UTILIZATION OF ASSISTIVE TECHNOLOGY IN SPECIAL NEEDS CHILDREN'S LEARNING (INCLUSIVE EDUCATION)

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Abstract

This study aims to: a) assess teachers' understanding of assistive technology, and b) explore the benefits of assistive technology in the education of children with special needs in inclusive schools. The research was conducted in an inclusive elementary school located in Boyolali, involving both teachers and children with special needs in inclusive education. Data collection methods included closed and open-ended questionnaires and interviews with teachers in inclusive schools. Data analysis employed both quantitative and qualitative descriptive techniques. The research findings indicate that a) 33% of teachers do not yet comprehend the use of assistive technology in education, and b) 48% of teachers require assistance in utilizing assistive technology for the education of children with special needs in inclusive schools. It is expected that the results of this research will serve as a reference for all stakeholders to pay more attention to the importance of utilizing assistive technology in the education of children with special needs in inclusive schools

Keywords: assistive technology, children with special needs, inclusive education

Abstrak

Penelitian ini bertujuan untuk: a) menilai pemahaman guru tentang teknologi bantu, dan b) menggali manfaat teknologi bantu dalam pendidikan anak berkebutuhan khusus di sekolah inklusif. Penelitian ini dilakukan di sekolah dasar inklusif yang berlokasi di Boyolali, melibatkan guru dan anak-anak berkebutuhan khusus dalam pendidikan inklusif. Metode pengumpulan data termasuk kuesioner tertutup dan terbuka dan wawancara dengan guru di sekolah inklusif. Metode pengumpulan data termasuk kuesioner tertutup dan terbuka dan wawancara dengan guru di sekolah inklusif. Analisis data menggunakan teknik deskriptif kuantitatif dan kualitatif. Hasil penelitian menunjukkan bahwa a) 33% guru belum memahami penggunaan teknologi bantu dalam pendidikan, dan b) 48% guru membutuhkan bantuan pemanfaatan teknologi bantu untuk pendidikan anak berkebutuhan khusus di sekolah inklusif. Diharapkan hasil penelitian ini menjadi acuan bagi seluruh pemangku kepentingan untuk lebih memperhatikan pentingnya pemanfaatan teknologi bantu dalam pendidikan anak berkebutuhan khusus di sekolah inklusif.

Kata kunci: Teknologi asistif, anak berkebutuhan khusus, pendidikan inklusif

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INTRODUCTION

Inclusive education provides opportunities for children with special needs to attend regular schools and learn alongside their typically developing peers without separation. Still, it does require certain fundamental conditions to ensure that children with special needs can be effectively accommodated in regular schools. Inclusive education, as an educational service system, mandates that

all children with disabilities be served in the nearest schools, in regular classrooms, alongside their age-mates (Iiahi, 2013; Choiri, 2009; Tarmasyah, 2007).

Greenspan (2006) defines children with special needs as those whose growth and development, in various aspects (physical, mental-intellectual, social, and emotional), significantly differ from their peers of the same age. Children with special needs, who are often labeled as exceptional individuals requiring assistance in their daily activities, are expected to play a role in daily life, both in the school environment and the community, thus necessitating individually tailored education.

During the learning process, students with disabilities require modified or specially designed learning materials that suit their unique characteristics. Assistive technology is a tool designed to be compatible with and facilitate individuals in specific situations (Damayanto, et al., 2021). Assistive technology (AT) is a product that aids students with disabilities in participation and independence (WHO, 2015). AT also provides accessibility to students in various ways, making tasks easier and more manageable than they were previously (Rosita, Rochyadi, and Sunardi, 2020). AT encompasses learning media that require appropriate pedagogical support through teacher training (Magana, 2017). This means that assistive technology includes learning materials that facilitate students with disabilities in their learning, participation, and daily life independence. Unfortunately, training related to AT usage is still limited. Teacher training in inclusive schools primarily focuses on identification, assessment, and the creation of individualized education programs and accommodations (Kemdikbud, 2019).

The Boyolali Regency Government has responded to the Central Government's policies regarding inclusive education by issuing Boyolali Regent Regulation No. 54 of 2012 on Special Education and Special Service Education, and Boyolali Regent Decision No. 336 of 2020 regarding the Designation of Inclusive Education Providers in Boyolali Regency for 2020, including SDN 1 Sukorame Musuk Boyolali. Unfortunately, the designation of 127 inclusive schools was not accompanied by support in the form of training for teachers in these schools or the presence of special education teachers in these inclusive schools. The Boyolali Regency Government continues to develop support systems for the designated schools, including strengthening or equipping classroom teachers, subject teachers, and guidance and counseling teachers with an understanding of and skills related to inclusive education for students with disabilities. Regrettably, the number of Special Education Guidance Teachers (GPK) appointed remains extremely limited, with approximately 80 teachers. Of those, only 15 teachers have received training in inclusive education from the Directorate of Teachers and Educational Personnel of the Ministry of Education and Culture of the Republic of Indonesia. The problem in this research is as follows: 1) What is the level of understanding among teachers regarding assistive technology? 2) How can we describe the utilization of assistive technology in the education of children with special needs in inclusive schools?

METHOD

This research employs a Research and Development approach (Borg and Gall, 2007). The

selected model is a procedural and descriptive one, consisting of five steps, as depicted in Figure 1.
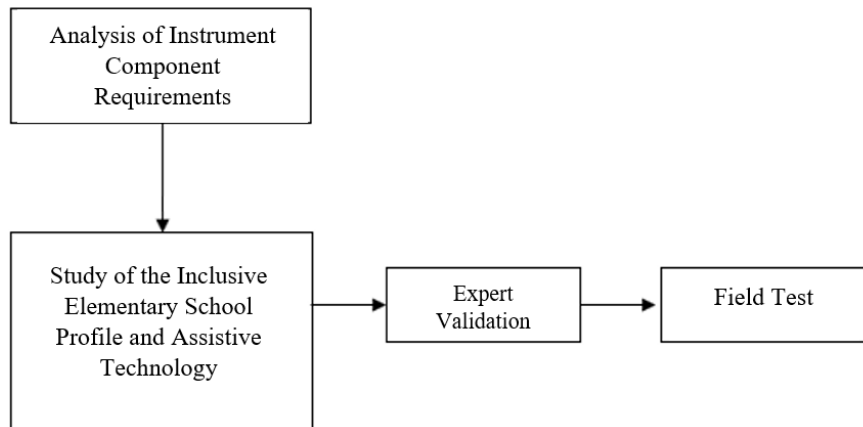
Figure 1. Procedural development model based on Borg and Gall (2007) with modifications

Data collection methods involve questionnaires and direct interviews with 100 elementary school teachers in inclusive schools in Boyolali. Data analysis in this research utilizes both quantitative and qualitative descriptive techniques.

The development procedure consists of five steps, which include: 1) Conducting preliminary research to gather information (literature review, observations in inclusive secondary schools, document analysis), 2) Planning, such as identifying inclusive schools that admit children with special needs, outlining the research instruments, 3) Expert validation, 4) Model testing to collect data on the use of assistive technology in inclusive schools, and 5) Field testing.
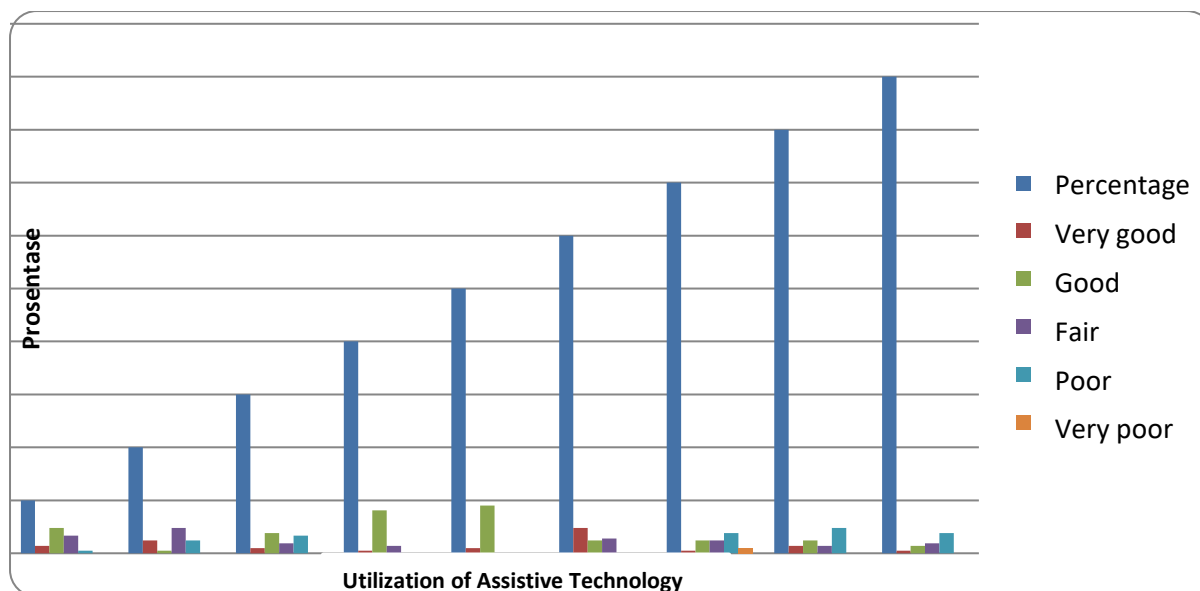
RESULTS AND DISCUSSION

The data collected in the field regarding the understanding of Assistive Technology in the learning of special needs children yielded results as presented in Table 1 below:

Table 1. Understanding of Assistive Technology

Answer	Description of Assistive Technology Understanding								
	1	2	3	4	5	6	7	8	9
Very good	3	5	2	1	2	10	1	3	1
Good	10	5	8	17	19	5	5	5	3
Fair	7	1	4	3	0	6	5	3	4
Poor	1	10	7	0	0	0	8	10	8
Very poor	0	0	0	0	0	0	2	0	0
Total	21	21	21	21	21	21	21	21	21
Very good	14%	24%	10%	5%	10%	48%	5%	14%	5%
Good	48%	5%	38%	81%	90%	24%	24%	24%	14%
Fair	33%	48%	19%	14%	0%	28%	24%	14%	19%
Poor	5%	24%	33%	0%	0%	0%	38%	48%	38%
Very poor	0%	0%	0%	0%	0%	0%	10%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

From this data, it can be represented graphically as follows:

Figure 2. Understanding of Assistive Technology in the learning of special needs children in inclusive schools

Utilization of Assistive Technology

The data collected in the field regarding the utilization of assistive technology yielded the following results:

Table 2. Teacher's Understanding of Assistive Technology

Answer	Total	Percentage
Very good	30	30%
Good	22	22%
Fair	48	48%

From the data in Table 2 above, it can be observed that out of 100 respondents, 30 teachers are highly proficient in utilizing assistive technology in teaching, with 30% showing a high level of mastery. 20 teachers are considered proficient in utilizing assistive technology, with 20% displaying a good level of proficiency, while 48 teachers are considered adequate in their utilization of assistive technology, with a corresponding 48% being categorized as such.

The research findings reveal that the understanding of assistive technology in the education of special needs children in inclusive schools faces challenges. This is evident in the responses to question 8, where 48% of respondents exhibit a lack of understanding of assistive technology. This is further substantiated through interviews with special needs children, who also struggle with comprehending various types of assistive technology, scoring a similar 48%. This situation is influenced by factors such as (a) internal factors within teachers, (b) external factors beyond the teachers, (c) the school's environmental conditions, including facilities and infrastructure, and (d) a lack of training in the use of assistive technology in special needs education.

It is evident that addressing these challenges requires a multi-faceted approach that considers internal factors within teachers, external influences, school environment, and the necessity for

specialized training. In order to effectively support special needs children in their educational journey, it is imperative to address these barriers and provide the necessary resources and guidance for both educators and students.

The utilization of assistive technology tailored to the specific needs of special needs children is also deemed lacking, with a corresponding 48% falling into this category. This aligns with the views of Rosita, Rochyadi, and Sunardi regarding the significant potential of technology in providing access to all learners, facilitating curriculum access, reducing barriers, and promoting easy and efficient accessibility.

CONCLUSION

The research findings in the analysis of understanding indicate that a) 33% of teachers face challenges in understanding assistive technology, b) 38% of teachers overcome challenges in utilizing assistive technology in accordance with the characteristics of the children, and c) 48% of teachers underutilize assistive technology in teaching special needs children, thus necessitating guidance and training on the appropriate use of assistive technology that aligns with the children's characteristics. Based on the conclusions above, there is a need for a support system in the utilization of assistive technology in the education of special needs children in inclusive education to truly serve students in their learning. This should be done collaboratively by teachers, experts, and the community. The objectives of inclusive education, as outlined by Raschake and Bronson, are divided into three parts: for special needs children, for the school, for teachers, and for the community, all of which should be achieved (Marthan, 2017: 189-190).

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