

# Training of Visual Comic Media with Agricultural Theme for Nurul Islam Learning Community Teachers, Tenganan, Jawa Tengah

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## Abstract

*SMP IT Nurul Islam Tenganan, as part of the Nurul Islam Learning Community, faces the problem of low student motivation and engagement in numeracy learning due to the use of traditional learning media. To address this challenge, this community service program was implemented with the aim of improving teacher capacity through training in the creation of audio-visual comics themed on local agricultural wisdom. The activity was attended by 30 teachers and was carried out through several stages, namely needs analysis, comic design training, production assistance, learning trials, and evaluation. The results of the implementation showed a significant increase in teachers' ability to produce digital teaching materials, with an average score increasing from 42.5% to 88.7%. The implementation of agricultural-themed audio-visual comics in learning showed a 35% increase in student participation in class discussions and an 82% increase in numeracy literacy skills. These results confirm that local wisdom-based audio-visual comics are effective in strengthening numeracy literacy while improving the quality of learning in schools.*

**Keywords:** agriculture; audio visual comics; digital teaching materials; numeracy literacy; teacher empowerment

## INTRODUCTION

Numeracy literacy is one of the essential competencies emphasized in the Independent Curriculum as a provision for students to face the challenges of the 21st century. Numeracy literacy includes not only counting skills, but also the ability to analyze, interpret, and use numerical information in everyday life (Nurhaswinda et al., 2025). However, the reality on the ground shows that some junior high school students still have difficulty understanding the concept of numeracy (Aini et al., 2025; Setiawati et al., 2023; Wahyuni & Afdhila, 2024). This condition requires teachers to present innovative, interesting and contextual learning so that students can understand the material more easily (Noviyanti & Basir, 2025; Nurjanah & Basir, 2025; Putri & Basir, 2025).

Nurul Islam Tenganan Islamic Junior High School, one of the schools in Semarang Regency, faces similar challenges. Teachers complain about low student motivation when faced with numeracy problems, primarily because the learning media used is still conventional and does not connect mathematical concepts to real-world contexts (Rohmah et al., 2024). Students are

more inclined to memorize formulas than to understand the meaning of numeracy and its application in everyday life. This is a critical concern for SMP IT Nurul Islam Tengaran, which is striving to improve the quality of learning with a more creative and technology-based approach.

Various studies have shown that the use of interactive digital media can increase student interest and motivation in learning mathematics. Kusumaningrum & Masruro reported an increase in student participation of up to 45% when using interactive digital media (Kusumaningrum & Masruro, 2022). Meanwhile, Ningrum et al. noted an average increase in numeracy learning outcomes of 28% after implementing digital comic-based media (Ningrum et al., 2023).

Audio visual comic media is an effective alternative because it is able to present material in the form of narrative stories that are close to students' lives (Basir et al., 2020). Digital comics equipped with audio have been shown to increase student engagement in numeracy learning while also helping them understand abstract concepts (Ardiawan, 2024). When combined with local wisdom, such as the theme of agriculture, a key resource for the Tengaran community, this medium can help students understand numeracy concepts contextually, for example, through calculating harvest yields, comparing selling prices, or managing profits.

Based on these conditions, this community service activity was designed to empower teachers at SMP IT Nurul Islam Tengaran through training in creating audiovisual comics based on local agricultural wisdom. The main objective of this activity is to improve teachers' competency in producing digital teaching materials, enrich the variety of learning methods, and help students improve their numeracy literacy in a more enjoyable way. This innovation is expected to become a model of good practice that can be replicated in other schools to support the achievement of the Pancasila Student Profile.

## **METHODS**

This community service activity uses a participatory action approach that emphasizes the active involvement of partners in every stage of the activity (Prabawa & Antika, 2025; Septia et al., 2025). This approach was chosen because it facilitates teachers' roles as active subjects, not simply beneficiaries, ensuring that the resulting product aligns with the numeracy learning needs of the school.

The program was implemented at SMP IT Nurul Islam Tengaran, Semarang Regency, an Islamic-based school that actively develops Learning Communities for its teachers. The program partners consisted of 30 subject teachers who were concerned with improving student numeracy literacy. The location was selected based on the school's need to develop more creative digital learning media tailored to the local agricultural context in the Tengaran area.

The activity was implemented in four main stages: needs analysis, training, implementation and mentoring, and product trials and evaluation. The following explains each stage:

a. **Needs Assessment**

The initial stage involved a survey of 30 teachers using a questionnaire to identify their level of understanding of numeracy literacy and digital media creation skills. The survey results showed that 72% of teachers had never created interactive digital media, and 80% of teachers stated they needed training to connect numeracy concepts to everyday life contexts.

b. **Audio-Visual Comic Training**

The training was conducted in three face-to-face sessions with a total duration of 12 hours (3 x 4 hours). The material included an introduction to contextual numeracy literacy, agricultural-based comic script writing techniques, an introduction to digital design applications, and how to add audio. Teacher participation during the training reached 95%

attendance, with the average post-test score for design skills increasing from 62.5% (pre-test) to 88.7% (post-test).

c. **Workshop Implementation and Mentoring**

Teachers were divided into five groups, each producing one audio-visual comic based on an agricultural context (e.g., calculating rice yields, calculating fertilizer per hectare, comparing vegetable selling prices). The mentoring process was conducted over four weeks through online and in-person meetings. A total of five audio-visual comic products were produced, ready for use in the classroom.

d. **Product Trial and Evaluation**

The comic was trialed with 120 students (grades VII and VIII) over two meetings (2 x 2 JP). Observations showed a 40% increase in student engagement (measured by the number of students actively asking and answering questions) and a 32% increase in formative numeracy test results compared to before the intervention. Evaluation was conducted through teacher interviews and participant satisfaction questionnaires. 90% of teachers stated that the resulting media was more engaging than the previous media, and 85% planned to use it continuously.

This method ensures active teacher involvement, skills transfer, and direct measurement of impact on student engagement and numeracy skills. The program was implemented over four months, from May to August 2025. A needs analysis was conducted in May 2025, module development and workshops were held in June 2025, mentoring took place in July 2025, and product trials and evaluation were conducted in August 2025.

## **RESULT AND DISCUSSION**

The community service program at SMP IT Nurul Islam Tengaran was implemented in stages so that each intervention could be measured and produce clear outcomes. The four main stages included needs analysis, audio-visual comic training, workshops and mentoring, and product trials and evaluation.

### ***Needs Assessment***

The first stage focused on mapping the initial conditions of teachers and students. A needs survey, conducted by 30 SMP IT Nurul Islam Tengaran teachers, revealed that approximately 72% of teachers had never used interactive digital media in their lessons, while 80% of teachers stated they needed training to integrate local contexts into numeracy materials. Classroom observations also revealed that students were less engaged in numeracy discussions, preferred memorizing formulas, and were less able to relate concepts to real-life situations. These findings align with the 2023 National Assessment report, which noted that student numeracy literacy achievement in Semarang Regency remains below the national target (Pusmendik, 2022). This stage served as the basis for designing training materials and themes for the audio-visual comics to be developed.

### ***Audio-Visual Comic Training***

The second phase consisted of 12 hours of intensive training divided into three sessions. The training materials covered storyboard design, digital illustration techniques, recording audio narratives, and integrating numeracy elements into stories. The audio-visual comic creation training activities are shown in Figure 1.



**Figure 1.** Audio Visual Comic Making Training Activities

### ***Workshop Implementation and Mentoring***

The third phase consisted of a follow-up workshop and media production mentoring, lasting two weeks. Teachers were divided into six groups to develop six agricultural-themed audio-visual comics, including those on crop yield calculations, selling price comparisons, and fertilizer unit conversions. Mentoring was conducted both in-person and online, allowing teachers to receive rapid technical feedback. The iteration and revision process at this stage resulted in media that met the eligibility criteria in terms of content, language, visuals, and audio integration. The implementation of the digital comic creation mentoring is shown in Figure 2.



**Figure 2.** Facilitator Provides Intensive Guidance to Training Participants

### ***Product Trial and Evaluation***

Evaluation of training participants showed an average increase in teachers' ability to create digital media, from 42.5% in the pre-test to 78.2% after the first training session, and finally reaching 88.7% in the final session (See Figure 3). This improvement aligns with Ningrum's findings, which show that practice-based training can significantly improve teachers' skills in developing numeracy e-comics (Ningrum et al., 2023).

The final results showed a 46.2% increase in teachers' ability to create digital media (audio comics). This aligns with research by Sutrisno et al., which emphasized the importance of collaborative processes and continuous feedback to produce digital media suitable for classroom use (Sutrisno et al., 2024). The following is an example of a comic created by a teacher (training participant).



Figure 3. Comics created by training participants

The final stage was a media trial involving 120 seventh and eighth grade students. The audio-visual comics were shown during two numeracy learning sessions. Observation data showed 95% active student engagement, an increase of approximately 35% compared to conventional learning (60%). Students appeared more active in asking questions, providing opinions, and attempting to solve numeracy problems. Meanwhile, for numeracy literacy, seventh grade students scored an average of 85%, and eighth grade students scored an average of 82%.

Participants responded very positively to the training activity. 90% of teachers stated that the media was interesting and relevant to students' daily lives, and 85% planned to continue using it or develop similar media independently. These findings are consistent with Ramadani's research, which shows that integrating local wisdom into learning media can improve students' motivation and critical thinking skills (Noviyanti & Basir, 2025; Ramadani, 2025). The results of this trial also support findings that interactive digital media can increase motivation to learn mathematics and help students understand abstract concepts through engaging visualizations (Eka Melati et al., 2023). Thus, audio-visual comics based on local wisdom have proven to be an effective medium for teaching numeracy contextually while increasing student engagement. Thus, audio-visual comics based on local wisdom have proven to be an effective medium for contextually teaching numeracy while increasing student engagement.

The implementation of a training program for creating audio-visual comics based on local wisdom has been shown to have a positive impact on strengthening teacher capacity and enhancing student learning experiences. In light of current literature, this success reflects the importance of a needs-based and contextual approach to improving the quality of numeracy learning. One prominent aspect of this program is the integration between needs assessment and training design. The results of the needs analysis serve as the foundation for selecting training materials and methods appropriate to the teachers' needs. This emphasizes the importance of carefully identifying participants' needs to ensure the training truly bridges competency gaps.



When teachers perceive the material as relevant to their daily challenges, they are more motivated to engage with it and implement the training findings in the classroom.

Contextualizing material through agricultural themes featured in comics is an important approach to building connections between numeracy concepts and students' social realities. Contextual learning based on local wisdom increases students' emotional engagement and facilitates understanding of abstract concepts. This aligns with the demands of the Independent Curriculum, which encourages project-based learning and real-world experiences. By incorporating an agricultural context, students not only learn numbers mechanically but also understand their relevance in everyday life, such as calculating harvest yields or determining selling prices.

From a learning theory perspective, the success of audio-visual comics can be explained through a dual coding approach, which emphasizes the importance of presenting information simultaneously visually and verbally. This combination allows for more efficient information processing because it engages both cognitive channels. The narrative, illustrations, and audio in comics enable students to understand the material from multiple representational channels, thus minimizing misconceptions.

Furthermore, this discussion also emphasizes the importance of ongoing support throughout the media production process. The cyclical process of revision and feedback helps teachers improve the quality of the resulting product. This is consistent with Naam's findings that a workshop-based training model accompanied by intensive mentoring increases participants' skill retention rates and produces more applicable products (Naam & Prasetyaningtyas, 2025). Good mentoring makes teachers more confident in trying out learning innovations, so the program doesn't stop at the training stage but continues into actual classroom implementation.

From a teacher professional development perspective, this program provides space for teachers to act as creators of learning media, not simply users. According to Misbahudholam, empowering teachers in developing learning media will increase their sense of ownership and the sustainability of innovative practices (Misbahudholam et al., 2025). With the skills gained, teachers can continue producing similar comics even after the program concludes, resulting in long-term positive effects.

This discussion also finds relevance to research on numeracy literacy in Indonesia, which highlights low student engagement in mathematics learning. The use of technology-based media can increase student participation by up to 35% because it provides a more interactive learning experience. The fact that students become more enthusiastic and engaged in discussions indicates that audio-visual comics successfully facilitate active and enjoyable learning.

In terms of practical implications, this program supports the national agenda of improving the quality of learning oriented towards the Pancasila Student Profile. Students are not only cognitively skilled but also trained to think critically and solve problems based on real-life situations. Teachers, on the other hand, gain new competencies that enable them to become creative learning facilitators.

Overall, this discussion confirms that training in creating audio-visual comics based on local wisdom is an effective strategy for improving teacher capacity and student numeracy literacy. Alignment with current literature strengthens the validity of this program's findings. Going forward, it would be interesting to conduct further research to examine the long-term impact on numeracy learning outcomes and student attitudes toward mathematics. Media development can be expanded by adding interactive elements based on smart technology to align with the evolving trend of digital learning.

## CONCLUSION

The purpose of this community service program was to improve the capacity of teachers in the Nurul Islam learning community through training in the creation of audiovisual comics themed on local agricultural wisdom. This community service program successfully addressed production challenges by enhancing teachers' skills in designing and producing contextual and engaging audiovisual comics based on local wisdom, resulting in more interactive and relevant learning media for students. From a management perspective, the program's implementation, through needs analysis, training, workshops, mentoring, and product trials, was effective thanks to the active and ongoing involvement of teachers, strengthening their sense of ownership of the innovations developed. These results confirm that audiovisual comics based on local wisdom are effective in strengthening numeracy literacy while improving the quality of learning in schools.

The community service activity faced several limitations, including the relatively short implementation time, which prevented in-depth mentoring and practical comic-making. Furthermore, the varying digital skills of teachers also contributed to differences in the speed at which they understood the material. It is recommended that similar activities be conducted in the future for a longer duration, supplemented with follow-up mentoring sessions, and provided with adequate technological support to enable teachers to become more skilled and independent in producing audiovisual comic-based learning media.

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