Jurnal Inovasi Teknologi Pendidikan
Volume 11, No. 3, September (256-266)
Online: http://journal.uny.ac.id/index.php/jitp

Presence of massive open online courses for accelerating One Health basic training in Indonesia

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ARTICLE INFO

Article History
Received:
6 January 2024;
Revised:
16 July 2024;
Accepted:
21 July 2024;
Available online:
30 September 2024.

Keywords
Massive open online courses; One health; Basic training

ABSTRACT

New Emerging diseases and re-emerging diseases that are major threats to public health continue to have serious social, political, and economic impacts. In coordination with other sectors, the weak Indonesian health resilience system makes cross-sector involvement with the One Health approach (human, animal, environmental) very important. One Health Training is an effort to raise awareness about the importance of collaboration, coordination, and communication with various sectors regarding human, animal, and environmental health. This study aims to provide an overview of the existence of MOOC learning models for One Health Basic Training. The study uses qualitative research methods with a scoping review approach. This study reinforces the study of MOOCs' learning model for Health Training. This research is limited specifically to articles related to World Health Training that have implemented the MOOC learning model. The findings of this study provide insight into the various factors that need to be considered and the relevance of applying the learning model of MOOCs to One Health Basic Training.

How to cite:
Putra, L. S., Sutisna, Anan & Herlina. (2024). Presence of massive open online curses for accelerating one health basic training in Indonesia. *Jurnal Inovasi Teknologi Pendidikan, 11*(3), 256-266. https://doi.org/10.21831/jitp.v11i3.70402

INTRODUCTION

New Emerging diseases and re-emerging diseases are major threats to public health that further seriously affect the social, political, and economic spheres. The pandemic that has passed also gives a picture that human life is not free from pathogenic evolution, economics, and environmental change as well as dynamic human interaction with animals (Wang et al., 2021). Many other types of viruses that have been in their natural habitats for a very long time can potentially spread between humans and animals (Jiménez, 2019; Rupprecht et al., 2022; Zhou, 2021).

According to the Health Minister's Regulation, zoonotic diseases (animal infectious diseases) are one of the forms of public health threats (Peraturan Menteri Kesehatan Nomor 21 Tahun 2020: Rencana Strategis Kementerian Kesehatan Tahun 2020-2024, 2020). 70% of new infectious diseases in humans are zoonoses, not independent of human activity. Indonesia's health resilience system needs improvement in prevention, detection, and response to new infectious diseases. Cross-sectoral involvement with the One Health approach is essential, and improved prevention,

detection, and response to emerging cases are needed to strengthen public health (Asaaga et al., 2021; Bansal et al., 2023; Thomas et al., 2021; Vesterinen et al., 2019).

One Health Basic Training is a response to the increasing spread of zoonoses in Indonesia. This training is an effort to raise awareness of the importance of collaboration, coordination, and communication with various sectors in terms of human, animal, and environmental health (Amuguni et al., 2019). This approach, which encourages the preservation of human health, the conditioning of animals, and the conservation of the environment, is a common interest that is expected to reduce even the spread of zoonoses (Erkyihun & Alemayehu, 2022). Balia et al., (2019) affirmed that the basic knowledge needed in the treatment of zoonosis related to public health, animal health, and environmental health should be integrated into the concept of the One Health approach. The important role of the three sectors (10.435 Public Health Centres, 1,691 Veterinary Health Centers, and 26 Natural Resource Conservation Halls) in being trained in the concept of the One Health approach requires strategies that can accelerate the implementation of one health basic training (Pedoman Pelatihan Jarak Jauh Bidang Kesehatan, 2023; KSDAE, 2023).

This article aims to provide an overview of the organization of training about the unprecedented training model in Indonesia, namely MOOCs. The maintenance of training through the implementation of the learning model of MOOCs has received increased interest and attention from many communities and institutions involved in distance education through the Internet (Evianto, 2020). The need to ensure efficient and economically sustainable training has focused on Technology-Enhanced Learning/TEL, one of the applications of which is through learning models MOOCs (Schettino & Capone, 2022). MOOCs are very beneficial to employees because they provide an opportunity to study independently, to study lifelong, and to develop a career at no cost (Aljaraideh, 2019; Rafiq et al., 2019; Wang et al., 2020).

The learning model of MOOCs makes one-health basic training that originally could only be carried out face-to-face become web-based by providing an open and easily accessible learning freedom to participants (Bolon et al., 2020; Linder et al., 2020; Machalaba et al., 2021; Zinsstag et al., 2022). MOOCs create new approaches to learning and teaching. If the implementation of MOOCs is well designed and organized, the training participants can organize time efficiently and be able to gain insight without expensive costs. Until now, the results of previous research on the application of MOOCs to One Health Basic Training are still focused on the screening of the release events and the outcomes of the One Health MOOCs (Bolon et al., 2020). The study seeks to complement the implementation of the One Health approach with the application of the MOOCs that have been implemented by providing an overview of the implementations of MOOCs in Health Training which have been successfully implemented in various countries. Therefore, the study aims to provide a broader overview of the learning model of MOOCs that can be applied to One Health Basic Training by reviewing various articles about MOOCs in health training. The emphasis on key factors in developing MOOCs is also the focus of this research. Through a comprehensive literature review, the research contributed to identifying patterns that could be considered for MOOCs as training models for One Health, as well as providing strategic recommendations for the development and implementation of more effective online training programs in the context of Indonesia. The results of this research are expected to serve as a reference for policymakers, instructors, and health practitioners in optimizing the use of digital technology to improve the quality and accessibility of health education in Indonesia.

METHOD

Design of Research

This research is qualitative research using the scoping review approach, i.e. using sources of articles from various journals related to the application of learning models of MOOCs to health training as a primary reference source. The use of legal references, ministerial regulations, and guidelines on One Health Basic Training is also used as a secondary source of reference. The technique of gathering data on this research is by identifying reference sources that are relevant to

the research theme. One Health Basic Training as one of the Health Field Training is further linked to the learning model of applicable MOOCs.

Procedures and Techniques of Research

This research was carried out by adopting a methodological framework developed by Arksey & O'Malley (2005) and submitted by Levac et al., (2010), which required the following steps: (1) identifying research questions, (2) finding relevant studies, (3) selecting the study, (5) mapping the data, and (5) collecting, summarizing, and reporting the results.

1. Identify Research Questions
   To map evidence of the application of MOOCs in health training, a curriculum examination of relevant topics was carried out. Specifically, this study aims to answer the following questions:
   a. What factors should be considered when applying MOOCs to Health Training?
   b. Are MOOCs a suitable learning model for One Health basic training?
   These two questions are aimed at finding a range of studies that observe the processes and learning outcomes of the application of MOOCs to Health Training, including the One Health Basic Training. The result is an analysis of its implementation that can be applied according to similarities in the target, media, platform, and assessment of the maintenance of the MOOCs.
2. Search Strategy
   Relevant articles are identified through the electronic database of Google Scholar. To determine the most appropriate search strategy, a preliminary analysis of the literature on MOOCs in the context of health training is carried out to determine an adequate search strategy. Specifically, the keyword algorithm used is based on the following terms: "MOOCs/MOOC", "Health", "Training", and "One Health"; the search time range covers articles published between 2019 and 2023.
3. Inclusion and Exclusion Criteria
   The articles were selected based on the following inclusion criteria: (1) qualitative and quantitative empirical studies on MOOCs for health care, (2) written in English or Indonesian, (3) with full text available online, (4) with clear and explicit methods, (5) published in journals in the last five years namely in 2019 to 2023. No geographical constraints are used.
4. Mapping Research

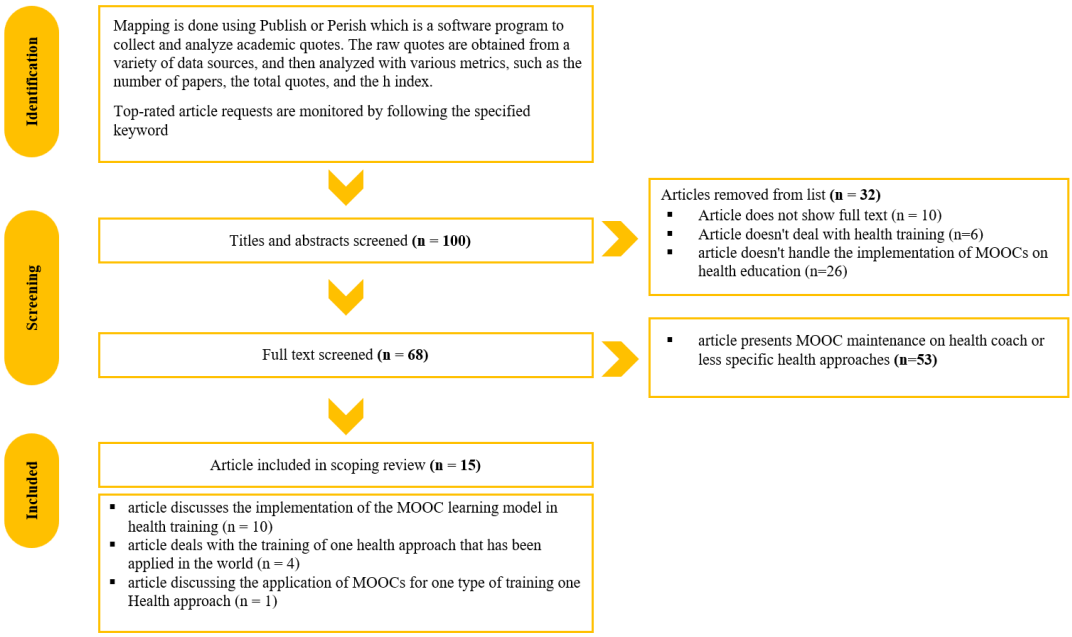

Figure 1. Flowchart of the literature search strategy and review process, Adapted from PRISMA 2020 ((Page et al., 2021)

Figure 1. Mapping Research

RESULT AND DISCUSSION

Result

The following is the article study that has been filtered according to the method of research submitted. The article study results can be found in Table 1.

Table 1. Summary of Articles Included in Research

No.	Author (Year); Country	*Platform*; Duration	Topic; Target	Media	Result
1	Bettiol et al., 2022); Australia	MOOC; 20 H	Public Health Systems; Professionals and Students	Short Instruction Videos, Articles, Readings, Discussion Forums	The MOOC Drew Wide and Diverse Public Attention to Major Public Health Issues.
2	Yahya et al., (2019); Malaysia	Open Learning	Trying to quit Smoking; Dental Student	Video, PowerPoint Lecture Slides, and Quizzes (8 Modules)	The MOOC will be an Alternative Platform for Teaching Students Curricula and Learning for Work and Personal Satisfaction for Health Professionals.
3	Hooley et al., (2020); Rwanda	D&I MOOC; 6 Weeks	Dissemination and Implementation of Hypertension Research; Health Workers, Researchers, and Students	Content (Module, Videos, Assignments, Quizzes, Capstone Projects)	The Implementation of the MOOC needs to be done in Partnership with the existing Infrastructure.
4	Pham et al., (2021); France	MOOC EIVASI-ON; 6 Months	Respiratory Physiology and Mechanical Ventilation; ICU Resident Doctor;	Classic Video, Video Simulation	Increased Knowledge and Skills in Mechanics with Ventilation
5	Floss et al., (2021); Brazil	Moodle; 80 H	Planetary Health; other Health Services on Primary Health Services	Content (Articles, Short Videos, Podcasts) Inspired by Transformative Learning	High Completion Rate; most Participants were very Satisfied with the Learning Experience
6	Launois et al., (2021); WHO	IR MOOC; 6 Weeks	Implementation Research; Researchers and Public Health Professionals, Lecturers, Students, and the General Public	Content (Modules, Videos, Discussion Forums, use in 6 Languages	Successfully Strengthened Knowledge of IR. The Knowledge Received can be Applied in Professional Practice. MOOCs are Suitable for Low and Middle Income Countries

No.	Author (Year); Country	*Platform*; Duration	Topic; Target	Media	Result
7	Wang et al., (2021); China	MOOC	Rheumatoid Arthritis; Resident Physician	For Experimental Groups: Short Videos Watched Before Class and Intra-Group Discussions; Clinical Cases	A Significant Difference in Test Scores for Experimental Groups
8	Findyartini et al., (2021); Indonesia	Moodle; 42 H	COVID-19 Management; Doctor Fresh Graduate	Video; Text; Slides; Podcasts and References	The Platform is easy to navigate, the Design is Attractive, and the Content is Tailored to the needs.
9	Dwyer et al., (2022); Australia	MOOC; 6 Weeks	Redesign of Health Services; Nurses, Health Practitioners, Medical Personnel, Administrative Staff	Text/Articles, Videos, Case Studies, Quizzes	Participants are Satisfied with the MOOC Learning Experience; MOOCs Respond to Short and Free Learning needs;
10	Coad et al., (2023); UK	Future-learn; 3 Weeks	Germline Genomic Testing; Clinical Consultant, Clinical Geneticist, and Genetic Consultant	Content, Discussion, Quizzes	MOOCs Provide Basic Knowledge and Enhance Participant Confidence
11	Linder et al., (2020); United States	Class; 13 Weeks	One Health Approach Training; Tufts University Students	Interactive Presentations, Group Assignments/ Discussions, Visual Products, Headings	Recommend MOOC Development for One Health
12	Kelly et al., (2020); Rwanda and Tanzania	One Health Platforms PREDICT	Avian Influenza (AI); Stakeholder	Collaboration, Coordination, Cross-Sector Communicatio n (Informal Meetings and Radio Broadcasts)	The Development of the One Health National Platform and Policy is Crucial
13	Machalaba et al., (2021); New York	Conference on Health; 1 Month	Important Issues One Health; Medical Schools and Global Health Centers	Resume	Use of Platforms (e.g., MOOCs) that can Promote Access widely
14	Zinsstag et al., (2022); Switzerland	Future-learn; 6 Weeks	One Health; Public and Health Professionals	Videos, Articles, Discussions	Promoting Multidisciplinary Science Activities in One Health

No.	Author (Year); Country	*Platform*; Duration	Topic; Target	Media	Result
15	Bolon et al., (2020); Kenya	Coursera; 8 Weeks	Interpretation and Application of One Health to Various Health Problems	53 Video Lectures, Readings (Short Scientific Articles, Reports, etc.), Online Practice Quizzes	The Pedagogical Approach of Incorporating MOOCs into One Health Education in the Camp Gets Positive Feedback

Discussion

Implementation of MOOCs on Health Training Models has been carried out in various countries. France, Rwanda, Brazil, China, and Indonesia are some of the countries that have successfully organized MOOCs in Health Training. The application of the intended flushing model is capable of attracting most of the attention of the participants. The high level of completion and satisfaction in conducting learning became an exciting experience for participants.

Implementation of training in the field of health is carried out with a minimum duration of 20 hours and a maximum of 6 weeks (with study 5 hours a day) that is suitable for applicable to students, lecturers, researchers, and health professionals. When linked to the rules applied in Indonesia, the state civil apparatus act and the state administration institution regulations state that the state civil apparatus has the right to a minimum of 20 Teaching Hours per year for competence development. Health training with learning models MOOCs give fresh air to the healthcare industry (especially in community health centers) to be able to develop competence without having to spend expensive and can be followed anytime and anywhere. The workload of the health care personnel in community health centers is mainly high doctors making the learning model of MOOCs very suitable to apply (Kemenkes, 2023).

The use of varied learning media according to needs in the learning model of MOOCs is the key to the implementation of health training running according to the learning objectives to be achieved. Learning media are essential to helping students acquire new concepts, skills, and competencies (Hasan, 2021). No direct interaction between participants and teachers as face-to-face training makes the learning process have to use a variety of learning media for optimal learning outcomes.

The role of the media in the learning process is to clarify the learning material. Training participants need a real picture of the material they learn using a medium to present a real experience even though they have never experienced it. For example, the proper use of APDs to reduce the risk of transmission of infectious diseases in animals requires care by professional talents that can be integrated into the learning process. The media also plays a role in generating participants' responses to cases that will be further investigated in the learning process. Moreover, in the learning model of MOOCs, the important role of media in the learning process is as a student learning resource that contains the core material studied. The various media used in the implementation of health training from the article have been summarized are modules, articles, short videos, podcasts, slides, and discussion forums.

Learning media in the application of the MOOCs development model in compulsory health training refers to the training modules that have been compiled (Pedoman Pelatihan Jarak Jauh Bidang Kesehatan, 2023). The module is a learning material in health care training designed specifically and systematically based on an accredited curriculum. The module consists of the smallest learning component that the participant can use independently to the learning objectives of the training. The module covers all the competence needs that will be achieved during the training: learning goals, guidance, materials, discussion, references, and feedback and evaluation.

In Indonesia, the learning media MOOCs developed for health training are directed to the Digital Learning Platform that is being developed by the Ministry of Health namely the Healthy

Platform (Kemenkes, 2023). When compared to the application of MOOCs in the world, media embedding in modules, articles, short videos, and slides can be facilitated while media in podcasts and forum discussions can be implemented by embedding links to targeted content.

In the future, this Digital Learning Platform should already be able to facilitate the various learning methods applied in MOOCs. Floss et al., (2021) reveal that visual communication is the key to the effective delivery of messages of complex ideas. Developers of MOOCs are supposed to do it continuously, mainly focusing on how to simplify complex messages to be easily understood by participants. The MOOC development team works with training developers and experts to represent the field of health developed visually through color and shape. The authors and designers researched images that represented the content and consciously created a color palette for the course. The use of colors and ideas must characterize the peculiarities of a MOOC.

Implementation of One Health Basic Training can adopt and adapt from the application of the One Health approach in the world. Linder et al., (2020) describes the application of one heatlh curriculum to a training for students at Tufts University, United States advancing multidisciplinary science collaboration with various groups (human medicine, veterinary medicine, nutrition, dental care, the environment, and public policy).

Experience in interdisciplinary joint work enables participants to have diverse perspectives in dealing with various health issues. Training using a variety of previous cases can be used to provide real-life examples of One Health problems that participants may face in the future. In addition, the field trip approach will be an interesting content application to help strengthen the concepts taught. To promote the dissemination of a curriculum development model MOOCs for One Health are highly recommended.

Development of the national One Health platform and policy is implemented to enhance the integration of activities and programs in various sectors in the State of Rwanda and Tanzania (Kelly et al., 2020). Collaboration, coordination, and cross-sector communications (informal meetings and radio broadcasting) are concrete steps to such integration. This means that the opportunity to create a learning model MOOCs can happen not only to the Ministry of Health involved but also to various related sectors such as the Ministry for Human Development and Culture, Ministry for Agriculture, Ministries of the Environment and Forestry, National Research and Innovation Agency, Ministers of Home Affairs, Regional Government and other stakeholders. Through the guidelines on prevention and control of zoonoses and new infectious diseases issued by the Minister of Coordination for Human Development and Culture of RI, all these sectors should be involved in the preparation of MOOCs. Information massively delivered through the respective ministries/agencies and other stakeholders will increase participation so that everyone knows and understands the importance of the One Health approach to preventing and controlling zoonoses and new infectious diseases in Indonesia.

MOOCs can be a gateway for various stakeholders involved in preventing and controlling zoonoses and new infectious diseases to introduce SIZE (Zoonosis Information System and EID). SIZE is an integrated information system that presents zoonosis and new infection data containing information about sectoral disease data, warning of a disease occurrence as well as recording responses and analysis (https://size30.onehealth-size.id/). By following the One Health Basic Training, the implementation of cross-sectoral integrated surveillance, cross-sectorial response to SIZE alerts, sharing data and information across sectors, as well as implementing technical analysis and recommendations by the region can be implemented well.

It's not just for health professionals and others who can follow this One Health Basic Training, with the application of MOOCs that can be targeted at college students from a variety of related sectors. The benefits of One Health Education for students in the United States, Switzerland, and Kenya can be examples of the One Health approach can be done (Bolon et al., 2020; Linder et al., 2020; Machalaba et al., 2021; Zinsstag et al., 2022). Students of medicine, veterinary medicine, public health, especially epidemiology, and environmental health who have learned about zoonoses and new infectious diseases can be admitted to the training.

The implementation of the learning model of MOOCs in One Health Basic Training is a matter of curiosity. In the state of Kenya, the implementation of the learning model MOOCs on the One Health approach has been implemented with positive feedback at the end of the session (Bolon

et al., 2020). An overview of how One Health is interpreted and applied to various health problems (e.g., antimicrobial resistance, rabies) and the world context is the purpose of the application of the MOOCs in question. The application of learning media such as videos, articles, and the presence of quizzes to measure learning success is also applied in the learning process. It is a fresh wind for one health activist in Indonesia to develop a similar learning model on the positive response of the world to the implementation of MOOCs. Every renewal, there must be a challenge to face. The presence of MOOCs should be considered for Internet access constraints, information technology usage skills, support, and supervision (Anisah, 2022; Harjanto & Sumunar, 2018).

CONCLUSION

This article aims to provide an overview of the organization of One Health Basic Training with an unprecedented development model in Indonesia, namely MOOCs. Various successful measures have been implemented in various countries with positive responses. Research carried out in France, Rwanda, Brazil, China, and Indonesia showed that the application of the learning model of MOOCs in Health Field Training was successfully implemented with the same target of training participants for One Health Basic Training, namely doctors, health professionals, and health personnel in the community health center. The factors that need to be considered in this model are the duration of the training time, the use of the learning media, the basic material to know, and the setting of targets according to the needs. These factors need to be discussed further in future research. Finally, the presence of MOOCs in One Health Basic Training in Indonesia is an appropriate innovation and is the subject of discussion for policymakers.

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