



Learning Through Digital Media: Opportunities and Challenges among Indonesian Citizens

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Abstract. Learning is a fundamental human right. In Indonesia, the law guarantees education for all citizens, regardless of race, location, or social status. However, even in this digitalized era, digital divide remains an ongoing challenge for Indonesian citizens. This study was designed to explore in-depth how digital media could possibly widen learning opportunities, the practices, and challenges based on the concept of e-learning learner experience. Focusing on the widely used digital media platform, namely mobile instant messaging and social media application, this qualitative study purposively engaged with 14 citizens from nine different regions in Indonesia, who joined virtual learning communities. Data was collected through phone interviews and further analyzed with thematic analysis. Results of the study showed that people with high intention to learn voluntarily joined a virtual learning community to optimize their learning opportunity. In their communities, digital media served as a catalyst for knowledge sharing and provided a place to meet people with the same visions, needs, and interest. The e-learning learner experience was found to be positive due to the clear intentions, regardless of the obstacles. Challenges of this practice were related to internet access, especially for those coming from the outer or less developed regions.

Keywords: Digital Media, Digital Divide, E-learning Learner Experience, Virtual Learning Community

1 Introduction

Education is a part of human fundamental right, assuring the support for individuals and society development. In Indonesia, primary education is guaranteed in national law for all citizens [1]. Even though there are still many obstacles to overcome in its execution, this at least serves as a legal foundation to demonstrate the country's dedication to ensuring its citizens' access to an education.

Education and learning are often used interchangeably, but they represent distinct concepts within the academic discourse. Education refers to a structured process of imparting knowledge, skills, and values through formal institutions such as schools, colleges, and universities. It is characterized by a systematic curriculum, standardized assessments, and formal certification [2]. Education is typically driven by extrinsic

motivation, where the primary goal is to achieve specific educational outcomes and credentials [3]. On the other hand, learning which is the focus of this study, represents a broader and more encompassing process that involves the acquisition of knowledge, skills, attitudes, and behaviors through various experiences, study, or teaching. Learning can occur both formally and informally, and it is often driven by intrinsic motivation, where the individual seeks personal growth and understanding [4]. Unlike education, learning is a lifelong process that is not confined to formal settings and can happen at any time and place [5].

The practice of learning has transformed significantly with the support of digital media. Digital technologies enhance learning experiences and make it become more accessible, inclusive, and flexible [6]. Previous studies shows that people from diverse geographical locations can learn together with the help of mobile technology [7], [8], [9]. They can also join webinars and participate in virtual trainings to gain new knowledges and meeting new people [10]. In language learning, people especially the young generations, use mobile applications like Duolingo, Memrise, and Babbel to help them master new languages in a fun way [11]. Different literature highlights how teachers integrated these applications to their classroom activities [12] and how learners experience their learning virtual learning processes [13].

While there has been significant progress in integrating digital media into learning practices, there remains a substantial gap in understanding how these technologies specifically impact learning opportunities and experiences among Indonesian citizens, particularly in the context of the digital divide. Existing studies have highlighted the potential of digital technologies to enhance learning experiences and bridge socio-economic gaps [14]. However, there is limited research focusing on the unique challenges faced by learners in Indonesia's diverse and geographically dispersed regions [15].

Moreover, while the benefits of mobile learning, remote learning, and self-paced learning have been well-documented [3], there is a lack of comprehensive studies that explore the specific experiences of Indonesian citizens engaging in virtual learning communities through widely accessible platforms like mobile instant messaging and social media applications [16]. This study aims to fill this gap by providing a detailed examination of how digital media can expand learning opportunities and identifying the barriers that need to be addressed to optimize these opportunities for all Indonesian citizens.

Along with all the digital developments in learning, digital divide remains a persistent challenge in Indonesia. Disparity in access to digital resources and internet widen the inequalities of learning access, especially for those living in rural areas or less developed regions of Indonesia [17]. Despite these conditions, those who sincerely eager to learn in some cases start to join virtual learning communities accessible to them [18], [19]. In this context, this study aims to explore how digital media can expand learning opportunities and identify some challenges associated with virtual learning practices in Indonesia. Focusing on two most accessible digital media platforms in Indonesia, namely mobile instant messaging and social media applications [20], this study seeks to understand the experiences of Indonesian citizens who engage in virtual learning communities. By optimizing qualitative perspective, phenomenological

approach, phone interviews method, and thematic analysis, this study provides insight on how digital media catalysing the knowledge sharing and community building, while also highlighting the barriers that need to be addressed to optimize these opportunities. The digital divide can be understood as the gap between those who have access to digital technologies and those who do not (or limited). It also refers to the disparities related to digital literacy, usage, and benefit derived from digital resources [21] that often mirroring socioeconomic disparities with marginalized groups being disproportionately affected [22]. In Indonesia, studies shown that learners in urban areas developed better due to high digital media supports, while those living in remote regions are lag significantly behind [17], [23], [24]. Addressing these issues is crucial for ensuring that all citizens can benefit from digital learning opportunities.

The problem addressed in this study is the persistent digital divide in Indonesia and its impact on e-learning. Despite the potential of digital technologies to enhance learning practices, the unequal distribution of these resources continues to hinder the realization of this potential. This research seeks to understand how digital media can be leveraged to overcome these barriers and provide equitable learning opportunities for all. Thus, the questions of this study are listed as follows:

1. How do digital media platforms, specifically mobile instant messaging and social media applications, influence learning opportunities among Indonesian citizens?
2. What are the experiences of Indonesian citizens participating in virtual learning communities through these digital media platforms?
3. What challenges do Indonesian citizens face in utilizing digital media for e-learning, particularly in the context of the digital divide?

2 Methods

This study employs a qualitative research design to explore the influence of digital media on learning opportunities, the experience among Indonesian citizens, and the challenges they face during their virtual learning process. This study uses qualitative approach to focus on providing in-depth understanding of individual perspectives, interpretation of experiences, and perception of challenges they face during their e-learning journey [25], rather than testing theories or objective measurement like in quantitative studies [26]. As it focuses on understanding the living experiences of participants interacting with digital media to support their learning process, this study uses phenomenological approach [27] which relies on semi structured phone interviews as the data collecting method [28]. Semi structured interviews ensure the consistency of the data obtained while providing proper flexibility to adjust the questions according to the situational condition of each participant. In this way, participants can share their experiences freely without being limited by certain structures in expressing their thoughts [29].

Total 14 participants selected purposively [30] from nine different regions in Indonesia who joined virtual learning communities are contacted. Snowball sampling [28] was applied by first contacting the leader/founder of the community and asking

them to recommend participants with some consideration which are active participation, living in different locations, and coming from different backgrounds such as education level, gender, and duration of membership to reflect the diverse experiences. Each interview lasted from 30-90 minutes on the phone, recorded and transcribed under participants' consent for analysis [31]. Although coming from diverse backgrounds, there is no significant language barriers since the interviews are all conducted in Bahasa Indonesia. Variation of accents or expressions are understandable and directly clarified during interviews to ensure data quality and clarity.

To synthesize data and present it in a more understandable manner, this study uses thematic analysis to identify, analyze, and report the patterns found within the data [32]. It follows the six-phases process including familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This systematic approach as well as the application of data triangulation ensures the reliability and validity of the findings [33] along with data triangulation applied in this research [34]. It is important to note that the scope of this study is limited to Indonesian citizens who are members of virtual learning communities and use mobile instant messaging and/or social media applications for learning. The focus on these specific digital media platforms is due to their widespread use and potential impact on learning opportunities in Indonesia.

3 Results

Findings of this study are organized into three main themes to answer the research questions, which are the influence of digital media on learning opportunities, the experiences of participants in virtual learning communities, and the challenges faced in utilizing digital media for e-learning.

3.1 Influence of Digital Media on Learning Opportunities

The study revealed that digital media platforms particularly mobile instant messaging and social media applications have significantly enhanced informal learning opportunities for Indonesian citizens. These platforms are considered accessible, flexible, and low cost as mentioned by one participant, *"learning through WhatsApp is efficient. We can adjust the learning time with our personal schedule, access it from different locations. I can even learn while doing house chores in my home dress,"* (Informant 7). Another participant who is an active university lecturer, coined further about this kind of flexibility, *"I usually spent my time for working. When there is not enough time to join the entire discussions, I try to catch up with the materials sometimes later. This helps me to have a better understanding and reflection on the content,"* (Informant 10). This benefit appeals more for those who live under tight schedules or living in different regions from the community headquarters. The asynchronous learning ensures that the process of learning is not confined to specific time or regulations, making it more inclusive and adaptable to personal situations.

Digital media facilitates the more innovative ways to deliver ideas and create experiences through many types of learning applications. Informant 5, a vocational

teacher living a small region in Central Java stated that she used the technology to perform online quiz and assessment while letting her students have fun in a digital environment like Quizziz. This also helps students with different learning styles and needs. Similar with that, Informant 4 mentioned that sharing resources becomes faster and a lot easier, *"I just need to share the link, ask people to pay attention to it before discussing, and give their thoughts afterwards."*

Digital learning allows citizens from various locations in Indonesia to engage in learning beyond their geographical boundaries and reduces the inequalities in learning. Informant 2 from Sanggau, a remote area in West Kalimantan, stated that although the internet connection in her area is not stable, learning through this kind of community helps her to keep informed about teaching strategies and potential development in educational sector. She added, *"People are willing to share how they overcome the obstacles in facing different kinds of students and teaching obstacles. I feel empowered and inspired. I can apply some tricks they shared in the community."* Informant 12 said that she enjoys the virtual friendship as well as the learning materials, *"I become closer to people of the community, even though I never see them directly."* This indicates that it is possible for the members to build strong social connections despite the lack of face-to-face interaction. It is also found that this social closeness is helping the members feeling motivated and more willing to engage in discussions. *"I feel like siblings with them. Members of the group are also actively share their experiences, resources, and tips in handling the discussed issues. Rather than relying to one single speaker, we become each other source of learning and improve together"* (Informant 1).

Not only for the learners, those who joined the community as invited speakers also experienced the benefits of this learning option as stated by Informant 14, *"I love sharing knowledge so long as I can do it. It is meaningful for me to increase people's awareness about learning impairments, as it is the professional area I am currently doing."* In her interview, she shared that she optimized multimedia resources to deepen the understanding and retention of information among her audience. It is also beneficial to make the experience interesting and interactive.

This evidence represents how digital media platforms become a safe place for learning and continuing members' professional development. Informant 2 said that he gains more confidence in doing his job as a school principal after learning best practices shared by members from various regions in Indonesia. It is important for him to stay up to date with the latest teaching methods and educational technologies.

The flexibility and accessibility of digital media platforms make them an ideal tool for lifelong learning. Informants emphasized that learning through digital media is not just about acquiring new knowledge but also about developing a habit of continuous learning. This habit is crucial in a rapidly changing world where new skills and knowledge are constantly required. Informant 8, a teacher from Sulawesi who engaged in teacher learning virtual community stated that his willingness to learn rises from the eagerness to put the students first, *"We are guided by the principle that students are our priority. So, whatever we learn will ultimately benefit the students, and our vision and mission in our community are aligned with that."*

3.2 Experiences in Virtual Learning Communities

Data from all participants highlights the positive learning experiences they have after joining a virtual learning community. Thematic analysis identified several key benefits, including knowledge sharing, community support, and motivation as the reasons behind it. Taking parts in this type of community connects them with like-minded people who share similar concerns, interests, and goals. This situation creates a supportive ambience where members of the community can exchange ideas, ask questions, and provide feedback.

As mentioned above, Informant 14, an invited speaker in the community, feels good about sharing her knowledge in her virtual session. She stated that she thinks her sessions were well-received, with participants actively engaging and asking questions, indicating a high level of interest and involvement. Similar with that, Informant 9 mentioned, *“not only the speakers, everyone has a need to share their thoughts and feelings. It helps them to feel seen and heard... us here, joining for the sake of improving ourselves, not because any particular benefit or anything.”*

Sharing things is sometimes uneasy for some people. But active communication and good collaboration motivates them to engage better, *“even we don’t know each other personally, we develop the friendship in this online community, as well as a sense of community and belonging,”* (Informant 11). The supportive ambience is also being reinforced by community rules in which none of the members are allowed to use harmful words or show verbally aggressive behavior toward another.

Members of the group are also free to choose topics they want to know more. Usually, the communities have regular sessions on WhatsApp or Telegram. Members can join both synchronously and asynchronously. When the time and conditions match with the schedule, they can join the live chat. But if it is not possible, they can catch up the conversation asynchronously as stated by Informant 3, *“even if I can’t follow the discussion at that time, I can open it later when I am free.”* This helps them experience a more personalized learning environment.

The egalitarian atmosphere of these communities increases the willingness to engage. Members showing interest in participating actively. Participation may occur in many forms, from asking questions, giving feedback for speakers or for those who share meaningful thoughts in group, using emojis, sharing opinions, to sharing experiences and tips. This sense of equality enables people to be valued, seen, heard, feel secured, and respected. Members do not need to feel inferior or afraid of being judged. This served as a kind of psychological anchor for the members, encouraging open communication and knowledge sharing, *“I am an introvert person. I don’t really feel comfortable sharing my perspectives in public. However, here it is different. I can share my understanding with members and let them have a glimpse of my experience,”* (Informant 13).

It is also important to note that the positive experience is closely related to members’ personal motivation. By using different words choices, basically all participants shared a similar motivation that is to learn and build their personal capacity. Some like Informants 6, 11, and 14 were joined to find like-minded people who were determined to learn together. *“In rural areas like here in my hometown, my coworkers often belittle*

my concern and ideas. But in this community, my effort to put the student as the center of learning resonates with many other people... It gives me strength to keep moving forward...." (Informant 2).

3.3 Challenges in Utilizing Digital Media for E-learning

Innovation always comes with two different side effects, the benefits and the challenges. Based on data, the most significant challenge faced by participants was related to internet access. Participants from more developed regions like Jakarta or Bandung tend to have better internet connections. They can also use free wi-fi connections in their office, restaurants, coffee shops, or coworking spaces scattered around their area. On the contrary, stable internet connection was a big problem especially for those living in rural and remote areas.

Informant 2 who lives in remote area gave a similar response when being asked about the challenges in virtual learning activities. She said, *"we sometimes have problems with internet signal in our area. Take one example when let say, the online session held on Tuesday night, not all of us can access the conversation on time. In some cases, the messages coming on the next day when of course the session had finished. It such a big delay,"* (Informant 2). Another community member who occasionally transform into speaker for another group mostly consist of members from outskirt area stated, *"in online session, maintaining audience focus is already challenging. But giving materials to those with problematical connections is even scarier, haha. You can't predict whether they understand the message or not. Even when you ask for confirmation, the delay they experience doesn't allow them to respond"* (Informant 8). It is also worth noting that not every member has a proper device. In less developed area, some members sometimes gather in a place and share the screen together. *"It is inconvenient of course. But since we know deeply how in need we are of the lesson and opportunity to improve, we choose to set aside the challenge and strive to do the best we can do,"* (Informant 13).

Data in this study revealed that technological problems are not the only challenge. As mentioned previously, digital divide can also refer to the gap in digital literacy. Informant 5 from Jakarta who is also a community manager of his group revealed that he often gets messages from various members asking about how to join a group discussion, the rules, and alike. *"As we are open to people from various background, we embrace the challenges and try to provide the better assistance. We made flyers of registration procedure, inform the rules of the group again and again, and response politely when people still have the need to ask or confirm,"* (Informant 5). Digital literacy also becomes a problem in understanding the materials. Informant 14 highlighted that Indonesian citizens' literacy is still quite diverse. Not everyone can convey clear messages when giving ideas or responding to other members. This challenge becomes more significant due to the absence of face-to-face interaction.

The issue of data privacy and security was also a concern for some participants. While most felt secure using platforms like WhatsApp and Telegram, there were still concerns about the potential misuse of personal information. One participant shared, *"Of course, there are worries, as humans, hehe. But we try to think positively. For*

example, when registering with a phone number, it's only for the Telegram discussion. For other groups, you can join directly without needing to register with your name, address, or school," (Informant 1). Another participant mentioned, *"It depends on the platform. But in this community, I feel rather safe,"* (Informant 13). This indicates that while there are inherent risks, the perceived security of the platforms as well as the people in that group helps mitigate these concerns.

4 Discussions

Findings of this study highlight the significant role of digital media platform in widening the opportunities to learn for people by bringing down the geographical barriers. After Covid-19, a shift toward e-learning is shown in recent literatures across the globe like Nigeria [35], [36], Malaysia [37], Pakistan [38], and China [39], [40]. This strengthens the point that bigger number of people begin to accept e-learning as an adaptive option to solve geographical, economical, and time related barriers supported among others by the existence of Massive Open Online Course (MOOC) [39], social media [36], mobile instant messaging application [7], language learning application [11], [13], and virtual learning communities [10], [18], [19], [41].

It also conforms previous findings that mobile instant messaging like WhatsApp and Telegram are proven to be a suitable platform for virtual learning [42], [43], [44], [45], [46], [47] with the help of clear community guidelines, supportive attitude from the members, and a commitment to respect each other [7], [10], [18], [19]. Although the learning sessions is primarily held via mobile instant messaging apps, social media applications are undeniably important to promote the learning sessions, socialize the regulations, and increase people's awareness of a concern or issue.

This study underscores members' positive experiences in virtual learning communities. Similar with the finding, previous findings also stated that this cannot be separated from the fact that virtual learning options allowing people to access anytime, granting the users freedom to regulate their own learning process [18], [19]. Asynchronous access to learning materials which reflects a self-regulated learning capacity allows members to review and discuss further the lessons matters to them whenever it is convenient to them [48], [49]. Previous finding highlighted this as a central benefit of using social media in supporting adult learning [50]. It allows speakers as well as the members to integrate multimedia modalities to enhance the understanding, like link to external sources, videos, audios, interactive quizzes, and polls which beneficial to beneficial elements of successful learning [51], [52], [53], [54].

Learning through the two applications also require a lower cost to spend. Members still have to provide internet data and/or paying some money to sit in a place with stable connections, but they do not need to pay a registration money to join classes or be a premium subscriber before accessing learning materials. In the observed communities, all memberships are free of charge. Members and speakers join voluntarily for the sake of learning and/or connecting with a like-minded community [55], [56]. As stated by participants, knowledge, skill development, and networking are the only benefit they

get from being a part of community. This sense of purpose and belonging serve as the basis for growing motivation and strong engagement among members [57]. This study goes further by highlighting the specific ways in which digital media platforms facilitate these social connections, such as through real-time communication and collaborative learning activities. It is also noted that this kind of bonding is linked to the nature of egalitarian vibes both communities offer. Members tend to have positive impressions of the way the communities giving everyone a chance to share their knowledge as a speaker while being a learner as well [18].

Besides the benefit, this study also highlights some key challenges regarding the process of learning in virtual learning community. Problem of internet access and the disparities in digital infrastructure especially in rural areas are mentioned as the significant challenges faced by the members. This finding is never new however, as it echoes previous research on digital divide [22], [58], [59], [60]. Challenges are also found in terms of digital literacy, lack of social cues, and sociocultural aspects. In virtual mode of learning, members may lose their concentration sooner than in class learning activities [61], [62]. They also may experience communication barriers when the speakers come from different sociocultural context talking in slightly different accent (in voice notes) or using confusing terminologies (in writing), especially when there are no face-to-face interactions [63]. These also affect the overall experience and outcomes. Without a sincere sense of purpose and personal commitment, it is true that learning in virtual environment is somewhat challenging.

This study contributes to the existing literature by providing a comprehensive analysis of the benefits and challenges of using digital media for e-learning in the Indonesian context. Our findings highlight the significant role of digital media in enhancing learning opportunities, fostering positive experiences in virtual learning communities, and identifying key challenges that need to be addressed. By comparing our results with previous studies, we have identified both similarities and differences, which contribute to a deeper understanding of the impact of digital media on education.

5 Conclusion

As a part of continuous research on e-learning topics, this study underlines the transformative potential of optimizing digital media platforms especially mobile instant messaging and social media in expanding access to learning opportunities and enhancing e-learning learner experiences. It also highlights key points that contribute to fostering positive experience among members of virtual learning communities, as well as the challenges rises. By establishing an understandable regulation to maintain virtual interactions in corridor, it is proven than low-cost digital platforms like WhatsApp and Telegram can be a proper place to exchange knowledge and skills, while Instagram can be a good place to promote the activities. Together, these platforms enable members to engage in educational activities with less geographical and timely barriers. On the other hand, this study also highlights significant challenges in maintaining the growth of virtual communities, such as the disparities in digital

infrastructure, quality of internet access, lack of social cues, and the concern of data privacy and security.

Overall, this study contributes to enhance the existing literature by providing analysis of benefits and challenges of both e-learning and virtual learning communities. These findings can be used further as valuable insights for learners, community managers, researchers, and policy makers regarding the continuous development of education for Indonesian citizens. Implementing the good practices as well as addressing the challenges can be a proper way to grant better access to quality education. However, it is important to note the limitation of this study. Small size of sample limits the generalization of the findings, while the focus on mobile instant messaging and social media use in e-learning cannot reflect other types of digital media platforms. Thus, future research could be developed to address these matters by including larger numbers of samples, combining different research methods, or exploring diverse digital media platforms to capture larger benefits, challenges, and experience of those engage in e-learning activities.

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