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Review Article

Towards 16 Years of MOOCs in Malaysia: From Technology Trigger to Plateau of Productivity

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Abstract

As of 2024, it has been 16 years since the inception of Massive Open Online Courses (MOOCs) in 2008. Initially seen as significant disruptors of education, the hype surrounding MOOCs has fluctuated over time. While MOOCs have made significant contributions to global educational development, including in Malaysia, their journey has been marked by both successes and challenges. Early expectations were high, and MOOCs were incorporated into national education policies. However, over time, challenges related to implementation, content quality, instructor qualifications, financial constraints, and student motivation hindered its progress. This paper seeks to assess the comprehensive journey and current status of MOOCs in Malaysia, evaluating their acceptance and maturity over the past 16 years. The study employs a narrative review approach, combining content analysis of literature with insights derived from the authors' professional experience in MOOC implementation and development.

Keywords: MOOC, Gartner Hype Cycle, MEIPTA, Malaysia, Education

INTRODUCTION

Since its introduction in 2008, Massive Open Online Courses (MOOCs) have transformed the way individuals access knowledge and engage in learning. These digital platforms offer learners the opportunity to access a diverse range of courses provided by higher education institutions (HEIs), organizations, and esteemed educators. MOOCs have attracted the attention of policymakers, educators, and learners, and their adoption has been accompanied by both challenges and opportunities worldwide. Fueled by advancements in cloud computing and widespread internet access, MOOCs gained immense popularity over the past decade, attracting millions of learners globally.

In Malaysia, the impact of MOOCs has been profound, aligning with the national educational agenda. The Malaysian government initiated the “MOOC Malaysia” program in collaboration with public and private universities to develop MOOC courses and content. MOOCs were also integrated into the Malaysian

Education Development Plan (Higher Education) 2015-2025 and recognized for credit transfer through the Accreditation of Prior Experiential Learning for Credit Award (APEL C)(Kementerian Pendidikan Malaysia, 2018). In essence, MOOCs have become central to the effort to democratize education, enhance digital literacy, and empower the workforce with essential skills for the 21st century.

Positioning Malaysia's MOOC experience within open-access evidence shows a shift from early scale-focused ambitions toward more mature, credit-aligned, and design-driven provision. Globally, completion rates remain modest and heterogeneous, with a median of 12.6% across more than 200 courses, underscoring the need for robust pedagogy and learner support, not just reach (Daniel et al., 2009). In Malaysia, early national efforts around 2014 catalyzed platform adoption and course development, laying the groundwork for subsequent institutionalization (Fadzil et al., 2015). The pandemic then produced an unprecedented surge in demand and supply (courses, enrollments, and universities), complicating simple "post-2018 decline" narratives and suggesting reconfiguration rather than retrenchment (Shah, 2020; Hasbullah et al, 2022). Recent open-access syntheses map a diversified platform ecosystem and evolving quality expectations, while Malaysian studies highlight analytics-informed learner support and contextualized implementation challenges (Perifanou & Economides, 2022). At the same time, newer comparative analyses of completion emphasize how metrics and learner intent alter performance interpretations, pointing to more nuanced evaluations of "success" (Celik & Cagiltay, 2024). Taken together, this literature supports framing Malaysia's 2008–2024 trajectory through a maturation lens: from rapid diffusion and policy experimentation to a steadier phase characterized by attention to outcomes, quality, and sustainable models—consistent with movement toward a productivity plateau rather than a waning of relevance (Perifanou & Economides, 2022).

However, the popularity of MOOCs in Malaysia has decreased slightly since 2018, as evidenced by a 60% drop in Google Trends compared to the peak between 2015 and 2017. This decline is attributed to factors such as cost constraints, subpar content, and limited access, often referred to as the "Iron Triangle" (Conole & Brown, 2017). Consequently, learner motivation has decreased, and fewer individuals are pursuing further studies via this medium. This situation aligns with the Gartner Hype Cycle model introduced by the Gartner Group (O'Leary, 2008), which provides a framework for understanding the lifecycle of emerging technologies and their potential impact. The cycle includes phases such as Innovation Trigger, Peak of Inflated Expectations, Trough of Disillusionment, Slope of Enlightenment, and Plateau of Productivity.

This narrative review paper aims to explore the multifaceted journey of MOOCs in Malaysia from 2008 to 2024, examining key milestones, challenges, and successes. It also investigates whether MOOCs have reached maturity and entered the "Plateau of Productivity." The study fills a gap in localized, longitudinal analysis, offering insights for policymakers, educators, and technologists in shaping future MOOC implementation and digital education strategies. This study is important since it provides a holistic evaluation of Malaysia's MOOCs journey and addresses the gap in localized longitudinal analysis over 16 years. Although global trends in MOOCs have been extensively researched, the specific integration of policy, technology, and cultural factors within the Malaysian context remains insufficiently explored. The findings of this study provide valuable insights for policymakers, educators, and technologists, guiding the future implementation of MOOCs and the development of digital education strategies.

METHODOLOGY

This paper adopts a narrative review approach to analyze the 16-year journey of MOOCs in Malaysia, guided by the Gartner Hype Cycle framework. A narrative review was chosen because it allows for an interpretive synthesis of the available research, capturing the complexities of the MOOC landscape in the

Malaysian context (Rasheed et al., 2019). The Gartner Hype Cycle framework provides a comprehensive exploration of the technological, institutional, and societal factors influencing MOOCs' trajectory.

The study involves content analysis of existing literature and a systematic review of secondary data from reports, books, and journal articles. Six scientific databases were selected for this review: Emerald Insight, IEEE, Science Direct, Scopus, Springer, and Web of Science. Additionally, Google Scholar was used to broaden the search, employing the following keywords in both Malay and English:

i. MOOCs Malaysia
ii. Massive Open Online Course Malaysia
iii. MOOCs Malaysia Acceptance
iv. MOOCs Malaysia COVID-19
v. MOOCs MEIPTA
vi. MOOCs OpenLearning
vii. MOOCs 4IR

Out of 56 papers selected for analysis, 14 were sourced from Scopus, 10 from Web of Science, 9 from Springer, 8 from Science Direct, 7 from IEEE, and 8 from Emerald Insight. The author's professional experience and observations in MOOCs development and implementation in Malaysian Higher Education Institutions (HEI) were integrated to contextualize and critically analyze the findings from the literature. These insights were based on:

i. 16 years of professional practice in MOOCs, E-Learning, and Software Development.
ii. Direct involvement in implementing the MOOCs policy as a member of MEIPTA from 2010 to 2016.
iii. Personal observations of trends of MOOCs in Malaysia as Head of E-Learning Unit, ICT Centre, UPSI from 2013-2016.

The integration of literature and expert insights followed these steps:

i. Identification of Themes: Key themes and trends were identified from the literature and mapped against real-world practices observed by the author.
ii. Critical Analysis: The author critically examined how the Gartner Hype Cycle aligns with Malaysia's MOOCs progression.

Thematic analysis was conducted manually using a literature matrix, which facilitated the organization and categorization of relevant data. This thematic categorization helps to align the findings with the stages of the Gartner Hype Cycle, providing insights into the progression from the initial technological trigger to the plateau of productivity.

FINDINGS ON THE 16-YEAR JOURNEY OF MOOCS IN MALAYSIA (2008-2024)

The Emergence of MOOCs in Malaysia (2008-2011)

The concept of MOOCs began to gain recognition in Malaysia as early as 2008, following the introduction of the pioneering "Connectivism and Connective Knowledge" course by George Siemens and Stephen

Downes (Handoko et al., 2019). During this period, Malaysia's engagement with MOOCs was primarily observational, with the participation and implementation of MOOCs being relatively limited. The primary focus during this time was on elements associated with E-Learning 2.0, like social learning and dynamic content.

Moreover, there were no official announcements or policy initiatives from the Malaysian government regarding MOOCs prior to 2013. Media coverage in Malaysia predominantly emphasized topics such as e-learning, open and distance learning (ODL), and the integration of ICT tools in education. At that time, greater attention was given to the use of Web 2.0 tools, including blogs, Flickr, Glogster, Jing, Ning, Prezi, Skype, SlideShare, Twitter, Voicethread, Wallwisher, Wikis, YouTube, Wordle, WordPress, and del.icio.us.

The establishment of the Council of Heads of e-Learning Coordinators of Malaysian Public Universities (MEIPTA) in 2007 played a crucial role in advancing research, exploration, and the strengthening of e-learning implementation in the country, ensuring that the approach became more structured and had clearer mechanisms.

Innovation Trigger (2012-2013)

The year 2012 marked a period of explosive growth for MOOC startups, while 2013 can be best characterized as the beginning of an experimental phase. During this time, MOOCs started gaining recognition in Malaysia, although their adoption was relatively slow due to limited awareness among educators, institutions, and students. Additionally, MOOCs were predominantly dominated by global providers such as Coursera, Udacity, and edX, which offered content that was largely Western-centric. This focus led to a perceived disconnect with the specific needs of Malaysian learners (Ma & Lee, 2023). As one of the leading countries in Asia promoting Open Educational Resources (OER), Malaysia initiated the development and implementation of MOOCs through Universiti Kebangsaan Malaysia (UKM), launching the UKM MOOC as a key starting point for these efforts.

With the increasing accessibility of smartphones and the widespread availability of internet connectivity, research during this phase began to shift towards Mobile Learning (m-learning), Blended Learning, and Flipped Learning, which were largely pioneered by MEIPTA. In 2012, m-learning and Blended Learning served as precursors to the implementation of MOOCs, which were rooted in several key developments in the pedagogical landscape and advancements in educational technology during this time. MEIPTA also played a significant role in researching and promoting the role of MOOCs, particularly as extensions of OER and Open Courseware (OCW) technologies. MOOCs began to attract increasing attention, with early global platforms like edX and Coursera being studied for potential adoption into the Malaysian system and culture.

Early Adoption (2014-2016): Peak of Inflated Expectations

The period from 2014 to 2016 marked a significant turning point for MOOCs in Malaysia, as the country transitioned from merely observing global trends to actively implementing MOOC initiatives. This phase highlighted Malaysia’s concerted efforts to integrate MOOCs into its national education strategy, aligning with broader goals of enhancing accessibility, fostering innovation, and improving global competitiveness. Aligned with the growing global expectations for MOOCs, the Malaysian government introduced the 'MOOC Malaysia' initiative in 2014, launching four pilot courses: Islamic Civilization and Asian Civilization (TITAS), ICT Competency, Ethnic Relations in Malaysia, and Entrepreneurship. To enhance the accessibility of MOOC Malaysia, the Ministry of Higher Education Malaysia collaborated

with OpenLearning to provide a platform and infrastructure services. As of now, 45 universities in Malaysia offer their own MOOC courses, which are accessible to both Malaysian citizens and international learners. The MOOC initiative in Malaysia is prominently featured in the Malaysian Education Blueprint 2015-2025 (Higher Education), particularly under Shift 9: Globalised Online Learning (GOL). Furthermore, MOOCs have been prioritized in the national e-learning infrastructure, as outlined in the National e-Learning Policy (DePAN).

The proportion of higher education institutions in Malaysia offering MOOCs has grown substantially, from just 2.6% in 2012 to 13.6% in 2015 (Handoko et al., 2019). This increase in MOOC adoption reflects the growing recognition of their potential to expand access to higher education and provide opportunities for lifelong learning. In 2016, the Malaysian Qualifications Agency (MQA) introduced the Guidelines on Credit Transfer for Massive Open Online Courses, establishing a framework that allows Higher Education Providers (HEPs) to award academic credits for completed MOOCs. This initiative positioned Malaysia as a pioneer in formally recognizing MOOCs within its higher education system.

Due to their open-access nature, MOOCs are regarded as an effective means of ensuring active learner participation, especially among employees (Rafiq et al., 2019). For instance, Universiti Pendidikan Sultan Idris (UPSI) offers the PERMATA Negara Early Childhood & Education Course in collaboration with the Social Welfare Department (JKM), catering to future kindergarten educators. Additionally, several higher education institutions began leveraging MOOCs to extend their reach, providing free access to high-quality education worldwide. This not only enhanced their brand recognition but also attracted prospective students. Financially, universities explored monetization strategies, such as offering paid certificates for course completion and integrating MOOC content into on-campus programs.

Trough of Disillusionment (2017 – 2019)

Google Trends data for Malaysia revealed a sharp decline in the popularity of MOOCs after 2018, as illustrated in Figure 1. Despite nine years of use and the support of various government incentives, the limitations of MOOCs began to be critically debated. These limitations were attributed to several factors, with the primary issue being the inadequacy of internet infrastructure and access, particularly for rural students (Mansor et al., 2021; Zulkifli et al., 2020). Reliable internet connectivity is crucial, especially for accessing educational resources, including video content and other multimedia materials. Additionally, the lack of strategic partnerships with international platforms during this period hindered the global reach of Malaysian MOOCs. In contrast to global MOOC providers such as Coursera, edX, and Udemy, which formed collaborations with prestigious universities and multinational companies, Malaysian MOOCs were largely limited to local partnerships.

Perceptions of MOOCs were also varied, as many learners were unwilling to commit to completing entire courses, preferring to engage only with specific materials such as notes and videos. The relatively low quality of content and limited instructor involvement contributed to decreased student motivation to utilize MOOCs effectively (Wan Ab Rahman et al., 2020). Annamalai (2019) and Albelbisi and Yusop (2020) further highlighted the lack of awareness, self-efficacy, and knowledge among instructors in delivering effective MOOC instruction. The "one size fits all" approach, coupled with large class sizes and the absence of face-to-face interaction, led to high student-teacher ratios and unsatisfactory learning outcomes (Sinha, 2014). This resulted in significant dropout rates, with learners disengaging at various stages of the courses.

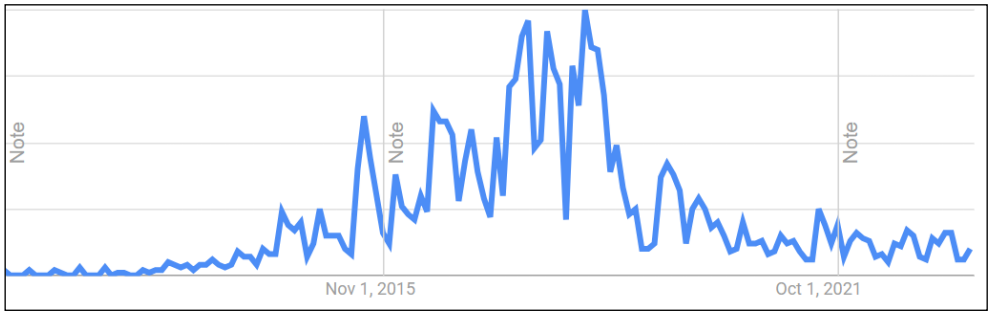

Figure 1: The Google Trends analysis on MOOCs' popularity in Malaysia

There was also criticism regarding the rigid implementation of MOOCs in Malaysia (Asli et al., 2020). The Ministry of Higher Education's mandate to incorporate MOOCs as an additional method of lecture delivery led to the publication of the "MOOC Malaysia Quality Practices" in 2018. This initiative was intended to ensure that Higher Education Institutions (HEIs) adhered to a uniform set of standards. However, this top-down approach, where policies were set by a central authority, left little room for HEIs to innovate or customize their MOOC offerings.

Furthermore, the centralization of MOOC Malaysia onto a single platform resulted in mixed reactions from universities, particularly regarding the associated server and infrastructure maintenance costs. Some universities expressed concerns over the mandatory use of a single platform, arguing that it limited their autonomy in selecting technologies best suited to their specific needs and strategies. In short, this phase highlights the critical challenges that led to stagnation in MOOCs' growth, paving the way for the subsequent need for innovation and recovery addressed in the Slope of Enlightenment.

Slope of Enlightenment (2020-2022)

Numerous studies, both local and international, have extensively examined the administrative challenges and shortcomings associated with MOOCs. The number of MOOC-related publications in Malaysia increased by 112% from 3,940 papers in 2017-2019 to 8,340 papers in 2020-2022, reflecting a surge in research interest and institutional focus during the pandemic, as shown in Table 1. These studies have proposed various models, frameworks, and modules to improve the quality of MOOCs content and delivery, such as the Quality Model for MOOCs Web Content by Wan Ab Rahman et al. (2020) and Quality Reference Framework for MOOCs (Stracke et al., 2018).

Table 1: Number of research publications related to MOOCs in Malaysia from 2017-2019 and 2020-2022.

Period	Number of Studies	Change
2017-2019	3,940	-
2020-2022	8,340	4,400

The Ministry of Higher Education (MOHE) in Malaysia has actively promoted the development and integration of MOOCs into the country's educational system, aiming to enhance accessibility, affordability, and the overall quality of learning opportunities for students nationwide (Yue, 2022). As part of the Malaysia Education Blueprint 2015-2025 under the Globalised Online Learning (GOL) agenda, MOOCs played an increasingly important role in advancing digitalization in education, particularly in response to the challenges posed by the Industrial Revolution 4.0. This development is supported by the

MOHE's commitment to upgrading university network infrastructure, including expanding public WiFi coverage across public universities. The COVID-19 pandemic, which emerged in early 2020, unexpectedly disrupted online education due to the closure of learning institutions in Malaysia. Despite these challenges, the pandemic accelerated the integration of digital technologies and online learning into the Malaysian education system (Mohamad et al., 2022). Shah (2020) discusses how MOOC providers like Coursera and edX responded to the pandemic, reporting a global increase in users, with platforms like Class Central showing an increase of up to 440%.

The pandemic further accelerated the growth and popularity of MOOCs in Malaysia, as universities embraced the opportunities presented by these platforms. Malaysian institutions began actively participating in international MOOC platforms such as Coursera, edX, OpenLearning, and FutureLearn, thereby working to enhance the global recognition of the Malaysian educational system (Yue, 2022). The role of MOOCs as a major teaching tool in higher education institutions (HEIs) was also acknowledged by Safwana Nur Widad Safri et al. (2020) and Awang et al. (2021), who noted that MOOCs served as a critical resource during the COVID-19 pandemic by enabling independent learning and providing instructors with the flexibility to offer students opportunities to learn with minimal supervision.

MOOCs have been increasingly recognized as an innovative instructional technology in Malaysia, with researchers examining the relationship between student challenges, perceptions, and the effectiveness of these online learning platforms (Yue, 2022). Moreover, the integration of Augmented Reality (AR) and Virtual Reality (VR) into MOOCs has emerged as a significant advancement in vocational education, aligning with the principles of Education 3.0 (Nidhom et al., 2022).

In conclusion, the Slope of Enlightenment phase marked a pivotal period of reflection and innovation for Malaysia's MOOC landscape. Driven by increased research interest, technological integration, and the urgent shift to online learning during the COVID-19 pandemic, this phase laid the foundation for a more mature, adaptable, and quality-driven MOOCs ecosystem. These advancements, coupled with growing institutional and governmental support, have positioned Malaysia to transition into the Plateau of Productivity, where MOOCs are poised for sustainable growth, wider recognition, and deeper integration into national education and workforce strategies.

Plateau of productivity: Going forward for Growth and Recognition (2023 onwards)

The landscape of higher education in Malaysia has undergone a significant transformation in recent years, driven by the convergence of emerging technologies under the Fourth Industrial Revolution (IR4.0) and rapid advancements in Artificial Intelligence (AI). Within this dynamic environment, the rise of MOOCs has become a crucial component in shaping the educational landscape of Malaysia, providing new opportunities for learning and skill development. Research on Malaysian MOOCs has seen a notable increase, with more than 6,809 related studies published in 2023 and 2024, indicating growing academic interest and research activity in this field.

Table 2: Progress of MOOCs in Malaysia

Phase	Lecturing and Instructing	Technological	Content Development	Administrative
Emergence (2008-2011)	Limited instructor awareness and adoption.	Learning Management System (LMS)	Fragmented and localized materials. Open Educational Research (OER)	There is no policy on MOOCs, but most universities are working towards an e-learning policy. The introduction and implementation of Blended Learning.
Technology Trigger (2012-2013)	Growing awareness of global MOOCs trends (e.g., Coursera, edX). Understanding the MOOC models like cMOOC and xMOOC. A few signs of MOOCs adoption, eg, UKM MOOC.	Improved internet and worldwide awareness of e-Learning.	Initial collaborative efforts in MOOCs material creation.	Ministry and MEIPTA early policy discussions and minimal funding.
Peak of Inflated Expectation (2013-2016)	Universities began integrating MOOCs into curricula. Instructor training programs were introduced.	MOHE's adoption of OpenLearning as a platform. Rising mobile learning adoption.	Four pilot courses by MOHE in OpenLearning. Diversifying topics and introducing interactive content (quizzes, videos).	MOOCs featured in the Malaysia Education Blueprint 2015-2025. Provide funding for MOOCs development, including in universities.
Trough of Disillusionment (2017-2019)	Low completion rates led to instructor challenges. Criticism of MOOCs' pedagogy for lacking deep learning.	Saturation of platforms. Limited adoption of AI and analytics. Problem with connectivity in rural areas.	Concerns about content quality. Limited innovation in interactivity.	Stagnation in funding and inconsistent policy implementation.
Slope of Enlightenment and Plateau of Productivity (2020-2024)	COVID-19 spurred mass adoption. Hybrid teaching models blended MOOCs with face-to-face learning. Extensive instructor training.	Integration of AI, AR/VR in MOOCs Strengthened internet infrastructure.	Emphasis on gamification and real-world applications. TVET content. MOOCs are aligned with market-driven skills and 4IR demands.	Policies enabling credit transfer and accreditation. Collaboration with government and industry to improve quality. MOOCs for In-Job Training

Several significant developments have taken place in the Malaysian MOOC landscape between 2023 and 2024. Notably, AI-powered learning analytics have been embedded in MOOC platforms to personalize learning experiences, track learner behaviors, identify areas of difficulty, and provide adaptive feedback (Saman et al., 2024). AI technologies, such as natural language processing (NLP), have enabled real-time

translation of MOOC content, thereby improving accessibility for non-English speakers (Amin et al., 2023). AI chatbots have been deployed on MOOC platforms to offer 24/7 support to students, enhancing the learner experience and boosting retention rates (Liu et al., 2024).

Malaysian universities have also begun offering courses focused on Technical and Vocational Education and Training (TVET), with institutions like polytechnics incorporating MOOCs into their curriculum to promote industry-driven education (Roslin et al., 2022). The Malaysia Digital Economy Corporation (MDEC) has embraced the MOOC approach to train micro-entrepreneurs and students in the TVET stream through the eUsahawan Programme, which began in 2024, with a target sales goal of RM35 million (Bernama, 2024).

To ensure the quality and recognition of MOOCs within formal education, the Malaysian Qualifications Agency (MQA) has updated the guidelines for accrediting MOOCs and micro-credentials, acknowledging the various new forms of training provided by entities outside traditional colleges (MQA, 2024). In terms of inclusivity, MOOCs have played a vital role in addressing educational inequality. Efforts to offer courses in Bahasa Malaysia and to accommodate learners with disabilities have significantly improved the accessibility of MOOCs.

Some Higher Education Institutions (HEIs) have leveraged MOOCs for in-job training, such as Universiti Pendidikan Sultan Idris (UPSI) and Universiti Malaysia Terengganu (UMT), which use MOOCs for post-verification and promotions. Universiti Teknologi MARA (UiTM) has also actively engaged in MOOCs development to enhance educational delivery and support staff training initiatives. Additionally, Universiti Teknologi Malaysia (UTM) is utilizing MOOCs for hybrid and flexible learning for overseas students through the UTM HyFlex model.

DISCUSSION

Since their inception, MOOCs have progressed through various stages of development, influenced by technological advancements, evolving pedagogical practices, and changes in institutional policies. This evolution can be categorized into distinct phases, each defined by specific milestones and challenges in areas such as lecturing and instruction, technological infrastructure, content development, and administrative support. These phases reflect the underlying themes that have shaped the trajectory of MOOCs in Malaysia. Key concepts and themes were systematically categorized as follows:

i. Lecturing and Instructing – Examining pedagogical aspects and instructor adoption.
ii. Technological – Evaluating the technical infrastructure and digital tools supporting MOOCs.
iii. Content Development – Analyzing the quality, relevance, and adaptability of MOOC materials.
iv. Administrative – Investigating the policy, funding, and institutional frameworks governing MOOCs.

Table 2 provides a comprehensive overview of the evolution of MOOCs in Malaysia, highlighting the significant developments across each of these themes throughout five key phases. The evolution of MOOCs in Malaysia can be mapped onto the Gartner Hype Cycle, providing insights into their adoption, challenges, and maturation over time. The emergence of MOOCs in Malaysia, which began around 2008-2011, saw platforms such as the UKM MOOC and MEIPTA's research initiatives on MOOCs come to the forefront. By the period 2013-2016, MOOCs had gained considerable attention as a transformative educational tool, reflecting a broader global trend. However, between 2017 and 2019, MOOCs in Malaysia experienced a decline in popularity driven by concerns over the quality of content and challenges such as poor internet access in rural areas. This decline reflects the "Trough of Disillusionment" phase of the

Gartner Hype Cycle, where initial enthusiasm wanes due to unmet expectations and challenges in implementation.

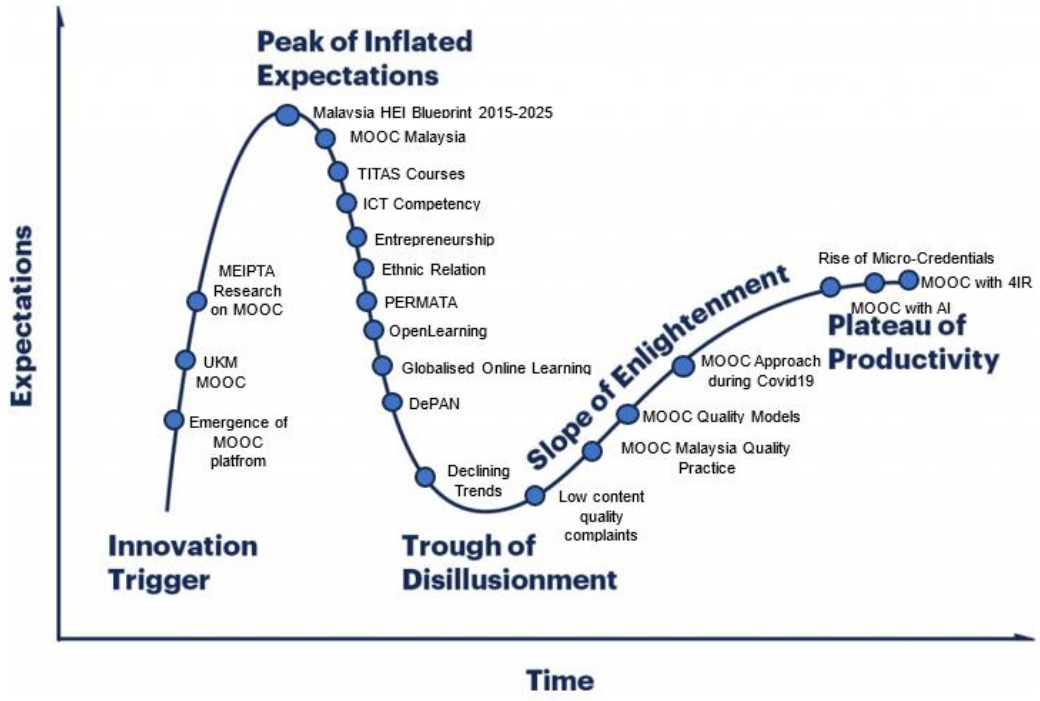

Figure 2: The Gartner Hype Cycle represents the progress of MOOCs in Malaysia from 2008 to 2024

The period from 2020 to 2022 marked a significant revival of MOOCs, as the COVID-19 pandemic accelerated the adoption of online learning. During this time, MOOCs became a crucial resource for higher education institutions, providing a viable solution to continue education amidst widespread disruptions. By 2023 and beyond, MOOCs in Malaysia will have achieved a higher level of maturity and productivity. The integration of AI technologies into MOOC platforms enhanced adaptive learning, enabled real-time feedback, and offered personalized support for students. These advancements are illustrated in the Gartner Hype Cycle, as depicted in Figure 2.

CONCLUSION

The 16-year journey of MOOCs in Malaysia reflects a dynamic interaction of technological progress, pedagogical advancements, and policy-driven initiatives. From its initial phase during the "Innovation Trigger" to its eventual recognition in the "Plateau of Productivity," Malaysia's MOOC ecosystem has undergone several transformative shifts. This progression, analyzed through the lens of the Gartner Hype Cycle, underscores the cyclical nature of technological adoption and emphasizes the continuous need for innovation. Despite facing early challenges, such as low completion rates, inadequate content quality, and fluctuating learner motivation, Malaysia has made significant strides in improving the delivery, accessibility, and credibility of MOOCs.

A key achievement in the Malaysian MOOC landscape is its alignment with the nation's broader educational and economic goals, especially in the context of Industry 4.0. By integrating AI, learning analytics, and gamification, MOOC platforms have evolved into personalized learning environments,

effectively meeting the diverse needs of learners. Initiatives led by the Ministry of Higher Education (MOHE) and the Malaysian Qualifications Agency (MQA) have played a crucial role in enhancing the credibility and quality assurance of MOOCs. Additionally, collaborations with international MOOC providers and the introduction of micro-credentials have created new avenues for lifelong learning, skill development, and career progression.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Ahmad Wiraputra Selamat: Conceptualization, Writing- Original draft preparation, Data curation. **Hafizul Fahrin Hanafi**: Data curation, Writing- Original draft preparation. **Ika Parma Dewi** and **Hernán Javier Herrera Suárez**: Writing - Reviewing and Editing.

DECLARATION OF GENERATIVE AI

During the preparation of this work, the authors used ChatGPT to enhance the clarity of the writing. After using ChatGPT, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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