THE EFFECTIVENESS OF GENTA EDUCATIONAL GAMES IN OPTIMIZING THE POTENTIAL OF CHILDREN WITH SPECIAL NEEDS: A STUDY ON TEACHERS AT SDN JULANG

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Abstract:

This study aims to enhance the competencies of SDN Julang teachers in optimizing the potential of students with special needs (ABK) through the Game and Educational Tool for Talent Development (GENTA). Using a participatory action research approach, 52 participants (teachers and parents) were trained via workshops and mentoring. Pre- and post-test results showed a 40.7% improvement in understanding ABK concepts, a 56.6% increase in digital media use, and a 63.6% enhancement in implementing GENTA. Qualitative data indicated that 90% of teachers found GENTA effective in increasing ABK students' motivation. Additionally, students exhibited significant progress in focus and social engagement. This program demonstrates the efficacy of integrating educational games to foster inclusive education and highlights the need for ongoing training to ensure sustainability.

Keywords: *Inclusive education, educational games, teacher training, special needs education, GENTA*

INTRODUCTION

The development of inclusive education in Indonesia continues to face many challenges, especially in improving access and quality of educational services for children with special needs (ABK). Data from Dikdas (2021) shows that only 12.26% of school-age children with disabilities receive formal education, far from the expected figure of Hayun et al. (2024). SDN Julang, as one of the providers of inclusive education, faces obstacles in using appropriate technology and learning tools to support the learning process of ABK.

SDN Julang as an inclusive education provider still does not have a special companion in the care of children with special needs, so learning activities and learning services continue to be carried out classically, namely the combination of ABK students with normal students without special companions, one of the attempts to obtain special companions, namely the parents of the students who are used as companions as a solution. Learning media is one of the learning resources that can channel messages to overcome problems related to the meaning and mastery of subjects. Educational games are instructional materials in digital form that can make it easier to deliver topic materials or in the form of learning media.

Previous research has shown that digital-based learning media, such as educational games, can improve students' motivation and cognitive abilities, including those with special needs (Adiwidjaja, 2021). Educational games are not only a means of entertainment but also a way to facilitate the most interactive and   entertaining

learning (Suryani, 2021). However, its application to inclusive education requires intensive training for teachers to be able to use technology effectively.

This article aims to explain the digital technology-based training andguidance approach to improve the competency of SDN Julang teachers to optimize the potential of child abduction.

The main problem is the low proficiency of teachers in designing digital-based learning materials and the use of educational game media. For this reason, this study uses intensive training and mentorship methods that incorporate theory and practice. The program aims to:

1. Improving teachers' understanding of the potential of ABC.
2. Develop teachers' skills in the design and use of educational game-based digital learning materials.
3. Increasing learning outcomes and participation of ABK students through the application of innovative learning media.

The expected results include a 50%-60% increase in teacher competence in the use of educational technology, as well as an increase in the involvement of ABK students in the learning process

RESEARCH METHODS

This study uses a participatory action research approach (PAR), which involves the active participation of teachers, parents, and students of Children with Special Needs at SDN Julang. The aim is to improve teachers' competence to optimize the potential of ABK through training and assistance in the use of teaching materials based on digital educational games, namely GENTA. The aim of the research is teachers from SDN Julang, ABK students, and inclusion education aids in SDN Julang, Bogor City.

Operational Definition The variables of this study include: Teacher competency is the ability of teachers to use digital technology to create inclusive instructional materials. Measured by pre- and post-training comprehension and practice tests. The Talent Education Game (GENTA) is a game-based digital learning tool used to improve the engagement and learning outcomes of ABK students. ABK learning outcomes are measurements of students' cognitive, social, and motor skills before and after using GENTA

The research was conducted at SDN Julang, Tanah Sareal, Bogor City, which is a school that provides inclusion education. The population includes 22 teachers and 18 ABK students at SDN Julang. The research sample was all teachers and students from ABK, who were selected through targeted sampling. Primary data were obtained from the results of pre-test, post-test, and maintenance. The tools used include questionnaires, observation sheets, and GENTA devices. The data collection techniques used are direct observation of learning activities, questionnaires to measure teacher competence before and after training, structured interviews through focus group discussions, and documentation of training and implementation activities.

Data Analysis Techniques: Quantitative analysis: Use a comparison of pre- and post-test scores to measure improvement in teacher competency. Qualitative analysis: The results of interviews and observations are analyzed thematically to identify training successes and implementation challenges. Periodic evaluation: Use performance indicators that include improving teacher competence and engaging ABK students during the learning process. The results of the analysis provide a comprehensive overview of the effectiveness of GENTA digital media- based training and mentorship programs.

RESULTS AND DISCUSSION

The research was conducted after GENTA conducted digital media-based training and mentoring involving 52 people, consisting of teachers and parents of students who were given pre-and post-tests to measure the improvement of their

knowledge and skills to obtain information or to measure knowledge and skills to optimize the potential of ABK through the creation of instructional materials related to digital learning media of Genta educational games. The measurement results are based on pre-and post-test scores with 5 main indicators:

1. Understanding ABK
2. Use of digital-based learning media
3. The Application of Educational Games in Learning
4. Make Rig Material with Genta
5. Effectiveness of Implementing Instructional Materials in Inclusion Classes

Following the implementation of the training program at SDN Julang, the competence of teachers to increase the potential of children with special needs (ABK) was assessed through the use of Talenta (Genta) educational games. This data is processed into the average score for each competency category, before and after the training.
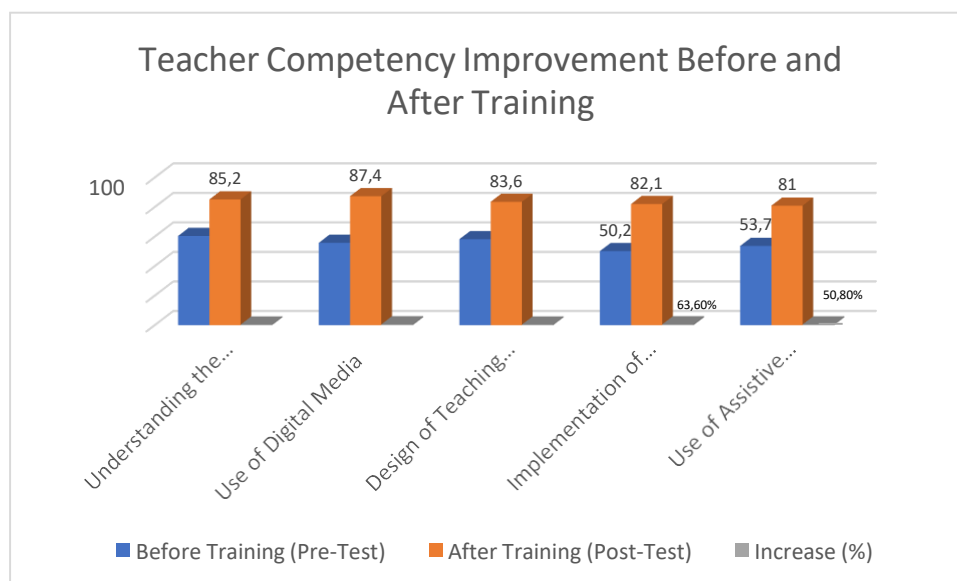

Figure 1. Teacher Competency Improvement Before and After Training

From the data above, it can be seen that there has been a significant increase in all qualification majors, especially in the implementation of the use of Genta educational games (63.6%) and the use of digital media (56.6%). This shows that the training and mentorship provided are very effective in improving the knowledge and skills of teachers in the use of technology and learning aids for children with special needs.

Through interviews with Focus Group Discussions (FGD) conducted during the consultation, the teachers provided positive feedback on the implementation of educational games in the classroom. Here are some qualitative results:

1. Satisfaction with the learning media 90% of teachers believe that Genta educational games provide a different form of educational gaming entertainment for ABK students, improving their ability to participate in learning.

2. The acceptance of ABK students, namely teachers, reported that ABK students showed a high focus on engagement when using Genta educational games compared to conventional teaching methods.

3. Challenges and implementation, namely that some teachers have revealed that it takes more time to prepare for Genta educational play-based learning. The teachers also suggested further training and mentoring so that the use of Genta educational games can be used in other classes or in advanced classes, namely upper classes.
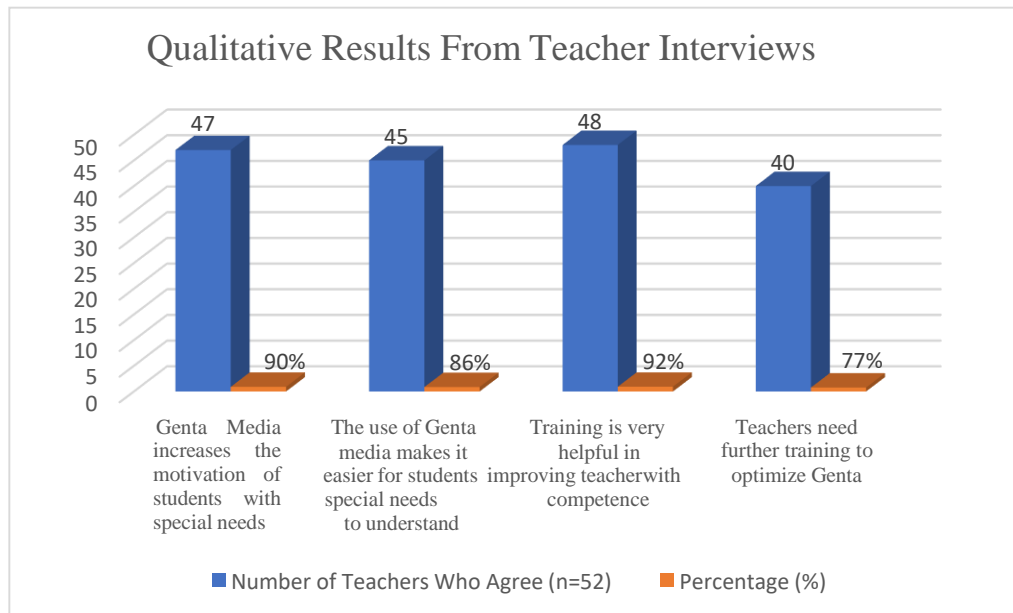

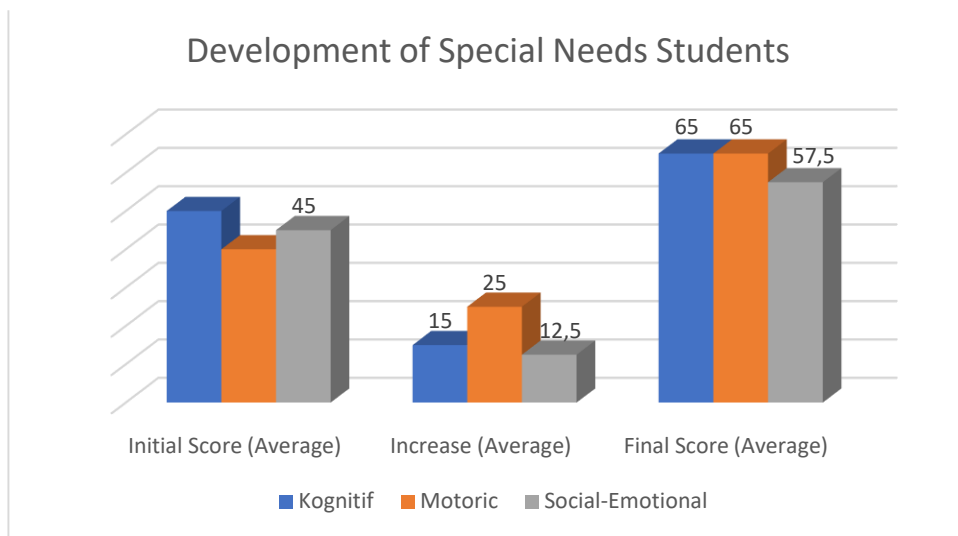Figure 2. Qualitative Results From Teacher Interviews

Figure 3. Development of Special Needs Students

The graph above shows the development of 18 ABK students at SDN Julang after the implementation of the Genta program for 6 months. Here's an analysis of the chart:

1. Cognitive aspects:
   There was a significant improvement in most students. Initially, the score ranged from 40 to 60. After the intervention, the majority of students achieved an improvement of between 10 and 20 points.
2. Motor aspects:

The improvement in this aspect is also noticeable, especially in coordination skills and physical activity. Initial scores are in the range of 30–50, and after the program, many students show an improvement of up to 25 points.

3. Social-emotional aspects:
   The improvement in this aspect is not as high as the other two aspects, but it is still positive. The initial score was in the range of 35–55, and after implementing the JENTA, most students experienced an improvement of about 10–15 points.

The improvement in these three aspects demonstrates the effectiveness of GENTA as an interactive educational tool that can optimize the potential of children with special needs at SDN Julang. The program also provides long-term benefits in building students' independence and social skills.

Discussion

The use of educational games like Genta has proven to be effective in increasing the learning motivation and cognitive abilities of ABK students. Research at SDN Julang shows that training on the use of GENTA helps teachers understand how to integrate technology into ABC learning. As a result, there was a significant improvement in the cognitive, motor, and social-emotional aspects of students after 6 months of using GENTA (Sukmanasa, 2024) According to research by Sánchez & Olivares (2020), digital-based games can increase active participation of students, especially those with learning difficulties. Designed with interactive and engaging visuals, this game is capable of meeting the needs
of students with various problems, such as autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD). Genta itself was designed with this principle in mind, where this game combines intellectual, social, and motor aspects through teamwork that supports the development of social skills and motor configuration of ABK students. (Mastropieri & Scruggs, 2018) emphasize that inclusive learning strategies, such as educational games, enable flexible and adaptable teaching to meet the needs of ABK students. Genta, as a learning medium, offers a learning experience that can be tailored to various levels of student ability. According to Willis (2020), the use of interactive media such as games can stimulate brain areas related to decision-making, problem-solving, and social skills, which are important in the development of ABC. A study by (Xu et al., 2022) said that games like *Fun Ocean Interface* are effective in improving the communication skills of children with cerebral palsy and autism. These results are relevant to the effectiveness of GENTA in stimulating the communication skills of ABK at SDN Julang.

Yusof et al. (2022) highlight the importance of increasing technological literacy among teachers to maximize the use of digital media in inclusive education. The GENTA training contributes to the development of this competency at SDN Julang. Jadhav et al. (2021) found that GBL significantly increased student engagement in inclusive classrooms, supporting a collaborative and interactive learning environment.

This result is in line with research conducted by Adiwidjaja (2021), who stated that the use of game-based educational aids can increase students' learning motivation and intellectual ability, especially for those with special needs. This training has greatly improved the ability of SDN Julang teachers in the application of academic technology, especially in the use of talent learning games (GENTA) to increase the capacity of ABK students. From the measurement results, it can be seen that there has been a significant increase in all aspects of teacher capacity. This is consistent with recent research showing that the use of digital media in inclusive education has a positive impact on the participation of ABK students in learning outcomes.

Recent literature shows that using games in inclusive learning is effective in building a more interactive environment. Jadhav et al. (2021) explained that game-based learning allows teachers to manually tailor instructions to the specific needs of ABK students. This supports more flexible learning, where students can learn from the

way they enjoy and understand better. At SDN Julang, Genta is a great example of game-based learning, which not only improves cognitive skills but also encourages social interaction between ABK and other students. Group games are effective in stimulating students' communication and collaboration skills.

A study by Noor & Ahmed (2019) revealed that one of the biggest challenges in the implementation of digital media and inclusive education is the lack of teachers' ability to use technology. Therefore, training designed to improve teachers' ability to integrate technology into traditional teaching methods is essential. In the problem of SDN Julang, the training program focuses on the development of teachers' skills and strategies and the implementation and evaluation of children's educational games.
The use of GENTA educational games has proven to be effective in improving the development of ABK students at SDN Julang in three main aspects: cognitive, motor, and social-emotional. The greatest improvement occurred in the motor aspect, followed by cognitive, and finally social-emotional. A literature review supports these findings. According to Wong et al. (2019), cognitive interventions involving active and adaptive learning methods can improve information-processing abilities in students with special needs. This is consistent with the implementation of the Genta program which is likely to integrate cognitive stimulation activities through various media and learning strategies. A study by Lai et al. (2020) stated that physical activity-based programs, such as coordination gymnastics and motor games, can improve gross and fine motor skills in ABK students. This shows that interventions such as GENTA have a positive impact on the development of students' motor skills.

The literature of Smith et al. (2021) states that social-emotional-based programs involving group interaction can strengthen communication skills, empathy, and self-control in ABK students. Although the improvement in the graph appears to be moderate, this result remains significant because the social-emotional aspect takes longer to develop consistently.

The implementation of this program reflects the importance of a holistic approach that includes active learning, physical activity, and social interaction to support the development of ABK students. With this success, the GENTA program can be used as a model for similar interventions in other inclusion schools.

CONCLUSION

This study uses a participatory action research approach, 52 participants (teachers and parents) are trained through workshops and mentoring. The results of the pre-and post-test showed a 40.7% increase in understanding the concept of ABK, a 56.6% increase in digital media use, and a 63.6% increase in the application of GENTA Qualitative data shows that 90% of teachers find GENTA effective in increasing the motivation of ABK students. In addition, students show significant progress in focus and social engagement. The program demonstrates the effectiveness of integrating educational games to promote inclusive education and highlights the need for continuous training to ensure sustainability.

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