



# Global Trends and Policy Strategies and Their Implications for the Sustainable Development of MOOCs in Indonesia

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**Abstract.** Current study is designed to explore the existence of MOOCs which has gained its popularity and value as well as its recognition among learners worldwide with-it available courses across Coursera, edX, Udacity, Traditional, web facilitated, Blended/hybrid and online Platforms. This study deployed a qualitative method with a narrative approach in Higher Education in Indonesia and the literacy and skills taught and needed within MOOCs. The analysis of the research tries to reflect on the research questions and conduct an extensive response to the research questions based on MOOCs users in Indonesia especially postgraduate students. Narrative approach emphasizes our understanding of digital engagement, digital literacy, and the operation of MOOCs policies, emphasize contextual knowledge as our narrative, as a basis for interpreting data, then we code and then insert digital monolithic data to get a broad and specific picture of the experience of combining several questions in a digital perspective and MOOCs for individual interview process. This study revealed that MOOCs with its profound impact on knowledge-making such as: Access to Knowledge, Global Collaboration, Open Education Resources (OER), Lifelong Learning, Disruptive Innovation.

**Keywords:** Massive Open Online Courses · Access to Knowledge · Global Collaboration · Open Education Resources · Lifelong Learning · Disruptive Innovation

## 1 Introduction

Massive Open Online Courses (MOOCs) have revolutionized the education sector in recent years, offering flexible, affordable, and accessible courses to students from all corners of the world [1]. MOOCs have been widely adopted by universities, organizations, and individual instructors, providing learners with opportunities to gain knowledge and skills in various fields [1]. The global demand for MOOCs has grown rapidly in the last decade, driven by the need for continuous learning, career development, and access to high-quality education. This essay discusses the global trends and policy strategies in MOOCs, analyzing their impact on education and the workforce [1].

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MOOCs, or Massive Open Online Courses, are online courses that are designed to be accessible to anyone with an internet connection [2]. They are typically free of charge and offer a wide range of subjects, from computer science to humanities. MOOCs have gained popularity in recent years due to their accessibility and flexibility, allowing learners to study at their own pace and from anywhere in the world [3].

One of the global trends in MOOCs is the increasing number of learners who are taking these courses. According to Class Central, a website that tracks MOOCs, there were over 110 million learners who had enrolled in at least one MOOC by 2019 [2]. This represents a significant increase from the 35 million learners who had enrolled in 2015. The popularity of MOOCs has also led to an increase in the number of courses available, with over 13,500 courses offered by 900 universities in 2019.

Another trend in MOOCs is the increasing use of these courses for professional development. Many learners are taking MOOCs to gain new skills or to enhance their existing ones [4, 5]. This has led to the development of MOOC-based credentials, such as certificates and micro credentials, which can be used to demonstrate proficiency in a particular subject area. Some MOOC providers, such as Coursera and edX, have also partnered with employers to offer courses that are specifically designed to meet the needs of the job market [6].

In terms of policy strategies, many governments and educational institutions are using MOOCs to increase access to education. For example, the Indian government has launched the SWAYAM platform, which offers free online courses to learners across the country. Similarly, the African Virtual University offers MOOCs to learners in 34 African countries. MOOCs are also being used to address the skills gap in certain industries. For example, the European Union has launched the MOOC for Web Accessibility (MOOC-WebForAll) to train web developers in creating accessible websites [7, 8].

However, there are also challenges associated with MOOCs. One of the main challenges is the issue of completion rates. Many learners who enroll in MOOCs do not complete the course, with completion rates often below 10%. This has led to concerns about the effectiveness of MOOCs as a form of education. Another challenge is the lack of accreditation for MOOCs. While some MOOC providers offer certificates and micro credentials, these are not always recognized by employers or educational institutions [9, 10].

MOOCs are a popular and accessible form of education that is being used by learners around the world [11, 12]. The increasing number of learners and courses available, as well as the use of MOOCs for professional development, are some of the global trends in this field [13, 14]. Governments and educational institutions are also using MOOCs to increase access to education and address the skills gap in certain industries. However, challenges such as low completion rates and the lack of accreditation for MOOCs need to be addressed to ensure their effectiveness as a form of education [15–17].

## 2 Literature Review

### 2.1 Global Trend MOOCs in Higher Education

Massive Open Online Courses, commonly referred to as MOOCs, have become a popular global trend in higher education [6]. MOOCs are online courses that are designed to be accessible to many students without any prerequisites. These courses are delivered through various online platforms and are available to anyone with an internet connection [3].

One of the primary advantages of MOOCs is that they are accessible to learners from all over the world. This has helped to democratize education and has enabled students from all walks of life to gain access to high-quality educational content. MOOCs are also more cost-effective than traditional higher education courses, making them an attractive option for students who cannot afford to pay for a traditional degree [4, 5, 18].

MOOCs offer a variety of benefits to learners. They allow students to learn at their own pace and on their own schedule [6]. MOOCs also offer a wide range of courses, from basic academic subjects to more specialized topics. This makes it easy for students to find courses that are relevant to their interests and career goals. Moreover, MOOCs have enabled universities to reach a broader audience and extend their global reach [19]. Many prestigious universities offer MOOCs on various platforms, such as Coursera, edX, and Udemy. This has helped universities to enhance their brand recognition and attract new students to their traditional degree programs [7].

Furthermore, MOOCs have also opened new opportunities for teachers and instructors to share their expertise with a global audience [20]. Teachers can design and deliver courses that reach thousands of students, which was not possible before the advent of MOOCs. However, MOOCs also have some challenges. The high dropout rate is one of the biggest challenges facing MOOCs [21]. Many students enroll in MOOCs but do not complete them. The lack of personal interaction with instructors and fellow students is another challenge. MOOCs are often self-paced, which can be challenging for students who need structured support and feedback.

MOOCs are a global trend in higher education that has enabled students to gain access to high-quality educational content from prestigious universities around the world. While they offer several benefits to learners, they also face some challenges. However, MOOCs are likely to continue to grow and evolve in the future as more students seek affordable and accessible educational opportunities.

### 2.2 Policy Strategies in MOOCs in Higher Education

In recent years, Massive Open Online Courses (MOOCs) have emerged as a popular way for people to learn new skills and gain knowledge [22]. MOOCs offer individuals the opportunity to take courses from top universities and institutions from around the world, often for free. Policy MOOCs are a subset of these courses that focus on policy issues and topics.

Policy MOOCs can cover a wide range of topics, from public policy and governance to environmental policy and international relations. These courses are often designed to provide learners with an understanding of policy issues, as well as the skills and

knowledge needed to address them. They may be aimed at students, professionals, or individuals interested in policy issues.

One of the key benefits of policy MOOCs is their accessibility [23]. They are open to anyone with an internet connection, regardless of their location or financial resources. This means that individuals from all over the world can gain access to high-quality education in policy-related fields, which can be particularly valuable for those living in regions with limited educational opportunities.

Another benefit of policy MOOCs is that they offer flexible learning opportunities. Unlike traditional classroom-based courses, MOOCs allow learners to study at their own pace and on their own schedule. This means that individuals can fit their studies around their work, family, or other commitments [23]. In addition, many policy MOOCs offer online forums and discussion groups, which allow learners to connect with others who share their interests and learn from one another.

Furthermore, policy MOOCs can be an effective tool for professional development. Many organizations encourage their employees to take MOOCs to develop new skills and stay up to date on policy issues [24]. By offering policy MOOCs to their employees, organizations can help to build their capacity and improve their effectiveness.

However, there are also some challenges associated with policy MOOCs. For example, they may not be suitable for all learners. Some individuals may struggle with self-directed learning or require more structured support. In addition, policy MOOCs may not offer the same level of interaction and engagement as traditional classroom-based courses, which can be a drawback for some learners.

Moreover, there is a risk that policy MOOCs may exacerbate existing inequalities in education. While MOOCs are designed to be accessible to all, not all individuals have equal access to the resources needed to succeed in online learning environments [25]. For example, some learners may not have access to reliable internet connections, while others may not have the necessary equipment or technical skills to participate in online courses.

Policy MOOCs offer a valuable opportunity for individuals to gain knowledge and skills in policy-related fields. They offer accessibility, flexibility, and professional development opportunities, and can help to build capacity in organizations. However, there are also challenges associated with MOOCs, and it is important to ensure that they do not exacerbate existing inequalities in education. By carefully considering the benefits and challenges of policy MOOCs, we can work towards creating a more equitable and accessible education system for all.

MOOCs have become an essential tool for universities to widen their reach and provide learning opportunities to students who cannot attend physical classes [26]. Policies and strategies are crucial in ensuring that MOOCs effectively meet the needs of higher education. One critical policy that universities need to implement is to ensure that MOOCs are consistent with the institution's educational mission and goals. MOOCs should be aligned with the institution's academic programs to ensure that they meet the same standards and expectations as traditional courses [20, 21, 27]. Additionally, universities should ensure that MOOCs are accessible to all students, regardless of their socio-economic status or location [2].

Another critical policy that universities need to implement is to ensure that MOOCs are of high quality. This includes ensuring that the course content is relevant and up-to-date and that the course delivery is of a high standard. Universities should also ensure that MOOCs are designed in a way that encourages active learning and engagement from students [21].

To ensure the success of MOOCs, universities should also develop a strategy that focuses on the design, delivery, and assessment of MOOCs. The design of MOOCs should be student-centered, meaning that they should be designed to meet the needs and interests of the learners. Additionally, MOOCs should be delivered in a way that encourages student engagement and participation, such as through discussion forums, quizzes, and interactive assignments. Assessment is also a critical aspect of MOOCs. Universities should ensure that MOOCs are assessed in a way that is fair, transparent, and accurate. This includes providing clear guidelines on how students will be assessed and ensuring that assessment criteria are consistent across all MOOCs.

Universities should also develop a marketing strategy that promotes MOOCs to potential students. This includes using social media and other digital marketing channels to reach a wider audience. Additionally, universities should work with industry partners to promote MOOCs and provide students with opportunities to gain industry experience and skills.

Public policy MOOCs, have the potential to transform higher education in Indonesia. Indonesia has one of the largest populations in Southeast Asia, with a rapidly growing economy, a large young population, and a thriving technology industry. However, higher education in Indonesia faces numerous challenges, including limited resources, inadequate facilities, and a shortage of trained instructors. MOOCs offer a solution to these challenges by providing access to high-quality, affordable education to many students, regardless of their location.

The adoption of public policy MOOCs in higher education in Indonesia has the potential to benefit the country in numerous ways. First, it can help to address the shortage of trained instructors by providing access to courses and materials from experts around the world. Second, it can help to bridge the gap between urban and rural areas, as MOOCs can be accessed from anywhere with an internet connection. This is particularly important in Indonesia, where many rural areas lack access to quality higher education. Third, MOOCs can help to improve the quality of education in Indonesia by providing students with access to the latest research and best practices in their fields of study.

One of the key challenges in implementing MOOCs in Indonesia is ensuring that they are accessible to all students. Many students in Indonesia lack access to reliable internet connections or do not have the necessary technology to access online courses. To address this challenge, universities and government agencies can work together to provide students with the necessary technology and infrastructure to access MOOCs. This can include providing students with access to high-speed internet connections, as well as computers or tablets.

Another challenge in implementing MOOCs in Indonesia is ensuring that they are of high quality and relevant to local needs. MOOCs that are developed and delivered by international universities may not always be relevant to the needs of Indonesian students. To address this challenge, universities and government agencies can work together to

develop MOOCs that are tailored to local needs and are delivered by local instructors. This can help to ensure that students are learning the skills and knowledge that are most relevant to their future careers.

However, with the rapid growth of MOOCs, there are several policy strategies that need to be implemented to ensure their sustainability and effectiveness. Firstly, governments need to invest in the development of MOOCs and provide funding for universities and institutions to create high-quality courses. This will ensure that MOOCs are accessible to everyone and that they meet the standards of traditional education.

Secondly, there needs to be a focus on improving the quality of MOOCs. This can be achieved through the development of quality assurance frameworks and accreditation systems. This will ensure that MOOCs are recognized as legitimate forms of education and that they provide students with the skills and knowledge they need to succeed in their chosen fields.

Thirdly, there needs to be a focus on improving the accessibility of MOOCs. This can be achieved through the development of platforms that are accessible to people with disabilities and the provision of resources for people who do not have access to the internet or computers.

Fourthly, there needs to be a focus on improving the retention rates of MOOCs. This can be achieved through the development of support systems for students, such as online tutoring and mentoring programs. This will ensure that students are able to complete their courses and achieve their educational goals.

Finally, there needs to be a focus on the recognition of MOOCs. This can be achieved through the development of policies that recognize MOOCs as legitimate forms of education and that provide students with credit for completing MOOCs. This will ensure that MOOCs are recognized by employers and that students are able to use their MOOC certificates to advance their careers.

Public policy MOOCs have the potential to transform higher education in Indonesia by providing access to high-quality, affordable education to many students. To achieve this, universities and government agencies will need to work together to address the challenges of accessibility and relevance [3]. By doing so, they can help to improve the quality of education in Indonesia and provide students with the skills and knowledge they need to succeed in a rapidly changing world.

MOOCs have become an essential tool for universities to widen their reach and provide learning opportunities to students who cannot attend physical classes. Policies and strategies are crucial in ensuring that MOOCs effectively meet the needs of higher education [5]. Universities should ensure that MOOCs are consistent with the institution's educational mission and goals, of high quality, and designed to meet the needs of the learners. Additionally, universities should develop a marketing strategy that promotes MOOCs to potential students and work with industry partners to provide students with opportunities to gain industry experience and skills.

### 2.3 Implications for the Sustainable Development of MOOCs in Higher Education

The Sustainable Development of MOOCs in Higher Education is a topic of great importance in today's digital age. MOOCs have revolutionized the way we learn, providing access to quality education to millions of people around the world. However, the sustainability of MOOCs in higher education is a complex issue that requires careful consideration [6, 19].

One of the key challenges in the sustainable development of MOOCs is the need for a viable business model. While MOOCs are often free to access, they require significant investment in terms of development, maintenance, and support. To ensure their sustainability, MOOCs need to generate revenue through various means such as charging for certification, licensing content, or partnering with institutions [7, 8].

Another challenge is ensuring the quality of MOOCs. While MOOCs have the potential to democratize education, they also need to meet the same standards of quality as traditional higher education. This requires careful design, development, and evaluation of MOOCs to ensure that they are effective in achieving their learning outcomes. The sustainable development of MOOCs also requires addressing issues of access and equity. While MOOCs have the potential to provide access to education to those who may not have had it otherwise, they also need to ensure that they are accessible to all learners, regardless of their background or circumstances [28].

There are several benefits of incorporating sustainable development into MOOCs. Firstly, it can help to promote awareness and understanding of sustainable development among learners. MOOCs can be designed to cover topics such as sustainable development goals, environmental sustainability, and social responsibility, which can help learners to develop a deeper understanding of these issues.

Secondly, incorporating sustainable development into MOOCs can help to promote sustainable practices in higher education. MOOCs can be used to teach learners about sustainable practices such as energy conservation, waste reduction, and sustainable transportation, which can help to promote sustainable behavior among learners and institutions.

Thirdly, incorporating sustainable development into MOOCs can help to promote social and environmental justice. MOOCs can be designed to cover topics such as social inequality, environmental degradation, and climate change, which can help learners to develop a deeper understanding of these issues and their impact on society and the environment.

Overall, incorporating sustainable development into MOOCs can help to promote awareness, understanding, and action on issues related to sustainability, and can help to promote sustainable practices and behaviors in higher education and beyond [8].

MOOCs (Massive Open Online Courses) have several benefits for sustainable development education, including:

- **Accessibility:** MOOCs provide access to high-quality education to a global audience at a low cost or even for free. This increases the accessibility of sustainable development education to people from diverse backgrounds, including those from low-income communities, rural areas, or developing countries, who may not have access to traditional educational institutions.

- Flexibility: MOOCs are designed to be self-paced, allowing learners to access course materials at any time and from anywhere. This makes it easier for learners to balance their studies with work, family, or other commitments.
- Diverse learning opportunities: MOOCs offer a wide range of courses on sustainable development topics, from environmental conservation to renewable energy, sustainable agriculture, and more. Learners can choose courses that match their interests and career goals and gain knowledge and skills that are relevant to their local or global communities.
- Collaboration and networking: MOOCs often include interactive features such as discussion forums, group projects, and peer reviews, enabling learners to collaborate with other learners from different backgrounds and countries. This can facilitate the exchange of ideas, experiences, and best practices in sustainable development and create a global network of professionals committed to promoting sustainability.
- Lifelong learning: MOOCs offer opportunities for continuous learning and professional development, enabling learners to stay up to date with the latest developments in sustainable development. This can help professionals to advance their careers and make a positive impact on their communities and the planet.

The sustainable development of MOOCs in higher education is a complex issue that requires careful consideration of various factors such as business models, quality, and access. However, with the right approach, MOOCs have the potential to transform higher education and provide access to quality education to millions of people around the world.

### 3 Research Method

This study uses a qualitative method with a narrative approach [29], to the effectiveness of MOOCs in higher education in Indonesia and the implications of MOOCs in Knowledge-Making and how MOOCs are recognized in the world of Industry and Educational Institutions. This research is also an exploration of MOOCs that reflect digital practice of the policy implication to MOOCs in Higher Education in Indonesia and the literacy and skills taught and needed within MOOCs.

The analysis of the research tries to reflect on the research questions, then we conduct an extensive response to the research questions based on MOOCs users in Indonesia, especially postgraduate students. The next analysis is to explore the answers that appear.

Our narrative approach emphasizes our understanding of digital engagement, digital literacy, and the operation of MOOCs policies in Indonesia in outline based on a long-term framework in digital culture. Most of the analyzes have something in common, so this research the policy implication to MOOCs in Higher Education.

In the individual interview process, we emphasize contextual knowledge as our narrative, as a basis for interpreting data, then we code and then insert digital monolithic data to get a broad and specific picture of the experience of combining several questions in a digital perspective and MOOCs.

During our research, we also used individual responses to our questions to inform the development of four short video scripts on MOOCs, which were distributed online. In the process we carry out the method of combing several MOOCs and distilling them into several key.



### 3.1 Research Question

- How do MOOCs reflect effective practice in digitizing higher education?
- What are the Implications of MOOCs in Knowledge Making?
- How are MOOCs Recognized in the World of Industry?
- What is the policy implication to MOOCs in Higher Education?

## 4 Discussion and Conclusion

### 4.1 How Do MOOCs Reflect Effective Practice in Digitizing Higher Education?

As of 2020, around 110 million people have registered for MOOCs courses across platforms, such as Coursera, edX, Udacity and others. However, not all users of MOOCs are college students, as there are also many professionals and people interested in gaining additional knowledge or career development.

Table 1 focuses on the MOOCs offered to the community. MOOCs are defined as course content of which 80% is delivered online. Face-to-face instruction includes courses where zero to 29% of content is delivered online. This category includes both traditional and web facilitated courses. The remaining alternative, mixed (or hybrid) instruction has between 30% and 80% of course content delivered online. This definition was presented to respondents at the beginning of a survey of graduate students.

**Table 1.** Prototypical Course Classifications.

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course where no online technology used — content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a learning management system (LMS) or web pages to post the syllabus and assignments.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings

The research presents the results of countries that are productive in using MOOCs. In Fig. 1 the results of the analysis of countries that effectively use MOOCs are “United States”, followed by “Turkey”, followed by “Malaysia”. Additionally, Australia, Indonesia, UK, South Africa, China, Spain, Saudi Arabia, Iran, Canada, Russian Federation, Hong Kong, and South Korea are listed as the top 15 countries in the research area. Starting with the analysis, it is evident that countries/regions from within the same institution and continents from within the same country/region with comparable study interests tend to collaborate more in the field of MOOCs.

MOOCs reflect effective learning in digital higher education in several ways. Firstly, MOOCs provide a flexible learning environment that allows students to learn at their own pace and convenience [25]. This flexibility is particularly beneficial for students who are working or have other commitments. Secondly, MOOCs offer a wide range of courses from different disciplines, allowing students to choose courses that align with their interests and career goals. This variety of courses also enables students to explore new areas of study and broaden their knowledge base. Thirdly, MOOCs incorporate interactive and engaging learning activities such as quizzes, discussion forums, and peer assessments, which promote active learning and collaboration among students. Fourthly, MOOCs provide access to high-quality educational resources such as videos, readings, and lectures from renowned professors and experts in their respective fields [26]. This access to quality resources enhances the learning experience and enables students to gain knowledge and skills that are relevant to their career aspirations.

However, the effectiveness of MOOCs in digital higher education is dependent on several factors. Firstly, institutions need to provide adequate support to students to ensure that they have the necessary skills and resources to participate in MOOCs effectively. This support can include access to technology, academic advising, and tutoring services. Secondly, institutions need to ensure that the courses offered through MOOCs are of high quality and meet the standards of traditional higher education. This can be achieved through rigorous course design and development processes that involve subject matter experts, instructional designers, and technology specialists. Thirdly, institutions need to ensure that the assessment and evaluation of student learning in MOOCs are rigorous

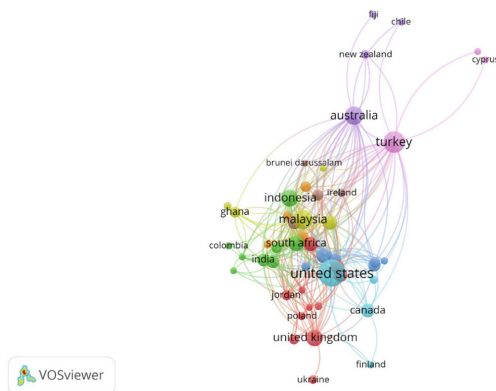


Fig. 1. Countries that are productive in using MOOCs.

and reliable [20]. This can be achieved using valid and reliable assessment tools and the involvement of qualified instructors in the evaluation process.

In conclusion, MOOCs reflect effective learning in digital higher education by providing a flexible, engaging, and accessible learning environment that promotes active learning and collaboration among students. However, the effectiveness of MOOCs is dependent on several factors, including adequate institutional support, high-quality course design and development, and rigorous assessment and evaluation processes. As digital higher education continues to evolve, MOOCs will continue to play a significant role in providing access to quality education to many students worldwide.

## **4.2 What Are the Implications of MOOCs in Knowledge Making?**

The increase in the use of MOOCs has continued worldwide since 2020. Many schools and universities have expanded their access to MOOCs and are leveraging online learning technologies to enhance students' learning experiences. MOOCs have been adopted by educational institutions of all levels and disciplines as a tool to improve the quality of learning, expand access to education, and provide a platform for professional development [21, 27].

Massive Open Online Courses (MOOCs) have revolutionized the way knowledge is created and disseminated. MOOCs are online courses that are open to anyone, anywhere, and at any time. They are designed to provide access to high-quality education to many people at a low cost. MOOCs have the potential to democratize education and make it accessible to people who would otherwise not have access to it [2, 3].

One of the implications of MOOCs in knowledge making is that they provide access to education to people who would otherwise not have access to it. MOOCs are particularly useful for people who live in remote areas or who cannot afford to attend traditional universities. MOOCs also provide an opportunity for people to learn at their own pace and on their own schedule [3]. This flexibility is particularly useful for people who have work or family commitments.

Another implication of MOOCs in knowledge making is that they provide an opportunity for people to learn from experts in their field. MOOCs are often taught by professors from top universities around the world. This means that people can learn from the best in their field without having to attend a top university [18]. MOOCs also provide an opportunity for people to learn from experts in fields that are not available at their local universities.

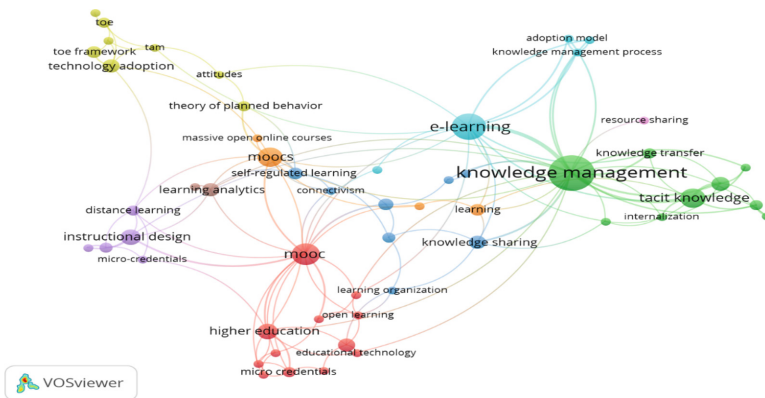
MOOCs also have the potential to change the way universities operate [30]. MOOCs can be used to supplement traditional classroom teaching or to replace it altogether. This means that universities can offer more courses to more students without having to build more classrooms or hire more professors. MOOCs can also be used to provide professional development opportunities to faculty members [4, 5].

However, there are also some challenges associated with MOOCs. One of the challenges is that MOOCs are often criticized for their low completion rates. Many people who enroll in MOOCs do not complete them. Another challenge is that MOOCs are often criticized for their lack of interaction between students and professors. MOOCs are often designed to be self-paced, which means that students do not have the opportunity to interact with their professors or classmates.

In conclusion, MOOCs have the potential to democratize education and make it accessible to people who would otherwise not have access to it. MOOCs also provide an opportunity for people to learn from experts in their field and for universities to offer more courses to more students. However, there are also some challenges associated with MOOCs, such as low completion rates and a lack of interaction between students and professors. Despite these challenges, MOOCs are an important development in knowledge making and have the potential to change the way education is delivered (Fig. 2).

Through the VOS viewer, 118 articles were searched, it was found that research discussing the relationship between knowledge management and MOOC was still very limited. MOOCs have had a profound impact on knowledge-making, and here are some of their implications:

- **Access to Knowledge:** MOOCs have democratized access to knowledge, making it possible for people to access courses, lectures, and other educational resources from anywhere in the world. This has led to the creation of a global community of learners, who can learn from each other and share knowledge.
- **Global Collaboration:** MOOCs have made it possible for learners to collaborate with others from different parts of the world, sharing knowledge and resources. This has led to the creation of online learning communities, which are often diverse and inclusive.
- **Open Education Resources (OER):** MOOCs have led to the creation of Open Educational Resources (OER), which are free and openly licensed educational materials that can be used and shared by anyone. This has led to the democratization of educational resources, making it possible for people to access high-quality educational content for free.
- **Lifelong Learning:** MOOCs have made it possible for people to learn throughout their lives, as they can access courses and resources on a wide range of topics, at any time. This has led to a shift towards lifelong learning, as people can continue to develop their skills and knowledge throughout their careers.



**Fig. 2.** Research GAP Knowledge Management dan MOOCs.

- **Disruptive Innovation:** MOOCs have disrupted traditional education models, challenging the traditional classroom-based model of education. This has led to the creation of new models of education, such as blended learning and flipped classrooms, which combine online and face-to-face learning.

### 4.3 How Are MOOCs Recognized in the World of Industry?

MOOCs have gained popularity among learners; many people still wonder about their value and recognition in the world of industry. The recognition of MOOCs in the world of industry is a complex issue. On one hand, MOOCs have received recognition from major organizations and institutions around the world [5, 6]. For example, many MOOC providers have formed partnerships with well-known universities, such as Harvard and MIT, to offer courses that are recognized by these institutions. In addition, many MOOC providers have received accreditation from professional organizations, such as the American Council on Education, which helps to legitimize their courses in the eyes of potential employers [31].

Furthermore, many MOOC providers have also begun to offer certification programs that can be used to demonstrate a learner's knowledge and skills to potential employers [19]. These certification programs typically involve taking a series of courses and passing assessments to demonstrate mastery of a particular subject. While these certifications may not hold the same weight as a traditional degree, they can still be a valuable addition to a resume and help to demonstrate a learner's dedication to lifelong learning and professional development.

On the other hand, some employers may still be skeptical of MOOCs and may not give them the same weight as a traditional degree from a well-known university. This may be due to a perception that MOOCs are less rigorous or that they do not provide the same level of hands-on experience as traditional degree programs [7, 28]. However, this perception is slowly changing as more employers become aware of the quality of education offered by MOOCs and the valuable skills that learners can acquire through these courses. In addition, some employers may also be hesitant to recognize MOOCs due to the lack of standardization across different providers. Unlike traditional degree programs, MOOCs are offered by a wide range of providers, each with their own standards and approaches to education. This can make it difficult for employers to compare the value of different MOOCs and assess the knowledge and skills of potential employees who have completed these courses.

Acceptance of MOOC graduates in the Indonesian industrial world is still relatively low [32]. This can be caused by several factors, such as the lack of information about MOOCs, public perceptions that lack confidence in the quality of MOOCs, and the habits of companies that prefer formal university graduates.

One of the factors affecting the acceptance of MOOC graduates in Indonesia is the lack of information about the MOOC itself [33]. Even though there are many MOOC platforms available, there are still many Indonesian people who do not fully understand the MOOC concept, its benefits, and how to take it. Therefore, there is a need for better education and more accessible information about MOOCs. In addition, the Indonesian public's perception of the quality of MOOC still needs to be improved. Some people still think that MOOCs are less qualified than official universities. This can be caused by the

uneven quality of the MOOC platform, and the absence of clear standards in evaluating the quality of education provided by the MOOC platform.

The habit of companies in Indonesia that prefer official university graduates is still an obstacle in accepting MOOC graduates. Some companies tend to choose formal tertiary education graduates because it is easier to evaluate the quality of graduates, as well as because there is a stigma attached that graduates from formal tertiary institutions are more capable of completing jobs well [32]. Even so, there are several companies in Indonesia that are starting to open opportunities for MOOC graduates. These companies tend to choose MOOC graduates who have certification from MOOC platforms that are trusted and have a good reputation. This certification shows that graduates have attended courses of good quality and have graduated with adequate grades.

To increase the acceptance of MOOC graduates in the industrial world in Indonesia, collaboration between the MOOC platform, educational institutions and the government is needed in improving the quality of education provided by the MOOC platform. In addition, a wider educational campaign is also needed regarding MOOC and its benefits for career advancement and competency development. This is expected to increase the acceptance of MOOC graduates in the industrial world in Indonesia.

Overall, while the recognition of MOOCs in the world of industry is still evolving, they are gaining recognition and value among employers. As more learners' complete MOOCs and demonstrate their knowledge and skills through certification programs, employers are likely to become more comfortable with the idea of hiring individuals who have completed these courses. Additionally, as MOOC providers continue to improve the quality and rigor of their courses, they are likely to become even more widely recognized and valued in the world of industry.

#### **4.4 What is the Policy Implication to MOOCs in Higher Education**

The generic model for MOOCs design and delivery needs to be re-engineered to consider variations inside developing countries, such as limited Internet access, learner need for offline access, and levels of mentoring and learner support. Sector-specific strategies are necessary to harness MOOCs for skills development and capacity-building; generic approaches are not adequate. Governments, where possible, should adopt open licensing policies for content and software, to augment the effectiveness of using MOOCs in development. It is important to recognize the need for capacity-building amongst faculty in the management of MOOCs and to develop a system of recognition and incentives for faculty.

The problem of access to Higher Education is frequently pointed out. The number of students enrolled in HE is forecast to rise from 99.4 million in 2000 to 414.2 million in 2030—an increase of 314 per cent. If an extra five years are added to these projections, the number of students pursuing HE by 2035 is likely to exceed 520 million. This growth is being fueled by the transformations that we are witnessing in the developing and emerging regions and countries of the world, and it will only accelerate in the next decades. This anticipated boom in Higher Education raises problems, as developing countries and emerging economies have a shortage of qualified teachers and a lack of high-quality learning materials. The picture is further complicated by wide-ranging factors such as

financial constraints, lack of capacity, national priorities, and the digital divide, rendering the scope of this problem very hard to grasp. The optimal solution would probably be to continue opening universities (employing both traditional and distance teaching), as well as to encourage universities to develop high-quality MOOCs. But options such as building more university campuses, bolstering online learning, and removing barriers to learning barely scratch the surface of this enormous challenge. MOOCs are one possible instrument in tackling the social challenges of Higher Education in developing countries, such as widening HE access and alleviating costs for disadvantaged youths and adults. Careful analysis is needed to identify the potential of MOOCs for opening education.

Opening education Opening up education implies that an educational system is closed in some way(s). One, therefore, should define what element(s) of education should be opened and why. This may differ between continents, countries and collaborating institutions. In general, though, the following barriers exist:

- **Economics:** Financial barriers can hinder access to education. As MOOCs are delivered for free, cost is removed as an economic barrier.
- **Location:** Online provision guarantees that the learner no longer must be in a particular place to participate in the course. In general, this does not apply to the formal examination. Entry requirements are removed as a formal barrier since anybody can enter a MOOC. This does not necessarily imply that the course can be taken successfully without any prior competencies or experience.
- **Success in completion:** educational success can be supported by using advanced pedagogies, in which context sensitivity is adopted.
- **Scheduling:** Self-paced courses enable participants to start anytime and choose their own schedule (freedom of time and pace). More and more, MOOCs are offered as self-paced courses.
- **Network connectivity:** Weak or no connectivity is a serious barrier to online provision as compared with on-site provision using printed books and other materials. This limitation applies to countries in the Global South. To serve students from these countries, MOOCs need to consider offering suitable tools to deal with this challenge. Governments in developing countries need to put in place policies that facilitate higher Internet connections and, consequently, access to quality content.
- **Accessibility overtime:** Some MOOC providers offer access to the course only for a limited time, typically between the course's start and end dates. Other MOOC providers ensure the contents of MOOCs are always accessible, even if they have fixed start and end dates during which they guarantee the availability of course content on the platform. A few providers offer unlimited access to both the content and the discussion forum of a MOOC.
- **Accessibility to all:** In principle, a MOOC offers a course to everyone with Internet access, including to people with disabilities. Occasionally, courses may exclude participants from certain parts of the world or apply an age limit. In addition, language and digital literacy barriers may hinder access.
- **Culture:** The issues encountered with OER are similar to the ones encountered with MOOCs. Cultural barriers will remain if courses are mainly developed within one dominant (Western) cultural perspective and ignore the cultural diversity of students.

This has a negative impact on both the subject matter and the teaching method. *f* Legal: Legal barriers with respect to the use of the course materials are removed completely only if educational materials are openly licensed.

- Quality: Quality barriers may be overcome by offering MOOCs. With an open licensing policy, the chances of raising quality are even better, as educators can revise and improve existing materials.

When topics are relevant, are likely to attract the interest of employers and/or can contribute to improved learning in degree-oriented courses, formal credit is less of a challenge for MOOCs. What is needed is a framework for quality assurance. The time investment by faculty in a typical MOOC in a developing country context is almost double that for a regular, on-campus course. This requires formal recognition, along with incentives. Unlike MOOCs offered by institutions in the OECD countries, a much higher level of mentoring is expected. Whilst it is known that online pedagogy is different from classroom pedagogy, there is insufficient consideration for the importance of approaching learning as a process that can be engineered. In other words, MOOCs for development must be based on a vision of learning engineering, and a certain amount of experimentation must be accepted as part of the initial investment. The MOOC management system at the institutional or country level needs to consider some of these factors.

## References

1. Pérez-Sanagustín, M., Hilliger, I., Alario-Hoyos, C., Kloos, C.D., Rayyan, S.: H-MOOC framework: reusing MOOCs for hybrid education. *J. Comput. High. Educ.* 29, 47–64 (2017).
2. Deng, R., Benckendorff, P., Gannaway, D.: Progress and new directions for teaching and learning in MOOCs. *Comput. Educ.* 129, 48–60 (2019).
3. Tawfik, A.A., Reeves, T.D., Stich, A.E., Gill, A., Hong, C., McDade, J., Pillutla, V.S., Zhou, X., Giabbanelli, P.J.: The nature and level of learner–learner interaction in a chemistry massive open online course (MOOC). *J. Comput. High. Educ.* 29, 411–431 (2017).
4. Brunton, J., Brown, M., Costello, E., Farrell, O., Mahon, C.: Giving flexible learners a head start on higher education: designing and implementing a pre-induction socialisation MOOC. In: *Digital Education: Out to the World and Back to the Campus: 5th European MOOCs Stakeholders Summit, EMOOCs 2017, Madrid, Spain, May 22–26, 2017, Proceedings* 5. pp. 10–19. Springer (2017).
5. Liu, M., Kang, J., Cao, M., Lim, M., Ko, Y., Myers, R., Schmitz Weiss, A.: Understanding MOOCs as an emerging online learning tool: Perspectives from the students. *Am. J. Distance Educ.* 28, 147–159 (2014).
6. MacKay, J.R.D., Langford, F., Waran, N.: Massive open online courses as a tool for global animal welfare education. *J. Vet. Med. Educ.* 43, 287–301 (2016).
7. Foley, K., Alturkistani, A., Carter, A., Stenfors, T., Blum, E., Car, J., Majeed, A., Brindley, D., Meinert, E.: Massive open online courses (MOOC) evaluation methods: Protocol for a systematic review. *JMIR Res. Protoc.* 8, e12087 (2019).
8. Reich, J., Ruipérez-Valiente, J.A.: The MOOC pivot. *Science* (80-). 363, 130–131 (2019).
9. Alturkistani, A., Lam, C., Foley, K., Stenfors, T., Blum, E.R., Van Velthoven, M.H., Meinert, E.: Massive open online course evaluation methods: Systematic review. *J. Med. Internet Res.* 22, e13851 (2020).



10. Pilli, O., Admiraal, W.F.: Students' learning outcomes in massive open online courses (MOOCs): Some suggestions for course design. *J. Higher Educ.* 7, 46–71 (2017).
11. Literat, I.: Implications of massive open online courses for higher education: mitigating or reifying educational inequities? *High. Educ. Res. Dev.* 34, 1164–1177 (2015).
12. Booth, A.: Searching for qualitative research for inclusion in systematic reviews: a structured methodological review. *Syst. Rev.* 5, 1–23 (2016).
13. Zhu, M., Sari, A., Lee, M.M.: A systematic review of research methods and topics of the empirical MOOC literature (2014–2016). *Internet High. Educ.* 37, 31–39 (2018).
14. Liyanagunawardena, T.R., Adams, A.A., Williams, S.A.: MOOCs: A systematic study of the published literature 2008–2012. *Int. Rev. Res. open Distrib. Learn.* 14, 202–227 (2013).
15. Veletsianos, G., Shepherdson, P.: A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015. *Int. Rev. Res. Open Distrib. Learn.* 17, 198–221 (2016).
16. Blum, E.R., Stenfors, T., Palmgren, P.J.: Benefits of massive open online course participation: deductive thematic analysis. *J. Med. Internet Res.* 22, e17318 (2020).
17. Baldwin, S., Ching, Y.-H., Hsu, Y.-C.: Online course design in higher education: A review of national and statewide evaluation instruments. *TechTrends.* 62, 46–57 (2018).
18. Mackness, J., Waite, M., Roberts, G., Lovegrove, E.: Learning in a small, task-oriented, connectivist MOOC: Pedagogical issues and implications for higher education. *Int. Rev. Res. Open Distrib. Learn.* 14, 140–159 (2013).
19. Liang, D., Jia, J., Wu, X., Miao, J., Wang, A.: Analysis of learners' behaviors and learning outcomes in a massive open online course. *Knowl. Manag. E-Learning.* 6, 281 (2014)
20. Pollack Ichou, R.: Can MOOCs reduce global inequality in education? *Australas. Mark. J.* 26, 116–120 (2018).
21. Nguyen, D.: The university in a world of digital technologies: Tensions and challenges. *Australas. Mark. J.* 26, 79–82 (2018).
22. O'Connor, K.: MOOCs, institutional policy and change dynamics in higher education. *High. Educ.* 68, 623–635 (2014).
23. Misiejuk, K., Wasson, B., Egelandstal, K.: Using learning analytics to understand student perceptions of peer feedback. *Comput. Human Behav.* 117, 106658 (2021).
24. Fan, Y., Jovanović, J., Saint, J., Jiang, Y., Wang, Q., Gašević, D.: Revealing the regulation of learning strategies of MOOC retakers: A learning analytic study. *Comput. Educ.* 178, 104404 (2022).
25. Barthakur, A., Kovanovic, V., Joksimovic, S., Siemens, G., Richey, M., Dawson, S.: Assessing program-level learning strategies in MOOCs. *Comput. Human Behav.* 117, 106674 (2021).
26. Al-Rahmi, W., Aldraiweesh, A., Yahaya, N., Kamin, Y. Bin, Zeki, A.M.: Massive open online courses (MOOCs): Data on higher education. *Data Br.* 22, 118–125 (2019).
27. Biesta, G.: Responsive or responsible? Democratic education for the global networked society. *Policy Futur. Educ.* 11, 733–744 (2013).
28. Konstan, J.A., Walker, J.D., Brooks, D.C., Brown, K., Ekstrand, M.D.: Teaching recommender systems at large scale: Evaluation and lessons learned from a hybrid MOOC. *ACM Trans. Comput. Interact.* 22, 1–23 (2015).
29. Holmegaard, H.T.: Performing a Choice-Narrative: A qualitative study of the patterns in STEM students' higher education choices. *Int. J. Sci. Educ.* 37, 1454–1477 (2015).
30. Colvin, K.F., Champaign, J., Liu, A., Zhou, Q., Fredericks, C., Pritchard, D.E.: Learning in an introductory physics MOOC: All cohorts learn equally, including an on-campus class. *Int. Rev. Res. open Distrib. Learn.* 15, (2014).
31. Jacquet, G.A., Umoren, R.A., Hayward, A.S., Myers, J.G., Modi, P., Dunlop, S.J., Sarfaty, S., Hauswald, M., Tupesis, J.P.: The Practitioner's Guide to Global Health: an interactive, online, open-access curriculum preparing medical learners for global health experiences. *Med. Educ. Online.* 23, 1503914 (2018).

32. Santoso, H.B.: Indonesian Perspective on Massive Open Online Courses: Opportunities and Challenges. *J. Educ. Online*. 15, n1 (2018).
33. Garcia, M., Perez, L.D., Hayashi, R.: Accreditation of Online Courses in Higher Education—Early Adopters in the European Union, India, Indonesia, and Malaysia. (2021).

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