



Developing digital learning materials using whiteboard animation for middle and high schools

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Abstract

Educators are encouraged to develop their technology integration abilities as information and communication technology (ICT) advances in the field of education. This has ramifications for school curriculum, which must be able to adapt to changing circumstances in order to satisfy the educational demands of pupils during the industrial revolution. 4.0. Training on the construction of digital learning materials utilizing whiteboard animation is one of the initiatives to overcome the aforementioned difficulties. After 50 hours of training, the teachers at 'Aisyiyah Middle and High Schools (SMP and SMA) in the Lawang sub-district were able to generate instructional materials by constructing material situations, which were then translated into Whiteboard animation. The teachers noted that understanding the chosen application was tough at first, but with effort and the help of the training materials, everyone was able to make their first whiteboard animation. The vast majority of participants want to use this program to create further materials. It is also hoped that in the future, similar materials or their development will be available.

Keywords: High school; Middle school; Digital media; Whiteboard animation

Mengembangkan materi pembelajaran digital untuk SMP dan SMA menggunakan Whiteboard Animation

Abstrak

Pendidik didorong untuk mengembangkan kemampuan integrasi teknologinya seiring dengan kemajuan teknologi informasi dan komunikasi (TIK) di bidang pendidikan. Ini memiliki konsekuensi untuk kurikulum sekolah, yang harus mampu beradaptasi dengan keadaan yang berubah untuk memenuhi tuntutan pendidikan siswa selama revolusi industri. 4.0. Pelatihan pembuatan bahan ajar digital dengan memanfaatkan animasi whiteboard merupakan salah satu inisiatif untuk mengatasi kesulitan-kesulitan tersebut di atas. Setelah pelatihan selama 50 jam, para guru di Sekolah Menengah Pertama (SMP dan SMA) 'Aisyiyah di Kecamatan Lawang mampu menghasilkan bahan ajar dengan mengonstruksi situasi materi, yang kemudian diterjemahkan ke dalam Whiteboard Animation. Para guru mencatat bahwa memahami aplikasi yang dipilih itu sulit pada awalnya, tetapi dengan usaha dan bantuan materi pelatihan, semua orang dapat membuat animasi papan tulis pertama mereka. Sebagian besar peserta ingin menggunakan program ini untuk membuat materi lebih lanjut. Kedepannya juga diharapkan ada bahan serupa atau pengembangannya.

Kata Kunci: SMA; SMP; Pembelajaran digital; Animasi whiteboard

1. Introduction

Aside from the detrimental impact caused by the spread of the Covid-19 virus, this pandemic has presented an opportunity for widespread use of technology, particularly in the field of education (Taufiq et al., 2021; Triastono & Taufiq, 2022). Students and teachers are becoming more acclimated to learning with technological help throughout the online learning session, which should make it simpler and more pleasant. However, as schools and teaching and learning processes return to the classroom, the use of technology is progressively being phased out, which is very bad. With the advancement of technology and knowledge that students confront and experience today and, in the future, forsaking technology support will undoubtedly be a loss, particularly in the realm of education. Whiteboard Animation is one type of technological breakthrough in learning. Whiteboard Animation is a type of animated film that has drawn graphics coupled by narration that walks pupils through the story shown in the image. The animation is basic but intriguing. Whiteboard Animation movies have been used in educational settings to study various learning materials, teach firm employees various company regulations, introduce new software or items to consumers, or serve as chapter summaries for educational texts.

Teachers may use Whiteboard Animation to creatively impart curriculum and tell tales using visuals on a digital whiteboard. Whiteboard Animation is frequently utilized in TV and online ads to express messages in a unique way. In this activity, the community empowerment team contacted Junior High Schools (SMP) and Senior High Schools (SMA) in Aisiyah's neighborhood, Lawang sub-district, Malang district, East Java, namely SMP and SMA Aisiyah Boarding School Malang (ABSM). The author proposes activities for the development of teaching materials using technology, especially whiteboard animation.

From the observations and discussions, it was found that teachers in partner schools expressed a desire to increase the spirit of science and learning through information and communication technology (ICT) so as to encourage educators to increase their competence in the field of technology integration in learning. This is also supported by school programs that prepare themselves to adjust to the times so that they are able to accommodate the learning needs of students in the era of the industrial revolution 4.0. Since it has its own module in 2019, partner schools feel the need to develop existing materials to develop one of them to be directed to digital materials (Dikmenjur, 2004; Taufiq et al., 2021). Figure 1 is the preliminary findings based on the situation at the school.

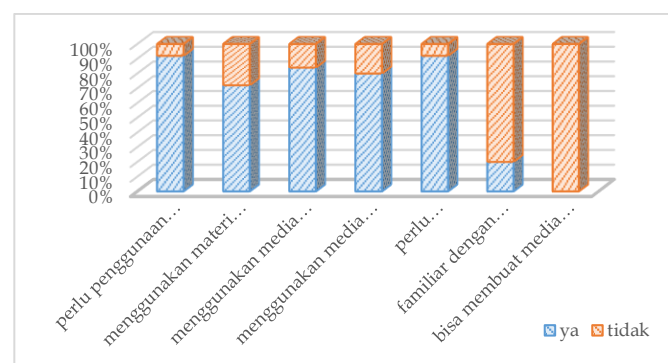


Figure 1. Teachers' prior knowledge about learning media

Based on the [Figure 1](#), it was found that the majority of teachers (90%) agreed that it was necessary to use digital media in learning. Furthermore, 75% of teachers already use digital materials, most of which are taken from sources on the internet. Most of the teachers (82%) have made their own media, in the form of powerpoints, or videos. The results of the media that have been created are also part of community service activities that were previously carried out in one of the partners. The majority of teachers feel the need to develop their own digital media skills (90%), considering that very few already understand or know about whiteboard animation (20%) and no single teacher has been able to make digital media based on whiteboard animation.

School management through ABSM is committed to adapting to making good digital learning media and materials. However, schools and teachers need assistance to support this. Therefore, assistance was held in the development of digital learning media through whiteboard animation technology. It is hoped that through this activity, teachers will be able to develop themselves and teaching skills through technology support as well as a form of increasing teacher confidence in the use of information and communication technology in lesson planning.

2. Method

This activity was carried out in March 2022. Based on the partner problems, the community empowerment team divided the implementation method into several stages or work procedures. By doing this stage, the community service program will be more focused and structured as illustrated in the following procedures:

- a. Step I
In the process of adjusting the time and place, the community service team and discussion partners make a work plan, in the form of the name of the activity and the time of implementation. So that, when community service activities do not interfere with school activities.
- b. Step II
The team disseminated the material, schedule and time allocation needed to compile the material based on initial data. Assessing school needs is continued by compiling a program of material activities at partner schools. This is done by compiling the material, schedule and time allocation needed to compile Whiteboard Animation-based digital material development materials.
- c. Step III
Assistance in making digital learning materials based on whiteboard animation. Here, is the core stage when the community empowerment team as presenters collaborate with partners as participants who are assisted by students in the process of developing digital learning materials.
- d. Step IV
The activity ends with an evaluation process carried out by the team at the partner school and the proposer in implementing the program.

3. Result and discussion

The results of the implementation of community service activities are as follows:

3.1. Observation stage

Partners have contributed in providing an overview of the problem so that the proposing the community empowerment team can clearly offer solutions and agree on the use of the material in question. During implementation, partners provide a place for mentoring activities to be carried out. So that the expected output in this program can be achieved, namely improving the quality and understanding of teachers about making digital learning materials based on Whiteboard Animation. Based on the analysis of observations with partners, it is concluded that:

- a. In the learning process, teachers and schools agree to develop themselves in making digital learning materials, according to the needs of the times and according to the needs of students.
- b. Teachers have limitations in the ability to make digital learning media that is attractive and suitable to be presented among students. Meanwhile, teachers rely heavily on materials available on the internet such as on YouTube and other online learning on the internet.
- c. Since the community service activities carried out previously, the school already has a special module published by the school itself. It is hoped that the existing module can be one of the supporters of the development of digital materials by using whiteboard animation so that it can help the learning process as a source of student learning and at the same time can provide a special color for learning that is characterized by Islam and kemuhammadiyah.
- d. The teachers will have created their own whiteboard animation-based digital learning materials that can be applied in the classroom, as well as can be disseminated.
- e. The community service program for teachers at the SMP and SMA 'Aisyiyah in Lawang sub-district focuses on assistance for the preparation of digital learning materials for teachers and the development of digital learning materials based on whiteboard animation as a learning resource.

3.2. Socialization stage

The team disseminated the strategy for implementing activities in schools at this stage, starting with the activity of conveying the mentoring plan as well as recruiting participants who would be involved in the activity. Also socialized about Whiteboard Animation which is teaching material in the form of animation about the process of someone drawing on a blackboard and recording it.

Furthermore, at this stage, it was agreed that 10 (ten) teachers, from junior and high schools would participate in mentoring until it was completed. This was chosen based on consideration of the effectiveness of mentoring, so it is hoped that each participant will be successful in completing the mentoring to produce works according to the mentoring material, namely developing digital materials based on Whiteboard Animation.

3.3. Assistance stage

This activity was held in collaboration with the team from the University of Muhammadiyah Sidoarjo, the ABSM Board of Directors and the SMP and SMA school

leaders. In this stage, the community service team introduce the Whiteboard Animation as part of animation technology to develop digital teaching materials to make them more attractive to display. Whiteboard Animation has other popular terms namely "video scribing" and "doodle animation". All of the above terms refer to the process by which the writer draws a pictorial story on a blackboard or something white. Usually the color is black and white. Viewers can see the whole drawing process, which is interesting. Whiteboard Animation is accompanied by a clear narration, and viewers can follow the drawing step by step. This video animation style is now seen in many variations, and has been transformed into many other animation styles. With the introduction of various applications or software for creating Whiteboard Animation, the process has many different manifestations of varying quality.

We also introduce various applications that can be used in developing Whiteboard Animation, both paid and free. Among them are Explee, Benime, mySimpleShow, RawShorts, Renderforest, Powtoon, Easy Sketch Pro to Microsoft's self-developed PowerPoint. In this case, participants are given the opportunity to choose an application that suits their material needs, mastery to preferences. It was found that, 40% of participants used Benime, for reasons of using foam on their cellphones, 40% using Explee because it was easy to use on a computer, while the rest used Explaindo because they could be used without an internet connection. Initially, there were 2 participants who planned to use the Powerpoint application with their own development, but eventually switched to explee.

Furthermore, participants prepare a script that is sourced from existing materials or modules. So, it is hoped that participants do not create new learning materials, but only develop them. This preparation process needs to take into account how long it will take and how many pages for the animation display process from start to finish. In this process, there are no significant obstacles, because all participants already have the modules and materials to be presented. Afterwards, participants learn to development the storyline by changing formal written narratives into comfortable narratives to be displayed animatedly and explained in simple and easy-to-digest spoken language, while adjusting to the limited time. In making Whiteboard Animation it is recommended that the animation be no more than 6 (six minutes) due to considerations of time in working and the limitations of applications that are not paid (non-premium).

The next step is making visual assets and animation-based learning materials. In this process, participants send the final script to the Whiteboard Animation application. This stage is the longest process for various reasons. As for the participants, this is the first time to use the Whiteboard Animation application, so it is necessary to adapt to the various features provided. The final step before becoming a video is the legal use of music. This stage needs to be taught to remember the finished video will be displayed on social media such as YouTube (Santoso et al., 2018; Taufiq, 2015). [Figure 2](#) is the example of Whiteboard Animation product which is published online.



Figure 2. The example of digital learning materials, which can be accessed on Youtube

4. Conclusion

Of the total 10 (ten) participants, six of them have successfully completed the creation of digital materials based on Whiteboard Animation in accordance with the initial contract. Participants have one week to complete the work, since the draft storyline is made. The application used may be freely chosen as long as it is in accordance with the Whiteboard Animation technique, as well as the completeness of the content, namely from the animation, sound and music used. The other four participants successfully completed a week later with a record of improvement during the evaluation phase.

Based on the questionnaire via google form, all participants claimed to have gained new skills in making or preparing digital learning materials, especially in preparing digital learning materials based on whiteboard animation as a learning resource. During the implementation, the proposer team always coordinates with partners, so that in the process partners understand and can run independently on the technology that has been transferred through mentoring activities. At the beginning of the mentoring, the teachers as participants admitted that it was difficult to understand the selected application, but with the tenacity and direction of the material in the mentoring, all participants were able to make their first Whiteboard Animation. Furthermore, based on the analysis, it was found that the biggest obstacle faced by the participants was when adapting to the application and preparation of material development which continued with the need to find and develop ideas for the material to be made. Most of the participants are committed to using this application in the development of further materials. In implementing this program, the team will always evaluate and report the results of each activity that has been carried out until all activities are realized. So that teamwork can be realized, and each team member can optimize their potential and field of expertise. After the community service activities are completed, the proposing team will still be present as companions and consultants when the program is completed. So that there is a continuation and evaluation if the continuation of the program is carried out.

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