A Netnographic Study: Construction of AI-Based Learning Media Training on pintar.kemenag.go.id

Syatria Adymas Pranajaya
Universitas Islam Negeri Sultan Aji Muhammad Idris Samarinda
Address: Jl. H.A.M. Rifaddin, Harapan Baru, Kec. Loa Janan Ilir, Kota Samarinda - Kalimantan Timur, 75251
E-mail: *syatria.adymas@uinsi.ac.id*

Ani Cahyadi
Universitas Islam Negeri Antasari Banjarmasin
Address: Jl. A. Yani Km. 4,5 Kebun Bunga, Kec. Banjarmasin Timur, Kota Banjamasin - Kalimantan Selatan, 70235
E-mail: *anicahyadi@uin-antasari.ac.id*

Muhammad Nasir
Universitas Islam Negeri Sultan Aji Muhammad Idris Samarinda
Address: Jl. H. A. M. M. Rifaddin, Harapan Baru, Kec. Loa Janan Ilir, Kota Samarinda - Kalimantan Timur, 75251
E-mail: *muhammadnasirsadeke@gmail.com*

Agus Riwanda
Universitas Islam Negeri Sunan Ampel Surabaya
Address: Jl. Ahmad Yani No. 117, Jemur Wonosari, Kec. Wonocolo, Kota Surabaya - Jawa Timur, 60237
E-mail: *02050122021@student.uinsby.ac.id*

Dinar Pratama
Institut Agama Islam Negeri Syaikh Abdurrahman Siddik Bangka Belitung
Address: Jl. Raya Petaling Km. 13 Desa Petaling, Kec. Mendo Barat, Kepulauan Bangka Belitung, 33173
E-mail: *dinarpratama24@gmail.com*

Abstract

This research was conducted to find out how the construction carried out by community participants of Artificial Intelligence (AI)-based Learning Media Training on the pintar.kemenag.go.id application or website facilitated by Badan Litbang dan Diklat Kementerian Agama RI as a virtual training medium. Using the netnography method, researchers try to reveal and analyze the way community participants present the "digital-self". Netnography describes how experience and learning are carried out virtually through the "repetition of experience" that occurs among members/participants in online communities. The AI-based Learning Media Training is constructed as a free and flexible community virtual training. This virtual training is designed to help the general public who are highly motivated to join the training. Training without physical contact and new media influence the construction of a virtual training. The construction can be seen through 3 aspects, namely: internalization, objectivation, and externalization. This research can be concluded to be very liked and

considered very helpful in contemporary and useful training, analyzed from the number of comments and reviews of 4,503 and likes through the 4.9 stars icon with details of the number of 5 stars = 4,221; 4 stars = 244; 3 stars = 24; 2 stars = 2; and 1 star = 12 given by participants to the information or material published. The overall score for this training is 94% which is categorized as excellent.

Keywords: *netnography; artificial intelligence; learning media; mooc training; pintar.kemenag.go.id*

Abstrak

Penelitian ini dilakukan untuk mengetahui bagaimana konstruksi yang dilakukan oleh komunitas peserta Pelatihan Media Pembelajaran berbasis *Artificial Intelligence* (AI) terhadap aplikasi atau website pintar.kemenag.go.id yang difasilitasi oleh Badan Litbang dan Diklat Kementerian Agama RI sebagai media pelatihan virtual. Dengan menggunakan metode netnografi, peneliti mencoba mengungkap dan menganalisis cara peserta komunitas mempresentasikan "*digital-self*". Netnografi menggambarkan bagaimana pengalaman dan pembelajaran dilakukan secara virtual melalui "*repetition of experience*" yang terjadi di antara para anggota/peserta dalam komunitas *online*. Pelatihan Media Pembelajaran berbasis AI dibangun sebagai pelatihan virtual komunitas yang gratis dan fleksibel. Pelatihan virtual ini dirancang untuk membantu masyarakat umum yang memiliki motivasi tinggi untuk mengikuti pelatihan. Pelatihan tanpa kontak fisik dan media baru mempengaruhi konstruksi pelatihan virtual. Konstruksi tersebut dapat dilihat melalui 3 aspek, yaitu: internalisasi, objektivasi, dan eksternalisasi. Penelitian ini dapat disimpulkan sangat disukai dan dianggap sangat membantu dalam pelatihan yang kekinian dan bermanfaat, dianalisa dari jumlah komentar dan review sebanyak 4.503 dan like melalui icon bintang 4,9 dengan rincian jumlah bintang 5 = 4.221; bintang 4 = 244; bintang 3 = 24; bintang 2 = 2; dan bintang 1 = 12 yang diberikan peserta terhadap informasi atau materi yang dipublikasi. Nilai keseluruhan untuk pelatihan ini adalah 94% yang dikategorikan sangat baik.

Kata Kunci: *netnografi; kecerdasan buatan; media pembelajaran; pelatihan mooc; pintar.kemenag.go.id*

INTRODUCTION

In this era of globalization and digitalization, the development of information and technology (IT) has undergone a very rapid and dynamic transformation for all people in the world. IT has become an integral part of almost every aspect of human life, from communication, and business, to education, and entertainment. The development of IT began with the invention of mechanical calculating machines by Blaise Pascal in the 17th century (Isaacson, 2016; Rojas-Sola et al., 2021), which later evolved into the electronic computer in the 20th century (Saputra et al., 2023; Smil, 2006). Then, with the advent of the internet in the late 20th century, the IT world underwent an unprecedented revolution. It has changed the way we communicate, shop, learn and even the way humans think.

Today, with advancements in the fields of artificial intelligence and machine learning, IT continues to evolve at an unprecedented pace (Savitri, 2019). Technologies such as cloud computing, big data, and the Internet of Things (IoT) are now an integral part of people's daily lives (Erwin et al., 2023). However, this rapid development of IT also brings new challenges and issues, such as cybersecurity, data privacy and the digital divide (Andzani, 2023). Therefore, we must continue to learn and understand IT developments so that we can utilize them wisely and responsibly.

The world of education is facing increasingly complex challenges (Suharsiwi et al., 2023), and training has undergone significant changes with the internet and technology (Anggraeni, 2020). The internet has enabled access to education and training from anywhere at any time. This means that individuals can learn at home, in the office, or even while traveling. On the other hand, the Internet provides a variety of learning resources, ranging from articles, videos, podcasts, to online courses. It provides opportunities for individuals to learn according to their own learning styles. The Internet is also very conducive to collaboration between learners and teachers, as well as between learners, thus improving understanding and retention of material.

Technology has made learning more interactive. For example, the use of multimedia in learning can improve understanding and retention of material. Technology enables personalization in education and training (Setiawan et al., 2023). This means that materials can be customized to individual learning needs and abilities. Technology enables real-time evaluation and feedback. This can help individuals to understand their abilities and weaknesses, and how they can improve.

The history of online or virtual training can be traced to the development of information and communication technology that has continued to grow since the 20th century (Saputra et al., 2023) as mentioned in the paragraph above. One of the factors that influenced this development was the Covid-19 pandemic which encouraged many organizations to switch to online learning or remote learning. Online learning is a learning process that is conducted online without any physical face-to-face meeting between learners and teachers.

Online learning became more popular after the Indonesian government issued a Circular Letter on the Stipulation of Guidelines for the Implementation of Online Learning (Sanjaya, 2020). This decision provides direction for all educational institutions in Indonesia to conduct online learning according to their respective conditions and capabilities. Online learning also receives support from various companies and other organizations that want to improve the skills and competencies of their employees or members.

In today's digital world, virtual training has great potential to improve the quality of education in Indonesia. However, this training also requires special attention in terms of the quality of learning materials and methods to comply with national education standards. In addition, this training must also pay attention to other aspects such as the cost of internet access for learners who do not have such access. Therefore, cooperation between the central and local governments with various related parties is needed to provide technical and financial support for virtual training service providers so that they can provide benefits to the wider community.

Some examples of companies and organizations that provide online or virtual training are Google, IBM, Microsoft, Cisco, LinkedIn, Coursera, edX, Udemy, Skillhub, Niagahoster Course, RevoU Mini Course, CodeSaya.com, SekolahKoding.com, Digitademy.com, Duolingo.com, Qubisa.com/Microlearning, Digitalent Kominfo, MOOCS Universitas Terbuka, Kursus Daring KEMENDIKBUD, DQLab.id, IndonesiaX, Grow with Google, Khanacademy.org, IDN Times, Pintar.Kemenag.go.id, and others (Alshwaier et al., 2012).

In this case, Kementerian Agama (KEMENAG) also made a breakthrough innovation in education and training, one of which is MOOC through smart.kemenag.go.id. This program is an online training service platform based on Massive Open Online Course (MOOC), which is open-access training that can be followed by many participants at the same time. MOOC itself is a distance learning program using internet media that is currently used by many institutions to replace face-to-face training (Maqbul, 2020). The MOOC of Kementerian Agama through pintar.kemenag.go.id, known as MOOC Pintar, was first used on July 18, 2022, with the training "Multimedia-Based Learning Media" for the period July 18-24, 2022.

At that time, it consisted of only 424 reviews according to the data in the MOOC Pintar application. However, on the information on the KEMENAG website itself, it is mentioned that the release for its inauguration was in October 2022 with "*Pelatihan Kurikulum Merdeka*". Merdeka Curriculum emphasizes essential material, character development and competency students (Pranajaya et al., 2022). Other information about as many as 29 thousand people who successfully created MOOC Pintar accounts, then 19 thousand of them successfully registered for the training which took place in the period October 26 to November 6, 2022. Even with the number 9,307 participants declared successful in obtaining the title is "*Pelatihan Kurikulum Merdeka*" through this MOOC Pintar. The participants of MOOC Pintar are teachers, madrasah heads, supervisors, headmasters, religious instructors, lecturers, and others.

The data that can be collected from the training track record at MOOC PINTAR KEMENAG is 55 trainings consisting of repetitions of the same training with several batches, including the following:

1. In the period July 18-24, 2022, there were only 424 reviews "*Pelatihan Media Pembelajaran Berbasis Multimedia angkatan I*".
2. Period July 25-31, 2022 with 518 reviewers "*Pelatihan Penelitian Tindakan Kelas (PTK) Angkatan I*".
3. Before the period August 21-August 30, 2023, there are several other periods that I have not included here because they are too numerous and are repetitions of the same training with different batches. During this period, there are 5 training options open to the public, such as *Pelatihan Numerasi I (Asesmen Numerasi Kelas Awal), Pelatihan Numerasi II (Ide Praktis Pembelajaran dan Permainan Numerik), Pelatihan Metodologi Pembelajaran, Pelatihan Keluarga Sakinah, dan Pelatihan Penilaian Pembelajaran Berbasis HOTS dalam Kurikulum Merdeka.*
4. Furthermore, the period of November 6-10, 2023 consists of 7 optional trainings, such as *Pelatihan PTK Ke-IV, Pelatihan Multimedia Pembelajaran ke-IV, Pelatihan KTI Bagi Penghulu dan Penyuluh ke-IV, Pelatihan Manajemen*

Kemasjidan ke-IV, Pelatihan Keluarga Sakinah ke-IV, dan Pelatihan Media Pembelajaran Berbasis Artificial Intelligence, etc.

In the above explanation, it can be concluded that the MOOC of KEMENAG RI through pintar.kemenag.go.id is one of the learning innovations in the industrial era 4.0 that can be utilized by ASN Kementerian Agama and the public who want to improve their competence in the religious field. In this study, researchers focus on the last training, such as Artificial Intelligence (AI)-based Learning Media Training, assuming that this training is very relevant to the current era towards society 5.0, where AI has become a part and partner in the world of education and training so that it needs proper regulation so as not to be misused. In this netnography research, the researcher wants to analyze the response of training participants through the *pintar.kemenag.go.id* application.

METHOD

Metode The paradigm used in this research is the constructivist paradigm. The constructivist paradigm assumes that individuals always try to understand the world in which they live and work (Creswell, 2013). The method used is netnography, which is one of the popular and widely used methods in communication science research in many countries. The popularity of this method cannot be separated from the development of the internet and social media which is a global phenomenon.

In Indonesia, the use of Netnography as a research method is still rarely used. Many researchers are still oriented towards using ethnography as their research method. Netnography seeks to reveal and analyze the way group members present themselves called the "digital-self". Netnography is the way to analyze the self, the presentation strategies that people use to construct a "digital self" (Kozinets, 2010; Samatan et al., 2017) Netnography describes how experience and learning are carried out virtually through "repeated experiences" that occur among members in online communities (Kozinets, 2010). The research subjects in this study are participants in the AI-based Learning Media Training through likes and comments given to the training.

In the context of this research on AI-Based Learning Media Training at pintar.kemenag.go.id, the netnography method is used with the following steps:

Steps of The Netnography Method

| Stage	Practical Implementation
Planning	Selecting a forum or discussion group that actively discusses AI-based learning media training.
Data Collection	Analyzing participants' discussion on the use of the pintar.kemenag.go.id platform.
Data Analysis	Coding themes such as participants' perceptions, technical constraints, and benefits of AI-based learning media training.
Interpretation	Draw conclusions about how participants understand and adopt the technology.

RESULTS AND DISCUSSION

The reality of a virtual society is a reality formed in a society that is literate by the internet and technology. Virtual society utilizes the internet to find or obtain information, and to establish interactions with other individuals (Samatan et al., 2017). New media has an important role in providing convenience for virtual communities to obtain virtual learning, one of which is through Massive Open Online Course (MOOC). MOOCs designed for use in education and training are behind the initiation of a virtual training program at Kementerian Agama called "MOOC Pintar KEMENAG", through the application or website pintar.kemenag.go.id which can be accessed anytime, anywhere, and free of charge. Training is conducted asynchronously and fully online, so there is no Zoom schedule or face-to-face. The MOOC Pintar website provides a lot of virtual training among those raised in this study, namely AI-based Learning Media Training.

Figure 1. Training Pamphlet
Source: www.pintar.kemenag.go.id

Training without physical contact and new media influence the construction of a virtual training. The construction can be seen through 3 aspects, namely: internalization, objectivation, and externalization (Istiqomah, 2023; Samatan et al., 2017).

1. The internalization of AI-based Learning Media Training includes the idea of creating a flexible and free training venue (Samatan et al., 2017), a systematic training that can be followed and carried out with a period schedule and materials that can be repeated in the form of video explanations and presentation materials before participants take several tests to get a passing score. The material of this training module consists of 3 sections and 18 materials, such as: Introduction which consists of 2 materials, Basic Group which also consists of 2 materials, and Core Group which consists of 14 materials. In this training, participants will learn:
   a. Artificial Intelligent (AI) in Learning (Serdianus & Saputra, 2023)
   b. Making AI-based learning Multimedia Presentation (Hakeu et al., 2023)
   c. Creation of AI-based Learning Video (Susanto et al., 2023)
   d. Creation of AI-based Learning Assessment (Syafril et al., 2023)
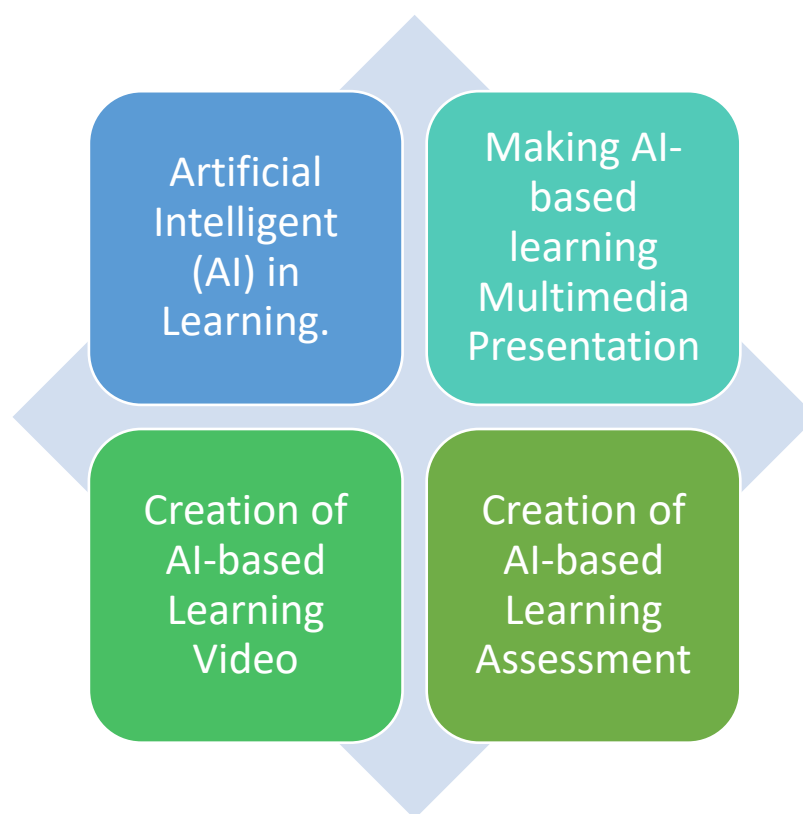
Figure 2. Subject Matter
Source: processed data

2. The objectivation of AI-based Learning Media Training includes that this virtual training is programmed in such a way that prospective participants who are interested can directly register themselves through an account (Samatan et al., 2017). Then take part in training with regulations made for participants to follow these regulations during virtual training, and can pass with objective scores to get e-certificates from *Badan Litbang dan Diklat Kementerian Agama Republik Indonesia*. The appeal in the application related to this is "Participants must register and conduct training until completion independently. Training can be done anytime and anywhere according to the needs of the participants as long as it is still within the training implementation period. After registering, please join the Training discussion group by clicking the link / barcode listed".

3. Externalization of AI-Based Learning Media Training, including this training provides free learning facilities and is considered successful in increasing the motivation of participants to take part in the training until completion (Samatan et al., 2017). This is evidenced by the response of participants in providing star ratings and reviews on the AI-Based Learning Media Training room. Internalization, objectivation, and externalization are interrelated, and based on these 3 components, AI-based Learning Media Training is constructed as "easy, cheap, and useful training". As for the participants' assessment of this AI-Based Learning Media Training is as follows:

Table 1.

Participants' Assessment of AI-Based Learning Media Training

No.	Assessment Category	Number of Reviewers	(%)
1	5 Stars	4.221	94
2	4 Stars	244	5
3	3 Stars	24	1
4	2 Stars	2	0
5	1 Star	12	0
	Total	4.504	100

In table 1. It can be seen that this training can be concluded to be very liked and considered very easy in training and useful, analyzed from the number of comments and reviews of 4,503 and likes through the star icon at 4.9. The details of the number of 5 stars are 4,221; 4 stars = 244; 3 stars = 24; 2 stars = 2; and 1 star = 12 which have been given by participants to the information or material published. The overall score for this training is 94% which is categorized as excellent. Furthermore, it can be seen in the diagram below.
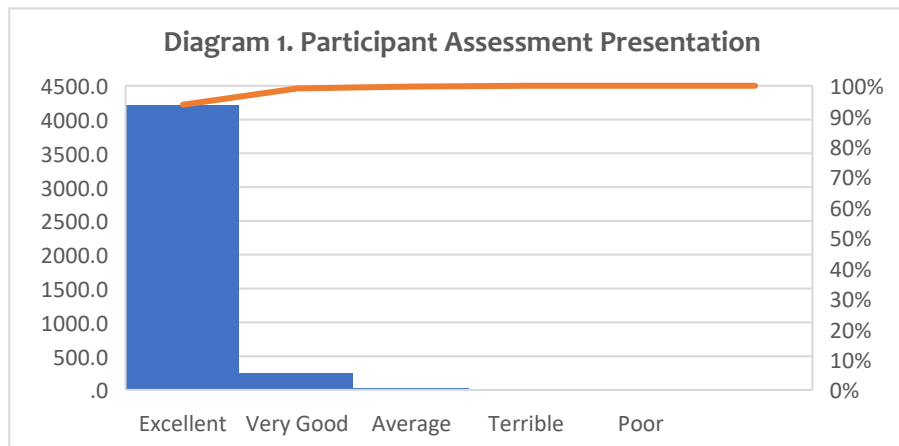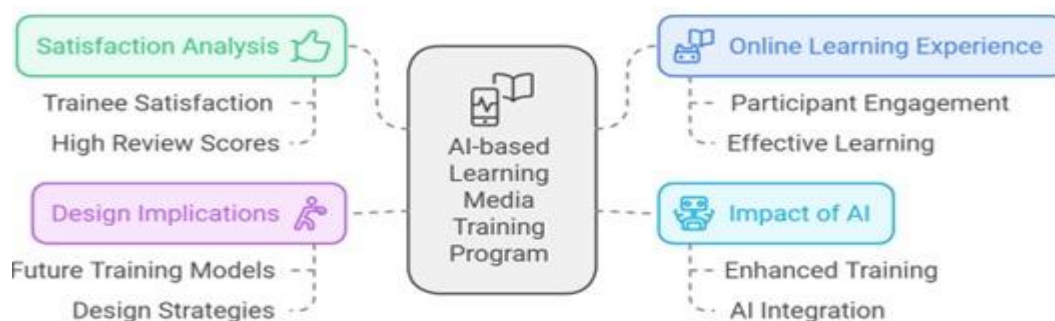

Source: processed data

The discussion that can be outlined in this article about the AI-based Learning Media training program from the results of the analysis above is as follows:

1. Satisfaction Analysis of Trainees. Based on Table 1, the AI learning media-based training on the pin-tar.kemenag.go.id platform showed a very high level of satisfaction. This is indicated by an overall score of 94%, which is categorized as "excellent," and the majority of reviews giving 5-star ratings (4,221 out of 4,503 reviews). This result is in line with the concept of learner satisfaction proposed by Moore & Kearsley (2012), which states that satisfaction in online learning is influenced by the effectiveness of the content, ease of access, and relevance to participants' needs. The rating of 4.9 out of 5 bins reflects participants' perception of the quality of the training designed to be user-friendly and responsive to their learning needs.

2. Online Learning Experience Construction. A high review score reflects not only participant satisfaction but also the platform's success in constructing a meaningful online learning experience. According to Garrison et al., (1999) in the Community of Inquiry theory, the success of online learning is influenced by three main elements: social presence, cognitive presence, and teaching presence. In this context, AI-based training provides cognitive presence through well-designed materials, while review and star features allow participants to participate socially through evaluation and feedback. Thus, participants' learning experience is enhanced by dynamic interactions within the virtual community.

3. Impact of Using AI in Learning. The use of AI-based technology also contributes to the high level of satisfaction in this training. According to Luckin & Holmes (2016), AI in education can personalize the learning process, provide faster feedback, and create a more adaptive learning experience. In the case of this training, the flexibility and ease of access offered by the AI platform helped participants feel more motivated to complete the training. This also reflects Ryan and Deci (2000) theory of learning motivation which highlights the importance of perceived competence and autonomy in driving learning engagement.

4. Implications for Virtual Training Design. The success of this training has important implications for the design of future online training. By maintaining elements that support participant engagement, such as transparent assessment systems and high accessibility, AI-based training can be used more widely for vocational education and other skills development. In addition, these findings support the recommendations of Peña-López (2019) that emphasize the importance of integrating smart technologies in learning systems to improve the efficiency and relevance of education in the digital era. From a practical point of view, the high satisfaction data (94% of participants gave positive reviews) indicates that the platform meets participants' needs. To improve further, the platform may consider:
   a. Adding AI-based features such as recommendations of advanced materials based on participants' progress (Luckin & Holmes, 2016).
   b. Developing a more interactive virtual discussion community to strengthen social presence (Garrison et al., 1999).
   c. Improving the platform's accessibility for various devices to reach more participants, especially in regions with limited technological infrastructure.

Figure 3. Description of The Discussion Results
Source: processed data

From the analysis of participants' reviews, it can be concluded that this AI-based Learning Media Training Program offers various benefits for both participants and the Research and Development Agency of the Ministry of Religious Affairs as the virtual training organizer. In general, the benefits include several important aspects. First, this program facilitates access and availability of training for the State Civil Apparatus (ASN) of the Ministry of Religion and the general public who want to improve teaching competencies using AI-based learning media in the digital era. This is in line with the principle of accessibility in distance learning identified by Moore and Kearsley (2012), where the removal of geographical and temporal boundaries greatly supports the effectiveness of training.

Secondly, it saves the cost and time of transportation and other facilities that are usually required for face-to-face training. According to Garrison et al., (1999), this resource saving is an important advantage of online training that can increase cost efficiency without reducing the quality of instruction. Third, the flexibility provided by the program in choosing the time and place of learning according to participants' needs is an important aspect that supports self-directed learning, a concept advocated by Ryan and Deci (2000) in Self-Determination Theory, where freedom in choosing the time of learning increases participants' intrinsic motivation.

Fourth, the learning materials provided in the program are high quality and up-to-date, using engaging and interactive multimedia. This approach is in line with the concept of innovative digital learning, as described by Luckin and Holmes (2016), which emphasizes that interactive technology can increase participants' engagement in the learning process. In addition, the program provides learning certificates for participants who have completed all modules, providing recognition for their achievements, which can increase their sense of accomplishment and motivation to continue learning (Ryan & Deci, 2000).

Fifth, the training enhances the capacity and professionalism of training organizers in developing curriculum, methods, media, evaluation, and overall learning management. This enables the organizers to continue adapting to technological advances and the needs of the participants, and contributes significantly to the development of education in Indonesia, especially in the context of education digitalization.

However, while the training demonstrated many benefits, there is some room for further development. Future research could delve deeper into how factors such as participants' backgrounds, level of understanding of the technology, and social interactions within the training affect participant success and satisfaction. In addition, future research could explore how AI can be further leveraged to deliver training that is more adaptive and personalized, adapting to the abilities and needs of individual participants more effectively.

While the results of this study show success, some limitations need to be acknowledged. Firstly, participant reviews and ratings may be biased towards highly positive or highly negative individual experiences, which does not reflect the overall participant population. Second, this study only analyzed online reviews without exploring participants' first-hand experiences through in-depth interviews or surveys.

Further research could also consider the implementation of mixed methods to understand participants' experiences more deeply, as well as to evaluate the long-term

impact of AI-based training on participants' professional performance in their work context. This approach is expected to yield more comprehensive insights into the development of technology-based virtual training that can be applied in other educational sectors.

CONCLUSION

The reality of a virtual society is a reality formed in a society that is literate by the internet and technology. Virtual society utilizes the internet to find or obtain information, and to establish interactions with other individuals. Pintar virtual training based on MOOC (Massive Open Online Course) is conducted asynchronously and fully online. Pintar MOOC provides a lot of virtual training, among which the one raised in this research is AI-based Learning Media Training. Training without physical contact and new media influences the formation of a virtual training construction. The construction can be seen through 3 aspects, namely: internalization, objectivation, and externalization.

The training program has proven to be highly preferred by participants, with 94% positive ratings based on 4,503 comments and reviews, and a 4.9 star rating. Participants' benefits include ease of access, savings in transportation costs and time, and flexibility in choosing the time and place to study. This shows that AI-based training provides opportunities to improve teaching competencies in the digital era without geographical and time constraints.

In addition, it also supports the improvement of teaching quality through the provision of interactive and engaging learning materials. The materials do not rely solely on text but also use multimedia that can help clarify the concepts being taught. Thus, participants can more easily understand and master the material taught, which can further improve the quality of their teaching in the work environment.

This study also provides insights for future research that can explore the long-term impact of AI-based training on improving participants' professional performance in education. This is particularly important to ensure that such training can provide sustainable benefits for participants' future career development.

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