%), indicated that they refrained from adopting any MOOC platform. Notably, a smaller cohort of 26 students (6%) expressed occasional adoption of MOOC platforms to complement their learning activities. As for the educators, the findings elucidated that out of the total 50 lecturers surveyed, 45 of them (63%) confirmed their reliance on MOOCs to support their teaching practices. Moreover, an additional 13 lecturers (26%) acknowledged the occasional adoption of MOOC platforms, while merely 1% disclosed non-utilization of such platforms.

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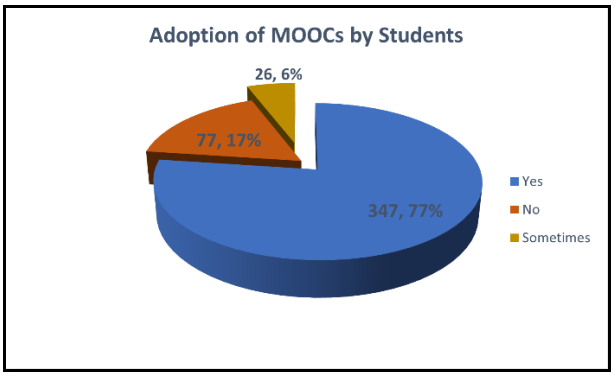

Figure 4. Adoption of MOOCs by students

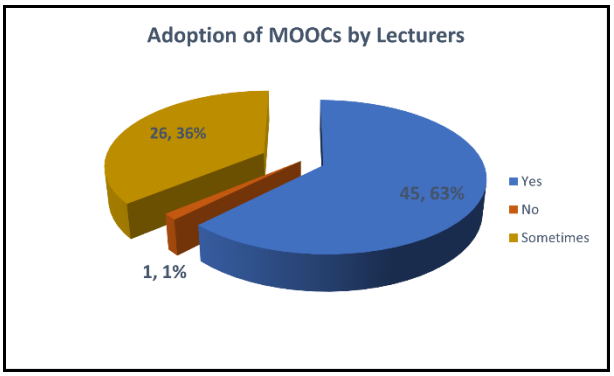

Figure 5. Adoption of MOOCs by lecturers

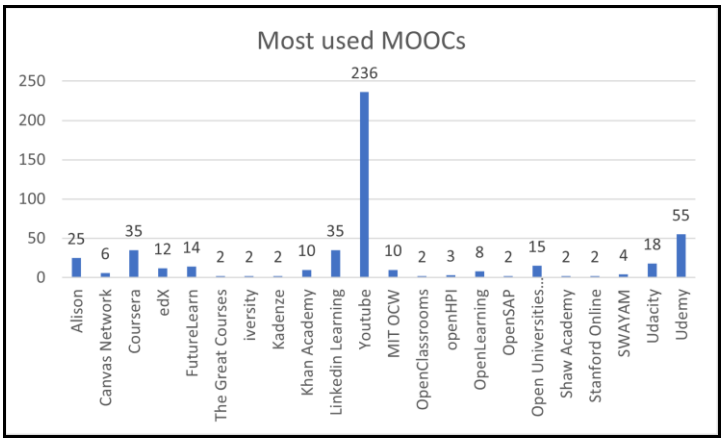

Figure 6. Most used MOOCs by students.

4.3 The preferred MOOCs pedagogy styles amongst lecturers and students.

Utilizing a MOOCs platform to enhance learning activities can pose challenges when it comes to selecting an appropriate pedagogy style. Analysis of the collected data indicates that 23% of students prefer a structured pedagogy style when utilizing a MOOCs platform for their studies as shown on Table 3. In contrast, 57% of students opt for a hybrid pedagogy style, while 20% favour an unstructured approach. These findings highlight the varying pedagogical preferences among students when engaging with MOOCs platforms. Similarly, most lecturers demonstrate a preference for leveraging the structured features offered by MOOCs platforms to support their teaching activities. Among the surveyed lecturers, 60% expressed a preference for a structured pedagogy style, while 24% favoured a hybrid approach. In addition, 16% of lecturers indicated a preference for utilizing unstructured MOOCs platforms in their teaching endeavours. These results underscore the divergent pedagogical approaches employed by lecturers when integrating MOOCs platforms into their teaching methodologies.

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Table 3. Preferred pedagogy styles by students and lecturers.

Pedagogy Style	**Students**		**Lecturers**	
	Frequency	Percentage	Frequency	Percentage
Structured	105	23%	30	60%
Hybrid	255	57%	12	24%
Unstructured	90	20%	8	16%
Total	**450**	**100%**	**50**	**100%**

Source: Field data (2023)

4.4 Identifying the preferences for MOOCs payment types amongst lecturers and students.

Recent financial difficulties have hindered students who are interested in utilizing MOOCs platforms to supplement their studies, as they face challenges in affording certain platforms. Analysis of the collected data reveals that 54% of students prefer utilizing free MOOCs platforms, which do not require any payment for access. Additionally, 39% of students prefer platforms that only charge for certificates upon completion, while a smaller proportion of 7% prefer using paid MOOCs platforms.

In contrast, among the surveyed lecturers, 76% express a preference for paid MOOCs platforms, suggesting their willingness to invest in platforms that require payment. Conversely, 24% of lecturers prefer making payments solely for certificates. These findings indicate divergent preferences among students and lecturers regarding the payment structure of MOOCs platforms.

Interestingly, most students perceive MOOCs platforms to be relatively less expensive compared to traditional methods of teaching and learning. However, lecturers hold a more neutral stance on this matter. They believe that the cost effectiveness of MOOCs platforms depends on the specific platform and the courses offered. This indicates that lecturers consider various factors in assessing the value and affordability of MOOCs platforms.

4.5 Exploring the impact of MOOCs on achieving teaching and learning goals.

The graphical representation of student responses, as depicted in the chart, indicates an equal split, with 50% affirming consistent achievement of their educational goals through MOOCs, while the remaining 50% only sometimes reach their desired outcomes. This suggests a variation in the effectiveness of MOOCs in meeting students' expectations, which may be influenced by individual learner needs, course design, and the extent of support and resources available. In contrast, data from lecturers reveals a more favorable view of MOOCs, with 70% reporting that they can achieve their teaching and professional development goals through MOOC platforms. This higher rate of goal attainment among lecturers could reflect the alignment of MOOCs with their pedagogical aims, such as expanding their reach, supplementing traditional teaching methods, and engaging in continuous professional development. However, the 30% of lecturers who did not achieve their goals with MOOCs highlight potential challenges, including possibly the platforms' limitations in offering personalized interactions, depth of content, or other institutional and pedagogical constraints. The juxtaposition of these findings illustrates a complex picture of MOOC effectiveness, suggesting that while MOOCs can be a powerful

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tool for educators, their impact on learners is more variable. This disparity invites a more in-depth exploration into how MOOCs can be tailored to better serve both students and educators. For instance, understanding the specific challenges faced by the 50% of students and the 30% of lecturers who did not fully achieve their goals could provide insights into necessary improvements in MOOC design and implementation.

Figure 7. Achieving learning goals.

5. Discussion of findings

5.1 Adoption and Usage of MOOC Platforms

This study primarily aimed to ascertain the extent of MOOC platform adoption by students and lecturers in the realms of teaching and learning. The findings indicated that a substantial majority (77%) of student respondents have adopted MOOC platforms for their educational pursuits. This significant adoption rate among students underscores an increasing acceptance and reliance on digital learning tools, likely attributable to the convenience, accessibility, and diverse course offerings of MOOCs, which align closely with students' educational needs. Furthermore, the data revealed that 63% of lecturers rely on MOOCs for instructional practices, with an additional 26% acknowledging sporadic adoption. These findings align with Hayes (2015), who posited that MOOCs are increasingly integral in teaching methodologies, perhaps due to their capacity to offer varied resources and expand instructional content.

5.2 Pedagogical Preferences

The study's secondary objective was to discern the most favored pedagogical styles for MOOCs among lecturers and students. Data analysis revealed that 57% of students prefer a hybrid pedagogical approach, 23% a structured methodology, and 20% an unstructured style. This diversity in preference echoes the findings of Liyanagunawardena et al. (2014), suggesting the need for MOOC platforms to accommodate various pedagogical approaches to cater to differing learning styles. The study also indicated a preference among most lecturers (60%) for structured pedagogical styles, followed by 24% favoring a hybrid approach, possibly reflecting a preference for more organized and systematic instructional methods influenced by their professional training and experience.

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5.3 Preferences for MOOCs Payment Types

The third aim of the study was to identify preferred payment models for MOOC platforms. The findings showed that most students (54%) favor free MOOC platforms, reflecting financial constraints or a preference for cost-effective educational options. This trend supports Aldowah et al's (2020) findings that cost significantly influences students' engagement with MOOCs. Conversely, a substantial portion of lecturers (76%) displayed a preference for paid MOOC platforms, likely recognizing the value these platforms offer in terms of quality content and resources, indicating a willingness to invest in professional development.

5.4 Impact on Achieving Educational Goals

The final objective was to assess the impact of MOOCs on achieving educational goals as perceived by lecturers and students. The results revealed a split among students concerning the effectiveness of MOOCs in meeting educational objectives. This variation, as argued by Felder et al. (2005), might stem from individual differences in learning styles, course selection, or engagement levels. However, a higher proportion of lecturers (70%) reported that MOOCs effectively facilitated their teaching and professional development goals, suggesting a strong alignment between MOOCs and their pedagogical objectives and professional growth requirements.

6. Summary, conclusion, and recommendations.

6.1 Summary of key findings.

The study conducted at Wisconsin International University College, Ghana, reveals insightful perspectives on the adoption and impact of Massive Open Online Courses (MOOCs) in both teaching and learning contexts. A notable majority of students and a significant proportion of lecturers reported adopting MOOC platforms, highlighting their growing importance in the educational realm. This trend underscores the increasing reliance on digital learning tools, driven by the convenience, accessibility, and diverse offerings of MOOCs. In terms of pedagogical preferences, the study found a preference for hybrid learning styles among students, while lecturers leaned towards structured approaches, indicating a need for MOOCs to cater to a variety of teaching and learning styles. Furthermore, the study uncovered a divide in payment preferences, with most students favoring free MOOC platforms due to financial constraints, and most lecturers preferring paid platforms, recognizing their value in quality content and professional development. The findings also indicated a split among students regarding the effectiveness of MOOCs in achieving educational goals, whereas a higher percentage of lecturers reported success in meeting their teaching and professional development objectives through MOOCs. These insights provide a comprehensive understanding of the current role of MOOCs in the academic environment and their potential for enhancing educational practices.

6.2 Conclusion

The research findings underscore the significant role MOOCs play in the educational landscape, particularly in terms of their widespread use and the value they provide to both students and educators. However, it is evident that to maximize their potential, MOOC platforms must be thoughtfully tailored to meet the diverse needs of their users. This entails a deeper understanding of the specific challenges encountered by students who do not fully realize their educational goals through MOOCs. Addressing these challenges can pave the way for enhancements in course design and content delivery, ultimately leading to a more engaging and effective learning experience. For instance, incorporating adaptive learning technologies and personalized content can help in catering to individual learning paces and preferences. Similarly, an understanding of lecturers' preferences and challenges is crucial. As educators increasingly rely on MOOCs for both teaching and

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professional development, there is a growing need for these platforms to align more closely with their instructional needs. This could involve the development of more collaborative tools, resources for curriculum development, and support systems that facilitate the integration of MOOC content into traditional teaching methodologies.

Moreover, these insights have profound implications for educational policy. They highlight the need for a strategic approach to the integration of MOOCs into educational systems, one that emphasizes flexibility, inclusiveness, and financial accessibility. Policies should encourage the development of MOOC platforms that are not only academically rigorous but also accessible to a broader demographic, including those from underprivileged backgrounds or remote areas. Such an approach would contribute significantly to democratizing education, ensuring that quality learning resources are available to all, irrespective of geographical or economic barriers. Additionally, there's a need for continuous evaluation and feedback mechanisms within MOOC systems. Regular assessment of user experience, success rates, and engagement levels can provide valuable insights for ongoing improvements. Policies supporting such evaluations can lead to more dynamic and responsive MOOC platforms, which evolve in tandem with the changing demands of the digital learning environment. In conclusion, the study's findings serve as a catalyst for reimagining the future of MOOCs. By focusing on user-centric design, comprehensive support structures, and informed policymaking, MOOCs can be transformed into more impactful and equitable tools for global education. This will not only enhance the learning experience for students and educators alike but also foster a more inclusive and accessible.

6.3 Recommendations and future works.

For MOOCs to truly fulfill their potential as dynamic educational tools, it is crucial for providers to embrace a multifaceted approach towards pedagogy. This means integrating a diverse array of teaching methods and learning styles within MOOC platforms to cater effectively to the varied preferences of both students and lecturers. Such an approach would not only enhance learner engagement but also ensure that the educational content is accessible and comprehensible to a wider audience.

In addition, considering the financial aspects, MOOC platforms should strive to balance cost-effectiveness with quality. Implementing flexible payment models would allow students to access essential learning resources without financial strain, while also ensuring that lecturers have access to high-quality content that aids in their professional development. This balance is key to maintaining the inclusivity and accessibility of MOOCs, making them a viable option for learners from all socioeconomic backgrounds.

Moreover, the design and structure of MOOCs should be thoughtfully aligned with the diverse learning needs of the user base. This entails customizing courses to suit different learning speeds, engagement levels, and preferences in course material. By doing so, MOOCs can become more effective in meeting specific educational objectives, thereby enhancing the overall learning experience. Such customization would also help in reducing the learning curve for new users, making MOOCs more approachable and beneficial.

There is also a pressing need for MOOC platforms to offer comprehensive support and resources. This would particularly aid those students and lecturers who may find online learning environments challenging. Enhanced support could include more interactive features, personalized learning paths, and responsive feedback mechanisms, which would collectively improve user engagement and learning outcomes.

Finally, continuous research and evaluation are vital to ensure the ongoing development and relevance of MOOCs. By focusing on the specific challenges and experiences of users, researchers and providers can gain valuable insights into how MOOCs can be refined and adapted. This ongoing process of assessment and innovation will be instrumental in ensuring that MOOCs remain at the forefront of digital education, effectively

responding to the ever-evolving needs of the global learning community. This proactive approach will solidify the role of MOOCs as a cornerstone in the landscape of modern education.

Conflict of interest

The authors declare no conflicting interest in the conduct of the study.

References

Aldowah, H., Al-Samarraie, H., Alzahrani, A. I., & Alalwan, N. (2020). Factors affecting student dropout in MOOCs: A cause and effect decision-making model. *Journal of Computing in Higher Education, 32*, 429-454.

Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning: Methods and development*. Allyn & Bacon.

Allen, I. E., & Seaman, J. (2017). *Digital Learning Compass: Distance Education Enrolment Report*. Babson Survey Research Group.

Ally, M. (2004). Foundations of educational theory for online learning. In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning* (pp. 3-31). Athabasca University Press.

Bonk, C. J., & Khoo, E. (2014). *Adding some TEC-VARIETY: 100+ activities for motivating and retaining learners online.* Open World Books.

Cooper, I. R. (2002). Rosenberg MJ E-learning: strategies for delivering knowledge in the digital age. New York: McGrow-Hill, 2001. *Journal of Sociology*, (2), 169-174.

Daniel, J. (2012). Making sense of MOOCs: Musings in a maze of myth, paradox, and possibility. *Journal of Interactive Media in Education*, 3.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer.

Driewer, J., Burchell, M., Fowler, Z., Lei, Y., Morgan, B., Zheng, D., & Zhou, S. (2015). MO-DE-BRA-01: Enhancing Radiation Physics Instruction Through Gamification and E-Learning. *Medical physics*, *42*(6Part28), 3556-3557.

Felder, R. M., & Brent, R. (2005). Understanding student differences. *Journal of Engineering Education, 94*(1), 57-72.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2-3), 87-105.

Harte, N. (1986). *The development of distance education in the United Kingdom. In Distance Education: International Perspectives* (pp. 64-85). Routledge.

Hayes, S. (2015). *MOOCs and quality: A review of the recent literature*. Gloucester, UK.: The Quality Assurance Agency for Higher Education.

Hew, K. F., & Cheung, W. S. (2014). Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges. *Educational Research Review, 12*, 45-58.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). *The difference between emergency remote teaching and online learning*. Educause Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2016). *NMC/CoSN Horizon Report: 2016 Higher Education Edition*. The New Media Consortium.

Jordan, K. (2015). Massive open online course completion rates revisited: Assessment, length and attrition. *International Review of Research in Open and Distributed Learning, 16*(3), 341-358.

Koller, D., Ng, A., Do, C., & Chen, Z. (2013). Retention and intention in massive open online courses: In depth. *Educause review*, *48*(3), 62-63.

Kop, R. (2011). The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course. *The International Review of Research in Open and Distributed Learning*, *12*(3), 19-38.

Lee, L. T., & Hung, J. C. (2015). Effects of blended e-Learning: a case study in higher education tax learning setting. *Human-centric Computing and Information Sciences*, *5*(1), 1-15.

Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs: A systematic study of the published literature 2008-2012. *International review of research in open and distributed learning*, *14*(3), 202-227.

Liyanagunawardena, T. R., Lundqvist, K. Ø., & Williams, S. A. (2014). Who are with us: MOOC learners on a FutureLearn course. *British Journal of Educational Technology*, *45*(3), 550-569.

Liyanagunawardena, T. R., Lundqvist, K., Mitchell, R., Warburton, S., & Williams, S. A. (2019). A MOOC taxonomy based on classification schemes of MOOCs. *European Journal of Open, Distance and E-learning*, *22*(1), 85-103.

Margaryan, A., Bianco, M., & Littlejohn, A. (2015). Instructional quality of Massive Open Online Courses (MOOCs). *Computers & Education*, *80*, 77-83.

Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU global survey report*, *23*, 1-17.

Rodriguez, O. (2012). MOOCs and the AI-Stanford like Courses: two successful and distinct course formats for massive open online courses. European Journal of Open, Distance, and E-Learning, 2012(I), July 5, 2012. Retrieved from http://www.eurodl.org/?article=516

Veletsianos, G., & Shepherdson, P. (2016). A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015. *International Review of Research in Open and Distributed Learning*, *17*(2), 198-221.

Yousef, A. M. F., Chatti, M. A., & Schroeder, U. (2014). The state of video-based learning: A review and future perspectives. *International Journal on Advances in Life Sciences*, *6*(3), 122-135.

Yuan, L., & Powell, S. (2013). *MOOCs and open education: Implications for Higher Education: A white paper*. JISC CETIS Retrieved from http://publications. cetis. org. uk/wp-content/uploads/2013/03/MOOCs-and-Open-Education. pdf.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators? *International Journal of Educational Technology in Higher Education*, *16*(1), 1-27.

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