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Teacher Assistance in Developing Learning Applications Using Thunkable at Junior High School

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Abstrak

Information and communication technology advances have provided many conveniences in education, one of which is in the teaching and learning process. One significant innovation is the development of learning applications that can be accessed by via mobile devices. As an educational institution, SMP Muhammadiyah 2 Kartasura is ready to adopt technology in learning activities which is supported by the availability of technological devices Chromebooks for every student. However, teachers still don't know how to innovate digital-based learning medium because previously they only used conventional learning medium. The main problem underlying the need for community service activities is the low utilization of technology in the development of interactive learning media by teachers at SMP Muhammadiyah 2 Kartasura. Therefore, the aim of this service activity is to educate teachers at SMP Muhammadiyah 2 Kartasura about optimizing Thunkable in creating of learning applications. The method used in this service is PAR (participatory action research). The results of this activity show that teachers have high enthusiasm in participating of Thunkable optimization training activities. This can be seen from the strong willing to make Thunkable as well as the active question and answer session between the teacher and the source person. Through this training, teachers can understand the basic concepts of creating learning applications and implement them practically by using the Thunkable platform.

Kata Kunci: *Teacher assistance, Thunkable, Learning aplication, Teacher*

1. Introduction

In the age of the 4.0 industrial revolution and the rapid advancement of technology, education must keep up with the changes (Siahaan, 2022). The use of information technology to facilitate a more engaging and successful learning experience is a significant component of the educational landscape (Purba & Saragih, 2023). Teachers, who are at the forefront of education, have a strategic role to play in incorporating technology into lessons (Efendy & Haq, 2022). One significant innovation is the development of learning applications that can be accessed through mobile devices (Ashari *et al*., 2023). Application-based learning media is an important innovation in education (Dwijayanthi, 2022). With the ability to overcome the challenges that exist in the conventional education system, learning applications can improve accessibility, interactivity, monitoring, and flexibility of the teaching-learning process (Rusmining *et al*., 2024).

In an effort to improve the quality of education through digital learning, there are at least three aspects that can be said to be quite good in responding to digital-based education, namely regulators, teachers or educators, and students (Arwani *et al*., 2024). Along with this reality and in order to support government programs, SMP Muhammadiyah 2 Kartasura, which is located in Sukoharjo Regency, Central Java Province, seeks to make paperless-based learning digitalization a mandatory thing for educators. In addition to supporting the central government program, this is also done in order to support the school's program, which is based on and integrated with technology. Both the central government program and the school program focus on progress in the field of education, especially leading to the digitization of learning and improving the quality of human resources that excel in science and technology (Khoirudin *et al*., 2023).

As a school dedicated to raising educational standards, SMP Muhammadiyah 2 Kartasura always working to deliver the greatest instruction possible. But according to the findings of preliminary observations and interviews, the majority of instructors at this school continue to encounter challenges when it comes to using technology to create cutting-edge learning apps. These challenges include a lack of technological expertise, inadequate instruction, and little chances to hone digital abilities. In this case, the proper utilization of the web and artificial intelligence by educational units can be used as a way to pave the way for mastery of learning technology by educators (Alfurqan & Wirdati, 2024). One of the application development websites that can be used by teachers is Thunkable.

Thunkable is one of the visual-based mobile application development platforms, which allows users to create applications without having to have in-depth knowledge of programming in other words no-coding (Sandra *et al*., 2022). The platform uses an intuitive drag-and-drop approach, making it very suitable for educators or anyone who wants to develop learning applications independently (Pratama *et al*., 2022). With Thunkable, users can create applications for various learning purposes, ranging from interactive quizzes, multimedia learning materials, to practice questions and evaluations (Saifullah *et al*., 2024). The use of Thunkable in the creation of learning applications offers various advantages. First, Thunkable provides a user-friendly interface, making the application development process easier and faster (Saifullah *et al*., 2024). Second, Thunkable supports the development of applications for various platforms, both Android and iOS, so that the applications created can be accessed by more users (Sawaka *et al*., 2022). Third, Thunkable allows integration with various external resources, such as online databases, web services and social media, which can enrich learning content (Arjanti *et al*., 2024). Seeing the great potential that Thunkable has in the development of learning applications, many educational institutions and individuals began to utilize it to create applications that support the learning process, one of which is SMP Muhammadiyah 2 Kartasura.

Community service activities in the form of mentoring teachers in optimizing Thunkable aim to answer these problems. This program is designed to provide intensive training to teachers so that they are able to master the basics of developing learning applications with Thunkable. In addition, this program also aims to increase teacher creativity in designing more interactive and interesting learning materials. This mentoring not only focuses on technical aspects, but also on strengthening pedagogical understanding of how learning applications can be used effectively to support the achievement of curriculum objectives.

The importance of this training is based on an analysis of several factors. First, adaptation to curriculum changes. Because the current education curriculum increasingly emphasizes the importance of digital literacy (Sari, 2023). By participating in this training, teachers can develop applications that are in accordance with the curriculum and student needs and are able to integrate technology into the learning process. Second, increasing the interactivity of learning. With this training, teachers are encouraged to innovate in their learning methods, hence the use of features such as interactive quizzes, learning videos, and discussion forums can be integrated to make learning more interesting and effective. Thirdly, the use of self-made learning apps can increase the effectiveness of learning by facilitating distance learning and facilitating two-way access between teachers and students. So overall, the training on how to make learning apps for teachers with the help of Thunkable is an important step in advancing education in the digital era (Aeni *et al*., 2024). Through this training, teachers can gain skills that are relevant to technological developments, improve the quality of learning, and provide a better learning experience for students.

Based on this background, the author chose the service program of basic introduction to making learning applications with the help of the Thunkable website as a digitization of learning at SMP Muhammadiyah 2 Kartasura, Sukoharjo Regency. As for the specific targets designed in the service program activities, the basic introduction to making learning applications with the help of the Thunkable website is to answer the problems of teachers at SMP Muhammadiyah 2 Kartasura, namely that they are still confused in determining and compiling what learning media is relevant to the times and conditions of the current generation of students, because so far the teachers at SMP Muhammadiyah 2 Kartasura have only used the same learning media in the sense that they still seem conventional. In fact, between one teaching media and another is often not in accordance with existing conditions.

The purpose of this community service is to educate and equip the technological competence of teachers at SMP Muhammadiyah 2 Kartasura in designing and building interactive and innovative learning applications that are in accordance with the curriculum and student needs. The specific targets of this training activity are: (1) To improve the professional competence of teachers in improving the ability to develop interactive and quality learning applications (2) Straightening the teacher's perception that making learning media is a job that seems difficult to be an impression that makes it easy and fun (3) Instilling the importance of developing learning media for teachers as a form of professionalism of the teaching profession itself. So from this background the author is interested in raising, selecting, and conducting a community service program to introduce the basics of making learning applications with the help of the Thunkable website as a digitalization of learning at SMP Muhammadiyah 2 Kartasura. Because training and mentoring in the use of Thunkable are very relevant, because this activity not only provides short-term solutions to the problems faced by teachers, but also equips them with the skills needed to face future educational challenges. Therefore, this community service activity is a strategic step in supporting digital transformation in the world of education, especially at SMP Muhammadiyah 2 Kartasura.

2. Method

The method used in this service activity is PAR (Participatory Action Research) which aims to develop skills to meet the needs of the world of work or other practical needs. Or in another sense it can also be referred to as taking action in the form of practical knowledge in making changes. In this PAR (Participatory Action Research) service, the steps used are known as KUPAR (to Know, to Understand, to Plan, to Action and to Reflection). To facilitate understanding, Figure 1 is presented as follows. The purpose of this training activity is to develop new skills for teachers, namely the skill of making learning applications. In this training activity, participants consisted of teachers at SMP Muhammadiyah 2 Kartasura.

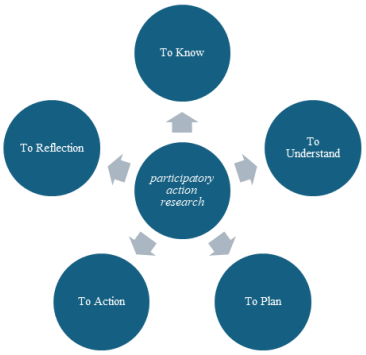

Figure 1. Flow of Understanding in The KUPAR Method

3. Results and Discussion

3.1. To Know

In this to know stage, it is the first step and process to find out the needs of the teachers at SMP Muhammadiyah 2 Kartasura by considering the author's subjective views on the ability of teachers at SMP Muhammadiyah 2 Kartasura. Then at this initial stage, the author and teachers also built an agreement related to training activities, including the technical implementation of training which includes determining the place and time of training. At this stage, the implementation team provides a pre-test to assess teachers' knowledge about Android-based learning media using Thunkable. Additionally, this stage is conducted to evaluate the ability of teachers at SMP Muhammadiyah 2 Kartasura, who are participants, in creating Android-based learning media using Thunkable. The conclusions of the pre-test conducted on teachers at the school are contained in **Figure 2** below.

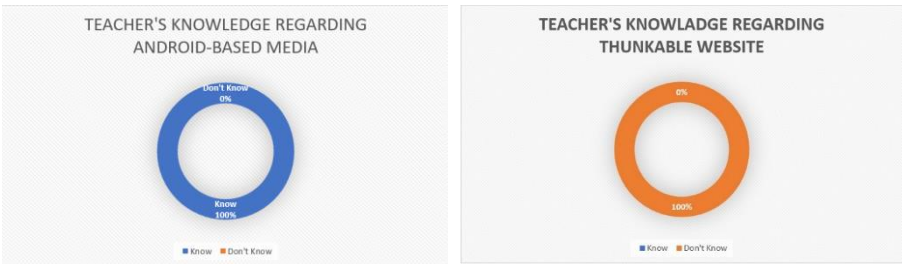

Figure 2. Conclusion of Teachers' Knowledge at SMP Muhammadiyah 2 Kartasura Regarding Android and Website

Based on the initial evaluation conducted through a pretest aimed at assessing the initial understanding and skills of teachers at SMP Muhammadiyah 2 Kartasura, it can be concluded that 100% of the teachers at SMP are already familiar with Android-based learning applications. However, 100% of the teachers have not yet been introduced to the website for creating learning applications using *Thunkable*. as shown in Figure 2**.** From the pretest presentation conducted, it shows that 100% of the teachers at SMP Muhammadiyah 2 Kartasura participating in this community service activity do not yet possess the skills to create and implement Android-based learning media in school teaching. These skills refer to the ability of teachers to independently design or develop Android-based learning media. The initial evaluation also revealed that 100% of the teachers participating in the training have not yet been able to create Android-based learning applications for teaching purposes. This is because they perceive developing applications as a challenging task and believe that implementing such technology requires considerable time to start.

3.2. To Understand

In this second stage, it is useful to identify and understand the context of the outline of the problems felt by teachers at SMP Muhammadiyah 2 Kartasura. Then it was found that the problems and difficulties that overshadowed the teachers at SMP Muhammadiyah 2 Kartasura were still a large percentage of confusion from the teachers in determining and compiling what learning media were relevant to the times and conditions of the current generation of students. The following is a Figure 3 containing the percentage of teacher understanding in creating learning media. Then after finding the difficulties experienced by most teachers at SMP Muhammadiyah 2 Kartasura, the author decided to bring in resource persons who are experts in the field of technology and informatics in the field of making applications. After conducting the pretest, the participating teachers were provided with materials and practical sessions on creating Android-based learning media using *Thunkable*.

3.3. To Plan

The author designs strategies in the form of specific actions to overcome the problems faced by teachers at SMP Muhammadiyah 2 Kartasura, especially the difficulty in developing learning media that are relevant to the times and conditions of the current generation of students. The activity is in the form of training activities to develop skills in making learning applications. The author planned the division of labor and some technical matters related to the training on the preparation of skills for making learning applications with the help of several committees.

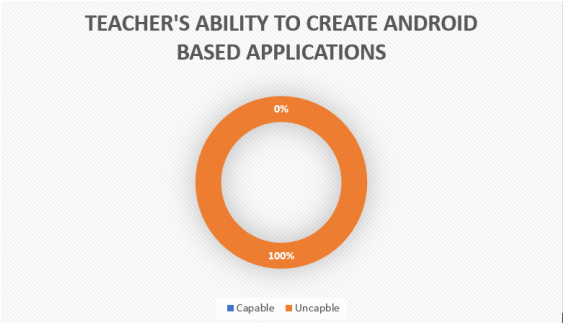

Figure 3. Percentage of Teachers Who Are Able to Create Android Application-Based Learning Media

3.4. To Action

The hall building of SMP Muhammadiyah 2 Kartasura became the home of textbook writing training for teachers of SMP Muhammadiyah 2 Kartasura on Saturday, June 15, 2024. This training activity presented an expert speaker, Guntur Cahyono. He is an academic who works in the field of educational technology and is often a speaker in technology-based training or workshops. The following are the details of the implementation of the training activities:

First Material: Basic Aspects and Techniques of Making Learning Applications with the Help of Thunkable

The first material discussion was related to basic aspects and techniques in designing and creating learning applications using the thunkable website. He gave several things that must be considered before using the thunkable website in making applications, namely: 1) Thunkable does not support making android launcher, widget, and theme applications; 2) Non-premium early adopter accounts have an MB size limit in uploading files in making applications; 3) There are no offline features (offline tools); 4) The maximum number of screens in each application is 10 screens (recommended) if non-premium; 5) In one non-premium account, project creation is limited.

After the speaker gave an introduction, the speaker then illustrated how to make a good learning application by starting from determining the background and application name. Then after that it was continued with independent practice activities from the Muhammadiyah 2 Kartasura Junior High School teachers who were divided into several groups based on their subjects, such as Islamic Religious Education, Mathematics, Indonesian Language, Natural and Social Sciences, and other subjects. Documentation of the implementation of community service activities is shown in Figure 4.

Figure 4. Presentation of Making Learning Applications With The Help of Thunkable

Second Material: Explanation of Dashboard Design on the Thunkable Website and Explanation of the Use of Components

In this second material, the speaker explained the components used in the Thunkable website and how the functions of each element can be used in creating learning applications to the teachers. In this case, the speaker explained what the functions of the Project Menu, Pallete, Screen, View, Propeties, Block View, Block Build In, and Backpack were for when designing learning media applications when using Thunkable, which is documented in Figure 4.

3.5. To Reflection

On June 18, 2024, the reflection and evaluation stage was completed. In this meeting, each teacher prepared and introduced the results of their learning application design. Then the teachers who were participants in this training not only explained the results of the preparation of the learning application, but also asked for and provided input from other participants to improve the products they had made which were accompanied and guided by the committee as seen in Figure 5.

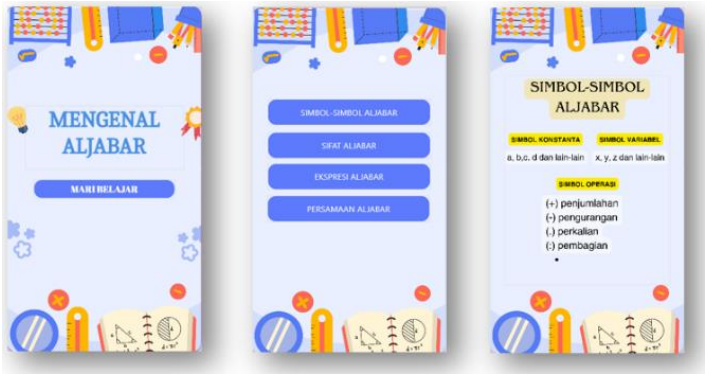

Figure 5. Sample Results of Applications Made by Teachers Who Took Part in The Training

Then, the author and the committee evaluated this training activity after each participant presented the results of their learning application products. Then in order to maximize the learning application development training in the future, the committee asked for input, criticism, and suggestions from the training participants, namely teachers from SMP Muhammadiyah 2 Kartasura. The following is Figure 6 related to the results of the responses of Teachers Who Are Able to Create Learning Media after participating in the training activity mentoring.

The reflection results indicate that the training participants demonstrated good competence in creating Android-based learning media using Thunkable, with 80% of the teachers completing all stages of application development, achieving 80% of the ideal score of 100%.

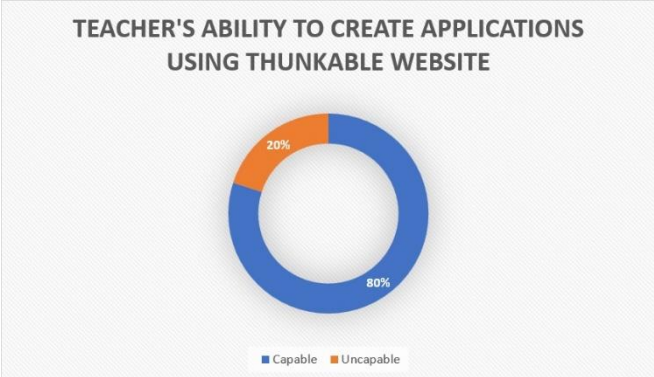

Figure 6. Percentage of Teachers Who are Able to Create Android Application-Based Learning Media Using Thungkable

Additionally, 100% of the participants showed an improvement in their understanding of the training material. This indicates that the training activity was effective and had a positive impact on enhancing the understanding of teachers at SMP Muhammadiyah 2 Kartasura regarding the development of Android-based learning media using Thunkable

4. Conclusion

In conclusion, the training on making learning applications with the help of Thunkable website that has been conducted at SMP Muhammadiyah 2 Kartasura has brought a significant impact in digitizing learning. Through this training, educators can understand the basic concept of app creation and implement it practically by using Thunkable platform. The various features and functions provided by Thunkable allow teachers to create interactive and accessible learning apps. The output of this training activity is a variety of learning applications, according to the subject clusters taught by each teacher. So in addition to the technical aspects, this training also emphasizes the importance of good design strategies in the development of learning applications. Teachers were encouraged to consider user needs and design interfaces that are intuitive and easy to understand. This is important so that the resulting application can provide an effective and enjoyable learning experience for its users. Thus, the knowledge and skills gained in this training can continue to be developed and innovated in the world of education in order to expand access to quality learning through learning applications that they create so that they are more relevant and contextual to the needs and conditions of the learners.

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