



Building Digital Skills among Elementary Educators: A Training Program on Interactive E-Module Development

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Article Info

Article history:

Received: April 25, 2025

Revised: June 9, 2025

Accepted: June 16, 2025

Keywords:

digital skills;
educator training;
interactive e-module.

Abstract

The rapid advancement of information technology demands a more dynamic and interactive learning environment, requiring educators to go beyond traditional teaching methods by integrating various digital tools to enhance student engagement and learning outcomes. However, limited digital proficiency among elementary school teachers poses a significant barrier to this integration. This study aimed to improve the digital competencies of elementary school educators through targeted training on the development of interactive e-modules. The training, conducted on August 8, 2024, involved 35 purposively selected elementary educators from the Metro City area. The program consisted of three phases: (1) foundational knowledge delivery on interactive e-modules, (2) hands-on training and mentoring on module development, and (3) evaluation of training effectiveness. Data were collected through questionnaires and participant observations, and analyzed using a qualitative approach. The findings revealed that participants significantly improved their theoretical understanding and practical skills related to interactive e-module design. Moreover, they demonstrated increased motivation and readiness to apply these digital tools in classroom settings, indicating the potential scalability of such training for broader educational contexts.

To cite this article: Profithasari, N., Diana, S. M., Erni, E., Nurjanah, S., Destini, F., Astiti, N. Y., Putra, A. D., Haryanto, H., Abung, M., & Sari, D. P. (2025). Building Digital Skills among Elementary Educators: A Training Program on Interactive E-Module Development. *Smart Society : Community Service and Empowerment Journal*, 5(1), 83-92.

INTRODUCTION

The use of technology in education has become increasingly crucial, and the Indonesian education system must adapt to technological advancements. When managed wisely, technology can significantly accelerate educational progress, foster innovative and knowledgeable generations, and prepare them to compete globally (Hidayatullah et al., 2023).

In the educational context, technology serves as a supportive tool to help teachers guide students in achieving learning objectives (Maritsa et al., 2021). Educators are now expected to utilize various technological tools and applications to enrich students' learning experiences. With the help of technology, they can tailor their teaching methods to align with students' diverse learning styles, thereby enhancing the effectiveness and relevance of the learning process. This highlights the urgent need to modernize education in line with the digitalization of society.

Strong digital competencies are essential for educators in the digital era to create engaging and effective learning experiences. Educators must be proficient in using various digital applications and

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platforms to facilitate interactive and diverse learning. Technological proficiency allows educators to align instructional practices with students' needs, significantly improving the quality of education. Technology-based learning activities are one alternative to fulfill effective learning needs (Usmeldi et al., 2023). Moreover, mastering technology empowers educators to adapt to advancements and utilize them to enhance educational quality (Profithasari et al., 2023). Educators with strong digital skills can effectively access, manage, and utilize online learning platforms, interactive applications, and relevant digital content. They can also independently develop and curate learning materials.

However, many elementary school educators still face challenges in integrating technology due to limited digital skills. A significant number of teachers remain digitally illiterate (Yuliawati et al., 2021). Supporting this claim, Amelia et al., (2021) found that 53.95% of elementary teachers experienced major difficulties using learning media platforms, and 50% encountered problems operating digital tools. Similar issues were identified by Setiani et al., (2023), who reported that teachers often lacked awareness of appropriate programs for online learning and demonstrated low technological competence. Wahyudi & Jatun (2024) further confirmed that many elementary educators still struggle to integrate technology into classroom instruction.

In this digital era, educators are grappling with digital literacy challenges. A lack of support from both the government and schools further hinders their ability to improve these skills (Wulanjani et al., 2022). Although technology is a vital part of modern life, many educators have yet to master the digital tools available to them. Furthermore, there is a general lack of understanding regarding how to effectively integrate technology into both pedagogy and the curriculum. As a result, many elementary teachers have not fully utilized the potential of digital tools to enhance learning. Therefore, there is a pressing need to strengthen educators' digital competencies. One effective strategy is the use of digital learning materials to facilitate skill development in line with current technological trends.

One of the digital-based teaching materials that to be focus here is E-Module. E-Module is an electronic version of module that can be accessed everywhere and by electronic tools like computer, laptop, tablet, or handphone (Nopiani et al., 2021). Hamzah et al., (2024) said that the advantages of e-module than printed learning materials are e-module has video, animations, and the other interactive features that can be played and repeated by students when they access it. More than that, e-module also can be enriched by using QR-code, adding cartoon animations or emojis that has personificated by e-module writer (Masta et al., 2023). Using module can make easier students comprehend the matter even without the educators besides them (Hamid & Alberida, 2021). Unfortunately, there are so many educators who don't have a digital skill so they are not be able to operate the e-module.

Educators have yet to fully utilize technology to support teaching and learning. Many lack the digital skills needed to create and use educational content and media—an issue that serves as the foundation for this community service program. In line with this, Rahayu et al., (2023) stated that the inability in access technology and the lack of teachers training in using technology are the main problems that must be handled. Consequently, providing training on creating interactive e-modules is crucial to enhancing the digital competencies of elementary school educators. As is available technology in schools, e-module development training is essential, as it will not only benefit the teachers but also the students (Murni et al., 2024). Besides that, with exploring the using of digital technology can give the opportunity to the educators to design the more interesting learning experiences (Permana et al., 2024).

Training activities are necessary to improve human resource capabilities (Istanto et al., 2021). This training will assist educators to obtain the skills needed to create attractive and effective digital learning materials. It will also help them understand how to use various digital tools and platforms within the context of their teaching. The importance of this training also can improve the competence and performance of the teachers, especially in facing the digital era challenges (Saputra et al., 2024). Based on (Suparyadi, 2015), the advantages of training activities, for instance: 1) improving the independence; 2) improving the motivation; 3) increasing the loyalty, and the last one 4) increasing the competence. Training participants can apply the theory in real life and enhance their comprehension. Through the training activities also can help participants to increase their interaction each other thru discussion and problem solving (Nurjanah et al., 2024).

Previous studies have emphasized the importance of digital training for teachers. Syahroni (2020) showed that workshop-based training improved high school teachers' digital competencies. The other study (Holivil et al., 2025) showed digital literacy training and utilization of Augmented Reality technology could encourage teachers in arranging their teaching materials based on technology. Hamzah et al., (2024) said that over all the training that has a purpose to practice the educators' digital skills in elementary schools through this interactive e-module creation training to be very important since discuss the concrete method for helping elementary school teachers get digital competence to face this digital era that growing rapidly. Fitri & Roesminingsih (2024) said regular training sessions and workshops should be held to help educators improve their skills in incorporating technology into everyday teaching.

However, most previous studies were limited in scope, often focusing on specific types of training or levels of education without addressing teachers' contextual needs. This study aims to design a training program tailored to the specific needs of elementary school teachers, both in terms of content and delivery model. Moreover, this research not only targets digital skill development but also assesses teachers' readiness to integrate technology into classroom instruction. The objective is to equip elementary teachers with the digital skills needed to improve their teaching practices.

By improving their digital skills, educators are expected to offer more relevant, dynamic, and technology-driven learning experiences. Furthermore, this research has the potential to improve the overall quality of education in the long term by preparing educators to face the challenges and changes in an increasingly digitalized education landscape. Therefore, this research not only holds academic relevance but also provides practical benefits in preparing educators for the future of education, which is becoming more complex and modern.

METHOD

This community service activity was carried out to improve the digital skills of elementary school educators by providing training in the creation of interactive e-modules. Training can be seen as a means to get the knowledges, values, attitudes, and skills with the purpose strengthen and develop individual potential and encourage the human changes (Iswan, 2021). The method used lecture method, discussion, and practice. Qualitative approach was used to analyze questionnaire data and observation from participants. This training was held on August 8, 2024 with involved 35 Elementary school educators in Metro City. Purposive sampling was used in this research. Purposive sampling techniques is a sample retrieval based on consideration to achieve the target or focus on the specific purpose (Arikunto, 2006). Based on this explanation, this research using teachers as a research subject who represent the school with criteria don't have an educator certificate. The following is presented in a chart of the stages of this community service.



Figure 1. Design of Community Service Activities

1. **Material Delivery Stage:**
The material delivery phase aims to provide understanding and knowledge about the definition, benefits, advantages, and steps involved in creating e-modules. In this phase, the content was provided by the trainers.
2. **Training and Mentoring Stage:**
The training phase aims to develop educators' skills and understanding in creating interactive e-modules. The activities carried out during this phase included: a) Dividing educators into small learning groups, b) Having educators discuss with their groups the design of the interactive e-modules they planned to implement, c) Educators creating the interactive e-modules based on the design they had developed, and d) Mentoring educators in the process of creating and implementing the interactive e-modules. During the mentoring phase, educators were supported in completing their interactive e-modules.

3. Evaluation Stage:

The evaluation phase was conducted to assess whether the activity was successfully implemented and whether the knowledge gained could be applied in teaching. This evaluation based on goal achievement and training target. The evaluation was done by analyzing questionnaire that was given to the participants to evaluate the delivered matters, the used techniques, the provided facilities during training, and the skill in creating the training products.

The details of the training activities can be seen in the Table 1.

Table 1. The Training Activity Stages

No.	Activity Stages	Material
1.	Presentation of Material	1. E-module definition 2. E-module advantages 3. Constituent components e-module 4. E-module creation platform
2.	Training and Mentoring	1. Explanation of the steps for creating e-module using the Canva application. 2. Participants practice making e-modules using the Canva application
3.	Evaluation	Evaluation of training activities

Presentation of materials was done for giving the comprehension to the training participants about how to make an interactive e-module. Interactive e-module is a renewal of printed module. E-module hopefully can improve students' interest and learning motivation in learning activity. E-module contain the interactive features that students can get the feedback from the learning that has been done. So that students can get more enthusiasm in the learning process because they can measure themselves directly what they have learnt. Using e-module as an alternative book replacement was very helpful for students to study systematically and interest to achieve the competence that was served in the digital format and also can be accessed flexibly anytime and anywhere.

RESULTS AND DISCUSSION

The activity carried out by the community service team involved providing training on the development of interactive e-module to improve the digital skills of elementary school educators in Metro City. The training participants consisted of 35 elementary school teachers from the Metro City area.

The implementation of this community service activity began with a presentation by team members on several key topics, including the definition of e-module, the advantages, structural components, platforms used to create interactive e-module, and the step-by-step process of developing them. By providing an introduction to these materials, the training aimed to help participants gain a clearer and deeper understanding of interactive e-module. The following is a description of the community service team when giving the presentation about e-module.



Figure 2. Giving the presentation by the community service team
(source: researcher documentation, 2024)

During the presentation session, it was evident that the training participants were enthusiastic in following the material. Several participants asked questions and actively practiced creating e-modules based on the content presented. The following is the documentation represent the participants who giving the question to the speaker about the material that has been presented.



Figure 3. Question and answer session
(source: researcher documentation, 2024)

The community service activity then continued with the training phase. This phase aimed to develop educators' skills and understanding in creating interactive e-modules. The training activities included the following:

- a) Participants were divided into small groups;
- b) Each group discussed the design of the interactive e-module they intended to implement;
- c) Participants created interactive e-modules based on the designs they had developed; and
- d) Participants were guided in compiling and implementing the interactive e-modules.

The following is the documentation when participants have discussion in a group to design an interactive e-module.



Figure 4. Discussion session in designing interactive e-module
(source: researcher documentation, 2024)

After the training, a mentoring session was conducted to assist participants who faced difficulties in developing interactive e-module. The mentoring was intended to provide support in organizing content, attaching images, and completing their modules. Therefore, participants were provided with sample modules to inspire creativity and help them become more innovative.



Figure 5. The sample product of training result



Figure 6. The sample product of training result

The sample above is one of the products produced by one of the training team participants. They succeeded utilize the features which are available in Canva application very well. They also could design their own E-module by inserting an image and set the writing style on their design. The following is presented E-module layout from one of the training team.

Figure 6 showed the sample product from one of the training team participants who displayed the learning video that they inserted in their E-module. The team said that with inserting the animation video in their E-module will make it easier in explaining the content materials to students. Animation video can be an interactive learning media which makes the learning process easier (Ruswan et al., 2024). In this product, the animation video is inserted in the form of a link which connected to the Youtube channel automatically when we click and they displayed it in the form of QR-Code. They explained the reason behind using the QR-Code is to make it simple when students access and QR-Code form will attract the students' attention so will make them enthusiastic in learning process. This is in line with Ratnasari et al., (2024) who said that using QR-Code allows students to access the additional content, link, and supporting resources easier and give them the new dimension in learning process, enrich the learning experience without need the additional devices.

Throughout the activity, the facilitators not only delivered theoretical material but also held hands-on sessions where participants could practice creating interactive e-module for use in their teaching. Important part of the training was the question dan answer session, during which educators could directly ask questions to the facilitators regarding challenges they confronted in the field. This activity proved highly beneficial in enhancing participants' understanding of the content and its application in the learning process.

During the practical mentoring session, participants were given the opportunity to create and apply the knowledge they had achieved during the training. They were asked to use Canva to design interactive e-module tailored to topics relevant to their teaching subjects and grade levels. Canva is an engaging application offering a variety of design templates, including both static and animated visuals. It allows users to insert images, music, and videos, as well as share content via links, making it easily accessible for educators (Fitri & Roesminingsih, 2024). This situation is in line with the previous training result practice session and mentoring can make participants easier in mastering the training competences and the implementation of training result (Saputra et al., 2024).

The use of Canva in educator training was chosen to allow educators the flexibility to adapt lesson materials to students' characteristics and to incorporate creative elements that improve both the effectiveness and attractiveness of learning. Implementing Canva in elementary schools can support the development of a generation that is prepared to navigate dynamic changes in the digital world (Winarni, 2022). Another consideration in selecting Canva was that the government has provided educators with access to the platform via the official *belajar.id* accounts, which simplifies its usage. Moreover, interactive e-modules created with Canva are considered suitable as learning resources and can enhance productivity in the teaching and learning process (Salsabila & Syaban, 2022).

The participants showed great enthusiasm in completing the task. Each of them worked diligently to produce e-modules that were not only informative but also engaging and capable of motivating and maintaining students' attention. Once the interactive learning modules were completed, participants were asked to present their work in front of the group.

Following the completion of the training and mentoring sessions, an evaluation was conducted to determine whether participants had developed the knowledge and skills necessary to develop interactive e-module. This was done by observing both the process and the outcomes of the mentoring sessions (Andayani et al., 2023). Participants were also asked to complete a questionnaire designed to gather relevant information about their experiences during the training and to evaluate how beneficial the program was in improving their digital skills. The questionnaire employed a Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree), which is commonly used to measure attitudes, opinions, and perceptions of social phenomena (Sugiyono, 2018).

Evaluation marked the final stage of the community service activity. During this phase, participants were given a survey assessing various aspects of the training, including the content delivered, the instructional techniques used, the facilities provided, and the skill in construct the training products. The results of this survey were used to assess the effectiveness of the training and to identify areas for improvement in future programs. The evaluation result from this community service program is appropriate with the previous program that describe achieving goals of the service community program that can be seen from participants' competence in arranging the training products according to the training theme (Saputra et al., 2024).

The training result showed that the educators' digital skills was improved. After take part in this training, most of the teachers can use digital devices and make digital product such as E-module. Furthermore, the teachers give the positive response from this training and now they are more interested to use the learning method based on the digital product. This condition is not only increase the learning quality, but also encourage teachers to grow up along with the development of technology. The training result indicated that the training like this can fulfill the real teachers' need and give the sustainable benefits to improve teachers' skill in technology era.

Additionally, a reflection phase was carried out to review the entire service activity from planning to execution. This reflection aimed to collect constructive feedback by involving all stakeholders, including both organizers and participants. It considered what had been done well, the challenges confronted, and what improvements could be made moving forward.

Overall, the community service activity was successful and well-received. All participants actively engaged in the training from start to finish with great enthusiasm. According to participant feedback, the program was highly beneficial for enhancing their professional competencies as educators. Many reported feeling more confident in applying the skills they had learned and appreciated the interactive and stimulating nature of the training approach. Through this evaluation and reflection process, it is hoped that the program will have a broader and more sustainable impact on improving the quality of education in the future.

The reflection on this community service activity revealed several supporting factors that contributed to the smooth implementation of the program. These included strong support from the Head of the Study Program and the participating school principals, who showed great attention and commitment in facilitating the activity. Additionally, the cooperative attitude of all participants, marked by their readiness and active involvement, played a key role. The participants also showed a high level of enthusiasm, as evidenced by their eagerness to attend and engage in the training sessions.

LIMITATION

In addition to the supporting factors, several challenges were also identified during the activity. First, the research sample was limited to elementary school teachers, which may limit the generalizability of the results to a broader context. Second, most of the data collected relied on self-reports, introducing the potential for subjective bias from participants. Third, the limited time allocated for the training activities made it difficult to ensure that every participant had adequate opportunities to present their work and receive constructive feedback.

CONCLUSION

The interactive e-module creation training has had a positive impact on the participants, particularly in improving the digital skills of elementary school educators. Through this training, participants learned to develop interactive e-modules using the Canva application, demonstrating good proficiency in terms of both design and content presentation. Moreover, the training received positive feedback from participants, who showed great enthusiasm and appreciated the practical benefits. They were able to directly apply what they learned, particularly in using interactive e-modules in their teaching.

This training was considered effective in fostering creativity and improving digital competencies. Initially, some participants had little to no understanding of how to create or use interactive e-modules. However, by the end of the training, they were capable for designing their own modules independently. The implementation of this training also revealed that elementary school educators still require continued support and further training to strengthen their digital skills. Therefore, it is recommended that digital skills training for teachers be conducted regularly to prepare competent educators who are well-equipped to teach in the digital era.

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