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TRAINING ON THE USE OF INTERACTIVE FLAT PANELS (IFP) TO SUPPORT INTERACTIVE LEARNING FOR TEACHERS AT SDN PAMITRAN CIREBON CITY

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Abstract:

The rapid development of digital technology in education requires teachers to integrate technological tools into the learning process. One technology increasingly implemented in elementary schools is the Interactive Flat Panel (IFP). However, its utilization remains suboptimal due to teachers' limited

knowledge and skills in operating its features. This community service activity aimed to enhance teachers' competencies in utilizing Interactive Flat Panels as interactive learning media. The program was conducted on May 21, 2026, at SDN Pamitran, Cirebon City, involving 13 teachers. The implementation employed a training and mentoring approach consisting of preparation, material presentation, demonstrations, hands-on practice, discussions, and evaluation. The training materials covered the introduction to IFP, digital whiteboard features, screen sharing, file management, and integration with digital learning applications. The results indicated improvements in teachers' understanding and practical skills in operating Interactive Flat Panels. Participants were able to independently utilize various basic IFP features and demonstrated high enthusiasm throughout the training. The hands-on training approach proved effective in strengthening teachers' technological competencies and supporting digital transformation in schools. This activity is expected to encourage the optimal use of educational technology to create innovative, interactive, and student-centered learning environments that meet the demands of 21st-century education.

Keywords: Interactive Flat Panel; Teacher Competence; Interactive Learning.

INTRODUCTION

The development of information and communication technology has brought significant changes to various aspects of life, including education. The integration of technology into the learning process has become an important strategy for improving educational quality and preparing students to face the challenges of the 21st century, which require critical thinking, creativity, collaboration, and digital literacy (Husaini, 2022). In this context, teachers, as the primary implementers of learning, are required not only to master subject matter but also to use technology effectively to create more meaningful and student-centered learning experiences (Sofwan et al., 2025). Recent research also indicates that teachers' competence in integrating technology is an important factor in supporting digital transformation in education and improving learning effectiveness (Hendrik et al., 2026). Based on these conditions, improving teachers' competence in utilizing educational technology is an essential need to ensure that learning can be conducted in a more innovative and interactive manner and in accordance with the demands of educational development in the digital era.

One form of technological innovation that is increasingly being implemented in schools is the Interactive Flat Panel (IFP). Interactive Flat Panels (IFPs) have been widely utilized in various fields, particularly in activities that require interactivity in information



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delivery and presentations. In education, this technology has long been implemented through devices known as Interactive Whiteboards (IWBs) (Prasetyo et al., 2015). The use of IWBs has expanded across various educational levels and subjects and has been employed to support the achievement of diverse learning objectives and the development of students' skills. An IFP is a touch-screen-based interactive digital whiteboard that enables teachers and students to display learning materials, write, draw, access the internet, share screens, and use various digital learning applications in an integrated manner. The main advantage of an IFP lies in its ability to facilitate interactive learning, in which children are not merely recipients of information but can also participate directly through touch and responses to the displayed media (Latifah et al., 2026). The utilization of various digital and multimedia features on IFPs can also increase student engagement in the learning process (Indrasari & Inganah, 2025). Therefore, the use of IFPs in learning can be an effort to create a more interactive and effective learning process that meets the demands of education in the digital era.

Although IFP devices are available in a number of schools, their utilization in learning activities still faces various challenges. One of the main obstacles is teachers' limited knowledge and skills in operating the devices, resulting in the available features not being utilized optimally (Sitompul, 2022). This condition indicates a gap between the availability of technology and teachers' competence in integrating it effectively into learning (Umara et al., 2025). Based on initial observations conducted at SDN Pamitran, Cirebon City, the school already has Interactive Flat Panel facilities; however, some teachers still require guidance and mentoring in utilizing the devices as interactive and innovative learning media. The use of interactive learning devices such as IFPs has a positive impact on students' learning processes. This technology not only increases learning motivation but also encourages active student participation in discussions, strengthens their understanding of the learning material, and increases their confidence in participating in learning activities (Sari & Munir, 2024).

Based on these conditions, students of the Teacher Professional Education Program at Universitas Muhammadiyah Cirebon organized a community service activity in the form of training on the use of Interactive Flat Panels to support interactive learning for teachers at SDN Pamitran. This activity aimed to improve teachers' understanding and skills in operating Interactive Flat Panels and to optimize their use as interactive digital learning

media. The activity is expected to support the improvement of teachers' technological competence and encourage the more effective implementation of technology-based learning in schools.

SDN Pamitran has Interactive Flat Panel (IFP) facilities that can be utilized as digital learning media. The availability of these devices provides an opportunity for the school to support learning that is more interactive, innovative, and aligned with developments in educational technology. However, based on observations and discussions with the school, the utilization of Interactive Flat Panels in learning activities is still not optimal.

Some teachers do not yet have a comprehensive understanding of the functions and use of the various features available on IFP devices. Their use of the devices is still limited to displaying learning materials, while other features such as digital whiteboards, screen sharing, file management, and integration with digital learning applications have not been fully utilized. This condition means that the potential of Interactive Flat Panels as interactive learning media has not yet been optimally utilized to support the learning process.

In addition, teachers have not received adequate training and mentoring on the use of Interactive Flat Panels in learning. These limitations in knowledge and skills pose challenges to efforts to integrate technology into teaching and learning activities. The ability to utilize educational technology is an essential competence that teachers need to support 21st-century learning.

Based on these conditions, the main need of the partner institution is to improve teachers' competence in operating and utilizing Interactive Flat Panels as learning media. Therefore, this community service activity focused on training and mentoring in the use of Interactive Flat Panels to improve teachers' understanding and skills so that the devices available at the school can be utilized optimally to support more effective and interactive learning.

METHOD

This community service activity was conducted to provide training for teachers in using Interactive Flat Panels (IFPs) to support interactive learning for students. The activity was held on May 21, 2026, at SDN Pamitran, Cirebon City, involving 13 teachers as participants. The activity was conducted for one day using a community education method through guided training and mentoring (Workshop and Mentoring). The approach was based on andragogical principles, in which teachers were positioned as active learners who gained hands-on experience in operating Interactive Flat Panels (IFPs). Data were collected using questionnaires to measure teachers' understanding during the Interactive Flat Panel (IFP) training to support interactive learning. The methods used in this activity were lectures and demonstrations, with the training implementation procedures described as follows:

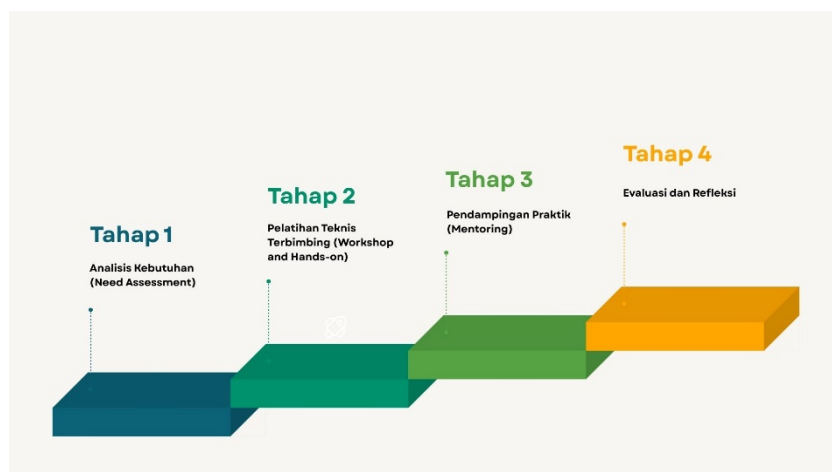


Figure 1. IFP Training Implementation Procedure

Stage 1: Needs Analysis (Need Assessment)

The needs analysis stage began with coordination and observation with the school to identify the current use of Interactive Flat Panels (IFPs) in learning. At this stage, the needs and challenges faced by teachers in using IFPs as digital learning media were identified. In addition, participants were given a pre-test to determine their initial level of understanding of the use and utilization of Interactive Flat Panel features.

Stage 2: Guided Technical Training (Workshop and Hands-on)

At this stage, the implementation team delivered material on the basic concepts, functions, benefits, and various features available on Interactive Flat Panels. This was followed by demonstrations of key features, such as the digital whiteboard, screen sharing, file management, and integration with digital learning applications. After the demonstration,

participants were given the opportunity to practice using various Interactive Flat Panel features directly under the guidance of the implementation team.

Stage 3: Practical Mentoring (Mentoring)

The mentoring stage was conducted throughout the practical activities. The implementation team provided direct guidance to participants in operating Interactive Flat Panels, ranging from the use of basic features to the utilization of features that support learning. This mentoring aimed to help participants overcome technical difficulties while increasing their confidence in using the devices independently.

Stage 4: Evaluation and Reflection

The evaluation stage was conducted through a post-test to measure improvements in participants' understanding after the training. In addition, a discussion and reflection session was held to obtain feedback on the implementation of the activity, the benefits gained by participants, and the challenges that remained in utilizing Interactive Flat Panels in the learning process. According to Paais & Sabirin (2025), evaluation that combines learning outcome measurement with participant reflection can provide a more comprehensive picture of training effectiveness and follow-up needs to support the sustainable implementation of learning technology.

Data were collected from the pre-test and post-test results, observations conducted during the activity, and activity documentation. The pre-test and post-test data were analyzed using quantitative descriptive analysis by comparing the mean scores before and after the training. Meanwhile, observation and documentation data were analyzed qualitatively and descriptively to describe participants' levels of participation, enthusiasm, and skills in operating Interactive Flat Panels.

RESULTS AND DISCUSSION

1. Needs Analysis (Need Assessment)

The needs analysis stage was conducted through initial observations, discussions with the school, and a pre-test administered to 13 teachers at SDN Pamitran. This activity aimed to identify teachers' initial level of understanding regarding the use of Interactive Flat Panels (IFPs) as digital learning media. The observations showed that the school already had Interactive Flat Panel devices that could be used in learning activities. However, most teachers had not yet utilized the available features optimally and tended to use the devices only as presentation media.

Table 1. Participants' Pre-test Results

Description	Result
Number of Participants	13 participants
Mean Score	49,23
Highest Score	60
Lowest Score	40

These findings indicate that although technological facilities are available at the school, the presence of the devices does not automatically improve learning quality unless it is accompanied by teachers' competence in utilizing them. This condition is consistent with Sitompul (2022), who stated that limited teacher digital competence is one of the factors hindering the optimal utilization of learning technology in schools.

2. Guided Technical Training (Workshop and Hands-on)

During the guided technical training stage, participants were provided with an understanding of the basic concepts of Interactive Flat Panels, the benefits of their use in learning, and their role in supporting digital transformation in education. The discussion results showed that most participants had not yet optimally utilized the various features available on the devices. Teachers generally used the devices only as simple presentation media, while other interactive features had not been widely utilized. This finding is consistent with Intan (2024), who stated that teachers who are not familiar with digital features tend to use devices only as simple presentation media. Therefore, training and mentoring are important to optimize their utilization. Guided technical training is an important step in improving teachers' understanding and skills in utilizing all Interactive Flat Panel features optimally, so that the devices function not only as presentation media but also as interactive learning tools that support the creation of an engaging and interactive learning process.

Next, the implementation team demonstrated various key features available on the Interactive Flat Panel, including the digital whiteboard, smart shape, multi-touch, screen sharing, and learning file management. The demonstrations were conducted directly to provide an overview of how each feature can be used in learning activities.



Figure 1. Implementation of Activities

3. Practical Mentoring (Mentoring)

After receiving the material and demonstrations, participants took part in a hands-on practice session by independently operating various Interactive Flat Panel features. At this stage, the implementation team mentored participants in using the available features and helped them overcome technical difficulties that arose during the practice.

The observations showed that the participants were able to use the basic features of the device after receiving demonstrations and guidance from the implementation team. Practical training based on direct experience was effective in improving teachers' pedagogical and technological competencies (Holiwarni et al., 2025). This indicates that hands-on training is effective in improving participants' skills in utilizing learning technology.



Figure 2. Participants Practicing the Use of Interactive Flat Panels

4. Evaluation and Reflection

During the evaluation stage, participants were given the opportunity to share their experiences, challenges, and questions related to the use of Interactive Flat Panels in learning. In addition, participants were introduced to various digital learning applications that can be integrated with IFP devices, such as Canva, Kahoot, Quizizz, and Wordwall. The integration of these technologies has the potential to increase student engagement and create more interactive learning experiences (Syifa et al., 2025).

To determine the effectiveness of the activity, participants were given a post-test after the entire training program had been completed. The evaluation results showed an improvement in participants' understanding of the use of Interactive Flat Panels as digital learning media. The mean pre-test score increased from 49.23 to 83.85 on the post-test.

Table 2. Participants' Pre-test and Post-test Results

Description	Pre-test	Post-test
Number of Participants	13 participants	13 participants
Mean Score	49,23	83,85
Highest Score	60	90
Lowest Score	40	80

Based on these results, the participants' mean score increased from 49.23 on the pre-test to 83.85 on the post-test. This increase indicates that the training and mentoring activities were able to improve teachers' understanding and skills in operating Interactive Flat Panels. In addition to the increase in scores, observations also showed increased participant confidence in utilizing technology as learning media.

During the reflection session, participants stated that the training provided new experiences in utilizing learning technology that had previously not been used optimally. Teachers also stated that the various features available on Interactive Flat Panels have great potential to create learning that is more interactive, innovative, and student-centered. This is consistent with the research of Soepriyanto et al. (2025), which showed that training on the utilization of IFP features can improve teachers' understanding in developing interactive teaching materials and optimizing the use of learning technology. In addition, the use of IFPs supports the creation of more interactive learning experiences, increases student engagement, and aligns with the demands of student-centered 21st-century learning.

In addition, participants were introduced to various digital learning applications that can be integrated with IFP devices, such as Canva, Kahoot, Quizizz, and Wordwall. The integration of these applications provides teachers with alternatives for presenting more engaging learning activities and increasing student participation throughout the learning process. This is consistent with Bahar (2025), who stated that the integration of digital technology into learning can increase student engagement and create more interactive learning experiences.

Overall, the results of the activity indicate that the training on the use of Interactive Flat Panels at SDN Pamitran successfully improved teachers' digital competence in both knowledge and practical skills. The activity also encouraged the optimization of

technological facilities already available at the school and provided a foundation for teachers to develop learning that is more innovative, interactive, and aligned with the demands of 21st-century education.

CONCLUSION

The community service activity in the form of training on the use of Interactive Flat Panels (IFPs) for teachers at SDN Pamitran was successfully implemented and achieved its intended objectives. The partner's problem of limited teacher understanding and skills in utilizing Interactive Flat Panels as digital learning media was addressed through a community education method implemented in the form of guided training and hands-on mentoring. The results showed improved participant understanding and skills, as indicated by higher post-test scores compared with pre-test scores and teachers' ability to operate various Interactive Flat Panel features independently. The activity had a positive impact on improving teachers' digital competence and optimizing the use of technological facilities available at the school to support more interactive, innovative, and effective learning.

IMPLICATION

Therefore, similar activities are recommended to be conducted continuously with more in-depth materials and more intensive mentoring to support the optimal implementation of technology-based learning in elementary schools.

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