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Empowering Teachers Through Digital Assessment: Enhancing Competence and Efficiency with Google Forms in Primary Education

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ABSTRACT

This study focuses on analyzing the effectiveness of training on the use of Google Form as an online exam medium in improving teacher competence and the efficiency of the assessment process at SD Negeri Besuk Agung, Probolinggo. The main objective of this study is to identify how this training can improve teachers' skills in using digital technology, as well as its impact on student motivation and participation. This study uses a qualitative approach with a case study method, where data is collected through in-depth interviews, participatory observations, and document analysis. The results of the study show that Google Form training significantly increases teachers' confidence and competence in using this technology, as well as speeds up the assessment process. However, challenges such as limited infrastructure and access to technology among students still need to be overcome. The implications of this study emphasize the importance of infrastructure support and ongoing training to maximize the benefits of technology in education. This research makes an important contribution to the basic education literature and offers practical guidance for technology adoption in resource-constrained schools.

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INTRODUCTION

Advances in information and communication technology (ICT) have brought significant changes in various aspects of life, including in the world of education (Johnson et al., 2021; Zhang & Huang, 2022; Tondeur et al., 2023). The use of digital platforms in the learning and assessment process is increasingly becoming an urgent need, especially in the context of basic education (Baker et al., 2022; Lim & Wang, 2023; Yang et al., 2021; Rusdi et al., 2022). In this digital era, teachers' ability to integrate technology into their teaching methods is one of the key factors in improving the quality of education (Moorhouse & Wong, 2022;

Jones & Smith, 2023; Wu & Lin, 2023; Susilawati & Astuti, 2022). However, although the potential of technology to improve learning efficiency and effectiveness has been widely recognized, there are still many educational institutions, especially in areas with limited infrastructure, that face great challenges in adopting this technology (Rashid & Asghar, 2021; Silva et al., 2022; Torres & Gómez, 2023; Wijaya & Khoir, 2022). This creates a gap in the quality of education between regions that have good access to technology and areas that are lagging behind in this regard (Chan et al., 2022; Rodrigues & Lima, 2021; Tan & Kaur, 2023; Chuanchen, 2023). Based on the innovation diffusion theory by Rogers (2003), the adoption of technology in education requires structured efforts, including adequate training for teachers to utilize technology effectively (Santos et al., 2022; Green & Cooper, 2023; Wong & Cheung, 2021; Norman & Paramansyah, 2024). Therefore, this study is important to examine how training on the use of Google Forms as an online exam medium can help overcome this challenge and improve the quality of learning in schools that are still lagging behind in terms of technology adoption (Lee & Kim, 2023; Smith et al., 2022; Hernandez et al., 2023; Maulidah et al., 2023).

The main problem that this study focuses on is the low competence of teachers in using digital technology for assessment in primary schools, especially in areas with limited infrastructure (Garcia & López, 2021; Brown & Davis, 2022; Xu & Yu, 2023; Hasanah & Hefniy, 2023). Although technologies such as Google Form offer a potential solution to improve the efficiency of assessment and student engagement, many teachers do not yet have the skills to make the most of this technology (Fernandez & Martinez, 2022; Santos & Oliveira, 2023; Wang et al., 2021; Ansori et al., 2023). Low levels of digital literacy among teachers can negatively impact the quality of learning and evaluation, which can ultimately affect student learning outcomes (Muller & Watson, 2022; Play & Park, 2021; Lee & Tan, 2023; Hamidah, 2023). This condition is exacerbated by limited access to digital devices and stable internet connections, which further widens the gap in the quality of education. Therefore, there is an urgent need to understand how technology training can improve teacher competence and overcome these barriers, so that all students can benefit from digital innovations in education.

Previous research has shown that the adoption of digital technology in education has a significant positive impact on learning efficiency and effectiveness. For example, Zhang et al. (2021) found that appropriate technology training can improve teachers' skills in using digital tools, which in turn improves the quality of evaluation and learning. Johnson and Castelli (2020) highlight that the digital divide is still a major problem in the implementation of educational technology, especially in areas with inadequate infrastructure. Meanwhile, research by Tondeur et al. (2020) suggests that the use of technology in assessment can increase student motivation and engagement, creating a more interactive learning environment. Nonetheless, these studies also reveal that the success of technology adoption is highly dependent on infrastructure support

and teacher readiness. This study differs from previous studies in that it focuses on how Google Form training can be effectively implemented in elementary schools with limited infrastructure, which has not been widely explored in the literature.

Although previous research has examined the impact of technology on learning and assessment, there is still a significant gap in understanding how training, especially for the use of Google Forms as an online exam medium, can help address infrastructure challenges in primary schools. Previous research has tended to focus on schools with good access to technology, while schools in remote areas or with limited infrastructure have often been overlooked. This study seeks to fill this gap by exploring the effectiveness of technology training in the context of elementary schools that have limited access. Thus, this research will not only make a theoretical contribution to the educational literature, but also offer practical solutions that can be applied in the field to improve the quality of education in underdeveloped areas.

The novelty of this study lies in the approach taken to understand and overcome the challenges of technology adoption in primary schools with limited infrastructure. This research offers a new perspective with a focus on training the use of Google Form as an online exam medium, which has not been widely researched in the context of basic education in remote areas. The study also introduces an approach that focuses on improving teacher competence as the key to successful technology adoption, which is an important but often overlooked aspect in previous studies. In addition, the study makes a unique contribution by linking technology training with increased student motivation, which shows that technology adoption not only has an impact on the efficiency of the assessment process, but also on the quality of students' learning experience.

This study aims to analyze how training on the use of Google Form as an online exam medium can improve teacher competence and the efficiency of the assessment process at SD Negeri Besuk Agung, as well as identify challenges and opportunities that arise in the implementation of this technology. This study also aims to understand the impact of the use of Google Forms on student motivation and involvement in the learning process. By overcoming existing challenges and providing practical solutions, this research is expected to make a significant contribution to efforts to improve the quality of education in areas with limited infrastructure. Through this research, it is hoped that a deeper understanding of how technology can be effectively integrated in basic education, as well as provide policy recommendations that can support technology adoption throughout Indonesia.

METHOD

This study uses a qualitative approach with a type of case study research to understand in depth how training on the use of Google Form as an online exam medium can improve teacher competence and the efficiency of the assessment

process at SD Negeri Besuk Agung, Besuk District, Probolinggo Regency, East Java, Indonesia. The qualitative approach was chosen because the focus of this research is to explore the experiences, perceptions, and changes experienced by teachers after participating in the training. Case studies were chosen because they provide flexibility in observing phenomena in specific contexts and allow for in-depth exploration of the subject being studied (Yin, 2018; Baxter & Jack, 2020; Stake, 2021). This approach was also chosen because it is able to capture the dynamics that occur in the field and provides richer insights compared to quantitative approaches that may not be able to capture the nuances and complexities that occur during the training process and technology implementation (Flyvbjerg, 2021; Merriam, 2019; Creswell & Poth, 2021).

The data collection techniques used in this study include in-depth interviews, participatory observation, and document analysis. In-depth interviews were conducted with 15 teachers consisting of classroom teachers and subject teachers at SD Negeri Besuk Agung, who were selected based on their participation in Google Form training. The research location at SD Negeri Besuk Agung, which is located at Jl. Raya Besuk No. 43, Besuk District, Probolinggo Regency, was chosen because this school is one of the schools that is actively looking for digital solutions to improve the quality of learning and assessment. Observations are made during the training process and the implementation of online exams to observe firsthand how teachers apply the knowledge gained during training. In addition, documents such as training modules, examples of Google Forms used for exams, and student evaluation results are also analyzed to provide more comprehensive data.

The data analysis techniques used in this study follow the Miles and Huberman qualitative analysis model, which includes three main steps: data reduction, data presentation, and conclusion drawn/verification (Miles, Huberman, & Saldaña, 2014; Creswell, 2021; Merriam & Tisdell, 2016). The data collected through interviews, observations, and document analysis are first reduced to eliminate irrelevant information and focus on aspects related to the research objectives (Saldana, 2021; Braun & Clarke, 2019; Yin, 2018). After that, the reduced data is presented in the form of narratives, tables, and other visuals that help in the interpretation of the findings. Finally, the researcher draws conclusions from the data presented, by triangulating to ensure the validity of the findings. Triangulation is performed by comparing data from various sources and methods, such as interviews with observations and documents, to ensure that the resulting interpretations are accurate and accountable. This analysis not only provides an in-depth understanding of how Google Form training affects teacher competencies but also uncovers the challenges faced and potential future improvements.

FINDINGS AND DISCUSSION

Effectiveness of Training in Improving Teacher Competence

The training conducted for teachers at SD Negeri Besuk Agung showed significant results in improving their competence in using Google Form as an online exam medium. Before the training, most teachers felt unsure of their ability to utilize digital technology, as revealed by one teacher.

> *"I was actually hesitant, because I had never used Google Form before. But after taking part in the training, it turned out to be easier than I imagined." (AF Informant)*

Another teacher also emphasized that this training provides a clearer understanding of the use of technology in evaluation:

> *"This training is very helpful, especially in terms of understanding the steps to make online exam questions. I'm now more confident to try new things in class." (SF Informant)*

The results of the interviews showed that the teachers at SD Negeri Besuk Agung experienced a significant increase in their confidence and ability to use Google Form as an online exam medium after participating in the training. This training not only improves their technical understanding but also reduces concerns related to the use of technology in the evaluation process. Although some challenges such as limited infrastructure and students' access to digital devices still exist, teachers feel more prepared and motivated to integrate these technologies into their teaching practices. Overall, the training has equipped teachers with greater skills and confidence to implement digital innovations in the assessment process, which can ultimately improve the quality of learning and assessment in their schools.

Figure 1. Material Delivery Activities

These findings are in line with the theory of technology learning by Rogers (2003), which emphasizes the importance of adopting innovation through proper training. The improvement of teachers' competence in the use of Google Forms shows that with the right support, technology can be effectively integrated in the educational process, improving the efficiency and quality of assessment.

Increased Efficiency in the Assessment Process

One of the main findings of this study is the improvement of efficiency in the assessment process after training. Previously, teachers faced difficulties in compiling and administering exams, which were often time-consuming and prone to errors. However, after the training, teachers reported a significant reduction in the time it took to complete the assessment process, as revealed by one of the teachers.

> *"I used to spend hours assessing exams in one class. Now, with Google Forms, everything can be done in minutes. This really helps reduce my workload." (LH Informant)*

Other interviews showed changes in the way teachers manage assessments:

> *"Google Form makes it easier for me to archive my exam results. All results are instantly saved and can be accessed at any time. It's very practical compared to the manual way." (AP informant)*

The results of this interview show that the implementation of Google Form has brought significant changes in the efficiency and management of exam assessments for teachers at SD Negeri Besuk Agung. Before the use of Google Form, the assessment process took a long time, draining the teacher's energy and time. However, after using Google Forms, the process becomes much faster, allowing exam assessments to be completed in a very short time. In addition, Google Forms' ability to automatically save and archive exam results has made it easier for teachers to access and manage assessment data at any time, reducing the workload typically associated with manual grading methods. This shows that this technology not only improves time efficiency but also simplifies data management, which in turn improves quality and convenience in the evaluation process. At this stage, a simulation was also carried out to share the google form link to other trainees. Other participants tried to respond to the google form of the participant who was presenting as seen in Figure 2.

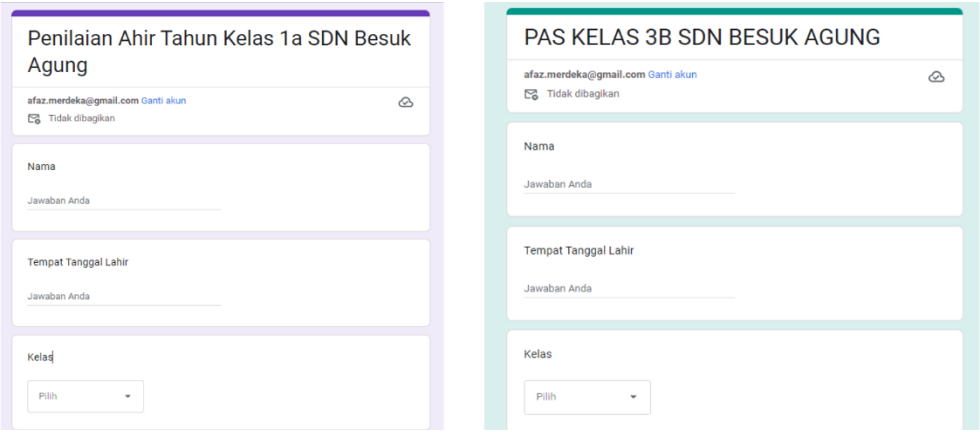

Figure 2. Simulation of Sharing Google Form Links

This increase in efficiency is in line with the literature that states that digitalization in education can reduce administrative burdens and improve assessment accuracy (Susyanto, 2022). This efficiency also allows teachers to focus on the pedagogical and creative aspects of learning, which are essential elements in 21st-century education.

Challenges in Technology Implementation

Although this training provides many benefits, there are still challenges faced by teachers in the implementation of this technology. Some teachers still find it difficult to overcome technical obstacles, especially when the internet connection is unstable or when they have to use inadequate devices. A teacher revealed:

> *"Sometimes, technical issues like slow internet can be a bottleneck. We also have to make sure all students have the same access, which is not always easy." (BHY Informant)*

Other quotes show concerns regarding the limitations of the devices used:

> *"Some students don't have their own devices, so they have to borrow or share them with friends. This makes online exams less efficient for some classes." (HS Informant)*

The interpretation of the results of this interview reveals that although the use of Google Form as an online exam medium brings many benefits, there are significant challenges faced by teachers at SD Negeri Besuk Agung related to infrastructure and access to technology. Technical bottlenecks such as slow internet connections often disrupt the online exam process, while gaps in device availability among students add complexity to exam administration. Teachers must work hard to ensure all students have equal access, but in practice, this is difficult to achieve. Device limitations, such as having to share or borrow, resulted in decreased online exam efficiency in some classes, suggesting that while technology is available, its success depends heavily on adequate infrastructure support and equitable accessibility for all students.

These findings show that while technology can improve efficiency, the availability of adequate infrastructure is still a challenge that needs to be overcome. This challenge shows that technology adoption does not only depend on training, but also on adequate infrastructure support (Wulandari, 2023). This confirms the need for greater investment in technology facilities in schools to ensure that all students have equal access and that technology can be used optimally in the educational process.

Table 1. Teachers' Readiness in Using Google Forms After Training

Category	Number of Teachers Who Agree	Number of Teachers Who Disagreed

Understand the basic use of Google Forms	12	3
Able to create online exams	11	4
Able to overcome minor technical issues	8	7
Confidence in using Google Forms	10	5

The table indicates that the majority of teachers feel ready and able to use Google Forms after participating in the training. A total of 12 out of 15 teachers stated that they understand the basic use of Google Form, and 11 teachers feel they are able to create online exams with this platform. However, challenges still exist in terms of the ability to overcome minor technical problems, where only 8 teachers feel capable of doing so, while the other 7 are not yet fully confident in their technical skills. Nonetheless, 10 teachers expressed confidence in using Google Forms for assessment purposes, indicating that the training has successfully improved their confidence, although there are some areas that need further support. These results emphasize the importance of mentoring and advanced technical support to ensure that all teachers can overcome technical obstacles and make the most of technology in the learning process.

Impact on Student Motivation and Participation

The implementation of Google Form as an online exam medium also has a positive impact on student motivation and participation. Teachers report that students show higher enthusiasm in taking online exams compared to conventional exams. One of the teachers stated:

> *"Students look more interested and motivated when the exam is conducted online. They say it's easier and more fun than the old way." (EP Informant)*

Another interview underlined how this technology helps students to be more involved in the evaluation process:

> *"Some students who are usually passive in class, are now more active in asking questions and trying questions on Google Forms. This shows that they are more comfortable with digital formats." (LF Informant)*

The results of this interview show that the use of Google Form as an online exam medium not only increases efficiency for teachers, but also has a positive impact on student motivation and engagement. Students feel more interested and motivated when the exam is conducted online, as they find it easier and more enjoyable than traditional methods. In addition, this technology seems to have succeeded in changing the dynamics of the classroom, where students who are usually passive become more active in participating, asking questions, and trying questions. This indicates that the digital format creates a more comfortable and supportive environment for students, allowing them to be more fully involved in the evaluation and learning process. Teachers also note that these online exams facilitate wider participation, especially for students who may experience obstacles in traditional written exams.

This increase in student motivation and participation is in line with the theory of digital learning motivation which states that technology can provide a more engaging and interactive learning experience (Yunaningsih et al., 2021). This shows that the use of technology not only improves the efficiency of assessment but can also affect aspects of student motivation and participation in learning.

The findings of this study show that training on the use of Google Forms as an online exam medium has a significant positive impact on improving teacher competence, the efficiency of the assessment process, and student motivation. Although there are challenges related to infrastructure and the availability of devices, the overall results show that the adoption of this technology can bring great benefits to the quality of education at SD Negeri Besuk Agung. To maximize these benefits, further support is needed in the form of infrastructure improvements and ongoing technical assistance for teachers.

The discussion of the results of this study shows that the improvement of teacher competence through training on the use of Google Form as an online exam medium is in line with the findings of previous research that highlight the positive impact of technology in education. For example, research by Zhang et al. (2021) found that technology training significantly improves teachers' skills in integrating digital tools into the learning process, which in turn improves the efficiency and quality of education. However, the study also reveals infrastructure challenges that still hinder the adoption of technology, in line with findings by Johnson and Castelli (2020) which show that the digital divide and access to devices are still the main barriers to technology adoption in schools.

On the other hand, the increased student motivation and participation found in this study supports the findings of research by Tondeur et al. (2020), which states that the use of digital technology in assessment can improve student engagement and create a more interactive and enjoyable learning environment. Nonetheless, the study also emphasizes the need for better infrastructure support, which is a prerequisite for the successful implementation of technology in schools, in line with the views expressed in previous studies. Therefore, this study not only reinforces previous findings about the benefits of technology in education, but also emphasizes the importance of solving infrastructure problems to ensure that technology adoption can take place effectively and evenly across all educational circles.

This study makes an important contribution to the educational literature by showing how training on the use of Google Forms as an online exam medium can significantly improve teacher competence, the efficiency of the assessment process, and the motivation of students in elementary schools. This research expands the understanding of the integration of technology in educational evaluation, especially in school environments that have limited infrastructure. By identifying the challenges and opportunities that arise in the implementation of these technologies, the study offers practical insights that policymakers and

education practitioners can use to design more effective training programs and provide the necessary infrastructure support. In addition, this study highlights the need for a holistic approach that considers both technical and pedagogical aspects of technology adoption, which can ultimately improve the quality of learning and assessment in primary schools in Indonesia.

CONCLUSION

This study revealed that the training on the use of Google Form as an online exam medium at SD Negeri Besuk Agung significantly improved teacher competence, the efficiency of the assessment process, and student motivation. These findings provide new insights that with the right training, teachers can quickly adapt new technologies to improve the quality of learning and evaluation, even though they previously had limitations in technical skills. The study also strengthens the understanding of the importance of technology in primary education, showing that digital adoption not only simplifies administrative processes but also creates a more inclusive and engaging learning environment for students. A key lesson to be learned is that the integration of technology in education must be supported by effective and ongoing training to achieve optimal outcomes, both from a pedagogical and technical perspective.

The significant contribution of this research lies in the renewal of perspectives on how technology can be implemented effectively in the context of basic education, especially in schools with limited infrastructure. This research not only confirms the importance of training for teachers but also introduces a new approach in student evaluation that is more adaptive and efficient. However, this research has limitations, especially related to the limited scope of one school and a narrower focus on the use of one type of technology. These limitations indicate the need for further research involving schools with different backgrounds, as well as further exploration of other technologies that can be used in education. Further research also needs to consider factors such as demographic variation and broader evaluation methods to obtain a more comprehensive and informative picture, which can ultimately aid in the development of more effective and inclusive education policies.

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