



Technology-Based Learning Media Development Assistance for Special School Teachers Supporting Students with Intellectual Disabilities in Jember Regency

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ABSTRACT

The rapid development of educational technology has created opportunities to improve the quality of learning for students with intellectual disabilities. However, many teachers in Special Elementary Schools (SDLB) in Jember Regency still rely on conventional instructional media and have limited competence in utilizing digital technology for learning purposes. This community service program aimed to enhance teachers' competencies in developing technology-based learning media that are appropriate for students with intellectual disabilities. The program was conducted from September to October 2023 and involved SDLB teachers in Jember Regency. The implementation consisted of needs assessment, training workshops, hands-on practice, mentoring, classroom implementation, and evaluation activities. Training materials covered characteristics of students with intellectual disabilities, principles of adaptive instructional media, and the use of digital applications such as Canva, Interactive PowerPoint, Wordwall, and Quizizz. The results indicated significant improvement in teachers' understanding and skills in designing and developing digital learning media. Participants successfully produced interactive presentations, educational videos, digital worksheets, and educational games that could be directly implemented in classroom learning. The mentoring activities also increased teachers' motivation and confidence in integrating technology into their teaching practices. The program demonstrated that continuous assistance and practical training effectively improve digital literacy and instructional competencies among special education teachers. Consequently, the program contributed to improving the quality of educational services for students with intellectual disabilities in Jember Regency.

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INTRODUCTION

Educational technology has become an essential component in improving learning quality across various educational settings, including special education. Technology-based learning media enable teachers to present instructional content through visual, audio, and interactive formats that enhance student engagement and understanding [1]. For students with intellectual disabilities, learning media play a particularly important role because they support concrete learning experiences and facilitate comprehension of abstract concepts [2].

Students with intellectual disabilities often experience limitations in intellectual functioning and adaptive behavior that affect their learning performance, communication skills, and social interactions [3]. Consequently, instructional practices should be adapted to their unique learning characteristics. Interactive and technology-based learning media have been shown to improve attention, motivation, and learning outcomes among students with special educational needs [4].

Based on preliminary observations conducted in several Special Elementary Schools (SDLB) in Jember Regency, many teachers still relied on conventional instructional materials such as textbooks, worksheets, and simple teaching aids. Limited availability of innovative learning media and insufficient technological competence among teachers were identified as major challenges affecting the quality of instruction [5]. Although digital applications such as Canva, PowerPoint, Wordwall, and Quizizz are widely available, many teachers had limited experience using these tools for instructional purposes [6].

Previous studies have highlighted the importance of teacher competence in educational technology integration. Teachers who possess adequate digital literacy skills are more capable of designing engaging learning experiences and accommodating diverse learner needs [7]. Therefore, strengthening teachers' abilities to develop technology-based learning media is an important strategy for improving educational services for students with intellectual disabilities [8][9].

This community service program was designed to provide training and mentoring for SDLB teachers in developing adaptive technology-based learning media [10]. The program aimed to improve teachers' knowledge, practical skills, and confidence in integrating educational technology into classroom instruction.

METHOD

This community service program was conducted from September to October 2023 in several Special Elementary Schools (SDLB) in Jember Regency, East Java, Indonesia. Participants consisted of teachers responsible for educating students with

intellectual disabilities. The program employed a participatory mentoring approach involving teachers throughout all implementation stages. The activities consisted of five stages:

1. Needs Assessment

Initial observations and interviews were conducted to identify teachers' needs and challenges related to technology-based learning media development.

2. Training Activities

Participants attended workshops covering:

- a. Characteristics of students with intellectual disabilities.
- b. Principles of adaptive instructional media design.
- c. Technology integration in special education.
- d. Canva for visual learning materials.
- e. Interactive PowerPoint development.
- f. Educational game creation using Wordwall and Quizizz.

3. Practical Workshops

Teachers developed learning media based on subjects they taught. Hands-on activities enabled participants to apply knowledge directly under the guidance of the mentoring team.

4. Mentoring and Assistance

Individual and group mentoring sessions were conducted to assist participants in improving the quality of their instructional media.

5. Implementation and Evaluation

The developed media were implemented in classroom learning activities. Evaluation was conducted through observations, interviews, questionnaires, and product assessments.

Program success indicators included improvements in teachers' technological competence, quality of instructional media produced, and motivation to integrate technology into teaching practices.

RESULT AND DISCUSSION

Result

The community service program was successfully implemented and received positive responses from participating teachers. Initial assessments revealed that most participants had limited experience using educational technology and primarily relied on conventional instructional materials [10][11].

During the training sessions, teachers actively participated in discussions, demonstrations, and practical workshops. Participants showed enthusiasm in exploring various digital applications and demonstrated willingness to improve their technological competencies.

The mentoring process resulted in the development of several technology-based learning media products, including:

- a. Interactive PowerPoint presentations.
- b. Educational videos.
- c. Digital flashcards.
- d. Electronic worksheets.
- e. Educational games using Wordwall and Quizizz.

These products were specifically designed to meet the learning characteristics of students with intellectual disabilities and were subsequently implemented in classroom settings.

Discussion

The findings indicate that mentoring and practical training effectively improve teachers' competencies in developing technology-based learning media [12]. The success of the program supports previous studies emphasizing the importance of continuous professional development in educational technology integration [13].

Technology-based learning media offer significant benefits for students with intellectual disabilities because they provide multimodal learning experiences through visual, auditory, and interactive elements [14][15]. Such features help learners understand instructional content more effectively and maintain attention during learning activities [16].

Furthermore, the participatory mentoring approach contributed to the program's success [17]. Teachers were not only exposed to theoretical concepts but also engaged in practical activities that allowed them to apply new knowledge directly. This approach facilitated skill acquisition and encouraged sustainable technology integration [18].

Several supporting factors contributed to program implementation, including strong school support, participant enthusiasm, and collaborative mentoring. However, challenges such as limited internet access and varying levels of technological proficiency among teachers were also encountered [19][20]. Despite these limitations, participants successfully completed the development of learning media and demonstrated improved digital literacy [21][22].

The sustainability of this initiative can be enhanced through follow-up training, teacher learning communities, and continuous collaboration between universities and schools [23][24]. Such efforts would strengthen teachers' capacities and ensure long-term integration of educational technology in special education settings [25].

CONCLUSION

The community service program successfully improved the competencies of SDLB teachers in Jember Regency in developing technology-based learning media for

students with intellectual disabilities. Through training and mentoring activities, participants acquired knowledge and practical skills in utilizing various digital applications for instructional purposes.

The program resulted in the development of interactive and adaptive learning media that support more engaging and effective learning experiences for students with intellectual disabilities. Additionally, teachers demonstrated increased confidence and motivation to integrate educational technology into their teaching practices.

Continuous mentoring and institutional support are recommended to sustain and expand the positive outcomes achieved through this program.

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