

SEMINAR NASIONAL PKM

"INOVASI TEKNOLOGI UNTUK PEMBERDAYAAN
KOMUNIKASI MENYONGSONG KESEJAHTERAAN MELALUI
IMPLEMENTASI TEKNOLOGI BERBASIS SOLUSI"

5 NOVEMBER 2025

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Penulis
Peserta Seminar Nasional PKM 2025



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Puji syukur ke hadirat Tuhan Yang Maha Esa, karena atas rahmat dan izin-Nya buku artikel ini dapat diselesaikan dengan baik. Buku ini disusun sebagai bagian dari upaya tim penyusun untuk memberikan kontribusi ilmiah, khususnya dalam bidang kajian yang relevan dengan tema yang diangkat. Melalui berbagai artikel yang terangkum di dalam buku ini, diharapkan dapat memperluas wawasan dan memperkaya khasanah pengetahuan pembaca.

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Akhir kata, tim penyusun menyadari bahwa buku ini masih jauh dari sempurna. Oleh karena itu, kritik dan saran yang bersifat membangun sangat kami harapkan demi penyempurnaan karya- karya berikutnya.

Selamat membaca.

Tim Penyusun



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TEACHER MENTORING PROGRAM IN THE UTILIZATION OF *LIVEWORKSHEET* AS A LEARNING MEDIA AT SD NEGERI 044852 BUKIT VILLAGE KARO REGENCY

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Abstract

This mentoring program aims to improve teacher's competence in teaching primary subjects by implementing digital media, named Liveworksheet. This worksheet is available for many subjects and can be easily created and downloaded based on students' needs. The program was held in a public primary school in Karo Regency. Due to the limitation of teachers' knowledge and innovation in technology, this school still implemented unengaging teaching methods that causing students' learning outcome was not fully optimal. Therefore, the community volunteers conducted intensive training for teachers to master Liveworksheets as an interactive learning media. This training included an introduction to the features, how to create digital worksheets, techniques for integrating Liveworksheets into the learning process, mentoring and evaluation, and the sustainability of the program. These were designed to ensure that school are able to independently use the technology after the activity is completed. After the program was successfully done, it resulted positive responses both from teachers and students. The teachers acquired new insight to have innovation in teaching, while students were more enthusiastic during learning process. In conclusion, this program is effective to improve teachers' competency in rural areas.

Keywords: *Teacher's Competence; Liveworksheet; Primary Subjects; Rural Areas*

1. Introduction

In rural communities across Indonesia, access to quality education often remains a significant challenge. Karo Regency, located in the northern part of Sumatra, exemplifies the educational struggles faced by many rural areas. The region is home to numerous public primary schools that serve a diverse population, but these schools face substantial limitations in both educational resources and technological integration. In particular, the teaching methods employed by many educators in Karo Regency have remained traditional, relying heavily on paper-based resources and lectures. Consequently, students often experience disengagement, leading to suboptimal learning outcomes. Research has shown that in such environments, students are less motivated, and their academic performance tends to lag behind that of their urban counterparts Sälzer & Klieme (2013); Gunter et al. (2007).

These challenges are not unique to Karo Regency but are widespread in rural communities across Indonesia, where teachers often lack the necessary training to incorporate modern educational technologies into their lessons Harris & Hofer (2011). Although previous initiatives have sought to address this gap, such as the provision of basic

educational resources and the introduction of digital tools in some schools, many teachers in rural regions still lack the skills and knowledge to effectively use these technologies Kozma (2003). Moreover, these previous efforts were often short-term and did not provide sustainable solutions that would enable teachers to continue using technology independently once the support programs ended.

The community empowerment program discussed in this article seeks to address these gaps by providing teachers in Karo Regency with the skills and resources needed to incorporate *Liveworksheet*, an interactive digital tool, into their teaching practices. The program was designed to offer intensive training to primary school teachers, equipping them with the competencies required to create and integrate digital worksheets into their lessons. These worksheets, easily downloadable and customizable, provide a flexible and engaging learning medium that caters to diverse student needs, making learning more interactive and accessible.

The target population of this initiative is primarily the teachers at SD Negeri 044853 Bukit, Karo Regency, with the program aiming to improve their competency in utilizing educational technology. However, the benefits

extend to students, as the introduction of more engaging learning tools fosters a more stimulating learning environment. The primary challenge in this community is the lack of technological knowledge and the reliance on outdated teaching methods that fail to capture students' attention and interest. Therefore, the research objective of this community empowerment activity is to enhance the technological proficiency of teachers, helping them transform their classrooms into dynamic learning environments that better meet the needs of their students. The program's objectives align directly with the challenges faced by the teachers at SD Negeri 044853 Bukit, Karo Regency, offering a sustainable solution to the limitations in their teaching practices. This program does not just aim to provide short-term training; rather, it is designed to foster long-term skills that enable teachers to continue utilizing technology even after the formal mentoring phase has ended. The key form of participation in this program is hands-on training, where teachers are actively involved in creating digital worksheets and learning how to incorporate them into their lessons. Through ongoing mentoring and evaluation, teachers are encouraged to reflect on their teaching practices and adapt to the new technologies.

The theoretical foundation of this initiative is supported by a growing body of research that emphasizes the importance of teacher training and technological integration for improving educational outcomes. Studies have shown that when teachers are adequately trained to use technology, they are more likely to create engaging lessons that foster student motivation and achievement Papastergiou (2009). Moreover, the sustainable use of educational technology in rural communities has been shown to require ongoing support and the development of teachers' technological competencies Bect (2004). By drawing on these findings, the program seeks to address both the immediate needs of the teachers in Karo Regency and the long-term goal of creating an educational system that is more inclusive and technology-driven.

This article will outline the design, implementation, and outcomes of the mentoring program in Karo Regency, analyzing how the use of *Liveworksheet* helped empower teachers and foster a more engaging learning environment for students. It will also discuss the implications of this community empowerment model for other rural areas, where similar educational challenges persist. The program's success highlights the transformative potential of community engagement initiatives that focus on building local capacity and sustainable development in education.

2. Method

This community service program was implemented through a series of systematic phases to address the challenges faced by the partner community, in alignment

with participatory approaches to community empowerment Checkoway (2011). The project aimed to enhance the competency of primary school teachers in using digital learning tools, specifically the *Liveworksheet* platform, to improve the teaching and learning process. The following phases were implemented to ensure an effective and sustainable impact.

Phase 1: Socialization and Needs Assessment

The first phase of the program was socialization, during which the service team introduced the program to the primary school teachers at SD Negeri 044852 in Bukit Village. This phase included a program presentation, discussions to understand the teachers' needs, and the development of a collaborative work plan. The teachers played an active role in providing input regarding the challenges they faced in their classrooms, as well as their hopes for the program. This participatory approach allowed the team to identify specific areas where digital learning tools could be most beneficial, ensuring that the program addressed the unique needs of the teachers Kisanga & Ireson (2015).

Phase 2: Teacher Training

The second phase involved conducting a hands-on, interactive workshop designed to improve the teachers' skills in using *Liveworksheet*, a digital worksheet platform. The workshop included simulations of how to create interactive quizzes and digital worksheets. This method of training, through direct engagement with the technology, is consistent with recommended practices for developing Information and Communication Technology (ICT) skills among teachers Gunter, Gunter, & Easton (2007). Teachers were guided step-by-step through the process of creating and customizing worksheets that could be integrated into their lessons. The goal was not only to familiarize the teachers with the platform but also to help them recognize the potential of digital tools in fostering a more engaging and interactive classroom environment Papastergiou (2009).

Phase 3: Technology Implementation

In the third phase, teachers began implementing the digital learning tools they had created during the training into their classroom lessons. This phase allowed the teachers to apply their new skills in a real-world context, while also facing the challenges of integrating technology into their established teaching practices. As part of this process, teachers were encouraged to report any difficulties they encountered during the application of the technology. This feedback was essential in identifying areas where additional support or adjustments were needed, ensuring that the implementation process was

both effective and adaptive to the teachers' needs Harris & Hofer (2011).

Phase 4: Mentoring and Evaluation

The fourth phase focused on providing continuous mentoring and evaluation. In this phase, the service team offered both in-person and online technical support to help teachers resolve challenges and improve their digital teaching methods. The mentoring was personalized to ensure that each teacher received the necessary guidance to overcome their specific obstacles. Periodic evaluations were conducted to assess the effectiveness of the program, measuring both the teachers' ability to use the digital tools and the impact of these tools on student engagement and learning outcomes. This iterative approach of mentoring and evaluation aligns with best practices for sustaining the integration of technology in education Becta (2004); Sälzer & Klieme (2013).

Phase 5: Program Sustainability

The final phase focused on ensuring the sustainability of the program, aiming to empower the teachers to continue using *Liveworksheet* independently after the program had concluded. This was achieved through the creation of a comprehensive guide for teachers on how to use *Liveworksheet*, as well as providing additional training for newly hired teachers at the school. To further support the long-term use of technology, a technology working group was formed within the school. This group, consisting of teachers interested in maintaining and expanding the use of *Liveworksheet*, would serve as a peer-support network to ensure the continued integration of digital learning tools into the classroom.

In conclusion, the community service program followed a participatory and structured approach to improve the digital competencies of teachers, ensuring that both short-term and long-term objectives were met. The program utilized interactive workshops, continuous mentoring, and sustainable strategies to empower the teachers in Bukit Village to independently integrate technology into their teaching practices.

3. Result and Discussion

The implementation of the community service program in SD Negeri 044852, Bukit Village, was successful in improving teachers' competencies in utilizing *Liveworksheet* as an interactive digital learning tool. The program proceeded through its planned phases, and the results demonstrated positive impacts on both teachers and students.

Phase 1: Socialization and Needs Assessment

During the socialization phase, teachers actively engaged in discussions and provided valuable input regarding their teaching challenges. The needs assessment revealed that many teachers lacked familiarity with educational technology and faced difficulties in motivating students. The participatory nature of this phase allowed teachers to express their needs, which formed the foundation for tailoring the subsequent training to their specific challenges. Teachers expressed enthusiasm about the potential of *Liveworksheet* to address the engagement issues they had been facing.

Phase 2: Teacher Training

The training phase resulted in a noticeable increase in teachers' confidence and competence in using digital tools. In the workshop, teachers created sample *Liveworksheet* digital worksheets and quizzes. Feedback from teachers indicated that they found the hands-on approach particularly useful in learning how to create and integrate digital resources into their lessons. As a result, by the end of the training, all participating teachers were able to independently create customized digital worksheets. Teachers reported feeling more equipped to use these tools to support interactive and differentiated learning, which is consistent with previous research highlighting the importance of interactive training methods for technology adoption Gunter & Easton (2007); Harris & Hofer (2011).

Phase 3: Technology Implementation

During the implementation phase, teachers applied the digital worksheets in their classrooms. Teachers reported increased student engagement, as the interactive nature of the worksheets helped sustain students' interest and facilitated more active participation. Many teachers noted that students were more enthusiastic about completing digital tasks compared to traditional paper-based assignments. Furthermore, students were able to receive immediate feedback on their work, which contributed to their understanding of the material.

However, some challenges emerged during this phase. A few teachers encountered technical difficulties, such as inconsistent internet connectivity and difficulties with the platform's advanced features. Despite these issues, the teachers were able to resolve most of them with guidance from the mentoring team, which demonstrates the value of ongoing support and mentorship in the effective integration of technology Becta (2004).

Phase 4: Mentoring and Evaluation

In the mentoring phase, teachers received personalized support, both in person and online, to help them address any challenges they faced while using *Liveworksheet*. The mentoring sessions proved essential in resolving technical difficulties and ensuring that the teachers were

using the platform effectively. Periodic evaluations indicated that teachers were increasingly comfortable with *Liveworksheet* and began to integrate it into a variety of lessons. Teachers reported that the tool improved the diversity of their teaching methods, and many noted an improvement in student participation and overall learning outcomes.

The evaluations also revealed that while teachers became more proficient in using the tool, some were still hesitant to fully explore advanced features of *Liveworksheet*. This finding underscores the importance of continued support and training to ensure that teachers can maximize the potential of digital tools in their teaching practice Papastergiou (2009).

Phase 5: Program Sustainability

In the final phase, the program focused on ensuring that the teachers at SD Negeri 044852 would continue using *Liveworksheet* independently after the program concluded. A comprehensive user guide was created, and additional training was provided for newly hired teachers. A technology working group was also established within the school, which will serve as a peer-support network for teachers interested in using educational technology. Early feedback suggests that this structure has fostered a sense of ownership among the teachers, who now feel more confident in using the digital platform on their own.

The sustainability of the program was further supported by the establishment of the working group, which will provide ongoing training and support. This approach aligns with research that emphasizes the importance of creating local support structures for the sustained use of technology in education Sälzer & Klieme (2013).

The findings from this community service program align with previous research on the positive impact of technology training and the use of digital tools in improving educational outcomes. The participatory approach in the socialization and needs assessment phases was key to ensuring that the program was tailored to the specific needs of the teachers in Karo Regency, a rural area that has historically struggled with integrating modern teaching technologies. By actively involving teachers in identifying their challenges and needs, the program fostered a sense of ownership and commitment, which has been shown to be crucial in the success of community empowerment initiatives Checkoway (2011). The training phase also confirmed the effectiveness of interactive, hands-on workshops in increasing teachers' confidence and competence in using digital tools. Studies have shown that interactive, practice-based learning is the most effective method for developing teachers' ICT skills Gunter et al. (2007). By equipping teachers with the skills to create their own digital materials, the program empowered them to adopt a more dynamic and student-centered approach to teaching.

The challenges faced during the technology implementation phase, particularly related to technical issues, reflect the broader obstacles that many rural schools face in adopting educational technologies. These issues underline the importance of ongoing technical support and the need to address infrastructure limitations, such as internet connectivity, which can hinder the effective use of digital tools Kozma (2003). Despite these challenges, the teachers' ability to overcome these barriers with the support of the mentoring team highlights the importance of a strong support system to ensure successful technology integration.

Finally, the focus on sustainability in the program was essential for ensuring that the teachers could continue to use *Liveworksheet* after the conclusion of the formal training. By establishing a technology working group and providing continued training for new teachers, the program created a support network that will help maintain and expand the use of digital tools in the long term. This approach is consistent with recommendations for fostering sustainable technology use in education, which emphasizes the need for local capacity-building and peer support networks Becta (2004); Sälzer & Klieme (2013).

4. Conclusion

The community empowerment program conducted in SD Negeri 044852, Bukit Village, successfully addressed the challenges faced by teachers in rural Karo Regency in utilizing digital learning tools. Through a systematic and participatory approach, the program effectively enhanced teachers' competencies in using *Liveworksheet*, an interactive digital tool, in their teaching practices. The results demonstrated a significant improvement in teacher confidence and student engagement, as teachers were able to integrate digital worksheets into their lessons, fostering a more interactive and motivating learning environment for students.

Despite facing some challenges, particularly related to technical issues and infrastructure limitations, the program's approach to providing continuous mentoring and support proved to be crucial in overcoming these barriers. By establishing a sustainable support network within the school, including a technology working group and ongoing training for new teachers, the program ensured that the teachers would continue to use and benefit from *Liveworksheet* even after the formal activities concluded.

This initiative highlights the transformative potential of community engagement and participatory approaches in empowering teachers in rural areas. The success of the program demonstrates that, with appropriate training, resources, and sustained support, teachers in rural schools can overcome technological barriers and enhance the quality of education for their students. The findings of this program serve as a model for similar initiatives in

other rural areas, where technology integration in education remains a critical challenge. Ultimately, this program contributes to the broader goal of improving educational equity and access in underserved communities.

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