

Information Technology Management in Learning for Children with Special Needs in Special School

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Abstract: Using technology in daily activities has become common and mandatory so that educational development can compete and provide significant opportunities for special schools to improve education and empower students with special needs. However, there has yet to be any research that reveals the planning and organizing of information technology in special needs learning in special schools, making technology-based learning not optimally implemented and challenging to implement. Therefore, this research was conducted using a qualitative descriptive type, with data collection using the triangulation of data sources based on interviews, documentation, and observation data results. The research informants were the principal, vice principal for curriculum, and teachers at state special schools. The research results obtained are of significant importance as they revealed the management of information technology in special needs learning in special schools, which began with planning, and the organizing stage. These results provide valuable insights and recommendations for the effective management of information technology in special needs learning in special schools, addressing the current challenges.

Keywords: Management; Student with Special Needs; Education Management; Learning; Special Schools; Technology Information.

INTRODUCTION

Education in Indonesia is entering the Era of Society 5.0 as an improvement of the Era of Industrial Revolution 4.0. The use of technology in daily activities has become commonplace, and information technology is mandatory so educational development can compete with other organizations (Salmah et al., 2023). To keep up with the times and compete internationally, schools need to familiarize themselves with digital literacy in schools (Sunarti et al., 2024). This digital literacy is not only a way of using the internet but also a way of thinking for students (Syhadah et al., 2024). Information technology has been shown to facilitate and improve the quality of educators and staff in carrying out academic and administrative activities (Ni et al., 2020; Nuryana, 2019). Information technology also provides significant opportunities for special

schools to improve education and empower students with special needs. Budget, Human Resources (HR), and adequate technological equipment support technology-based education (Anggraini & Aprilliana, 2019).

Learning in special schools must adopt an inclusive approach, ensuring all learners have equal learning opportunities regardless of their abilities or conditions. Competent educators must be able to see the abilities of each learner and conduct the learning in a way that is suitable for the learner to improve the quality of learning. In addition, educators must have qualifications that align with the school's current needs. Schools sometimes do not stop educators from improving their qualifications, so educators cannot upgrade themselves (Jesika & Hidayati, 2024). Further, information technology can be utilized as assistive technology or tools to support students with special needs in obtaining equivalent education. One tool that facilitates academic activities in all situations is distance or online learning (Buton et al., 2022). In emergencies, distance learning using the blended learning model can be implemented with the help of technology (Sukirman et al., 2022), where learning can be done anywhere as long as students have electronic devices (Almutairi et al., 2020). In emergencies, there is little time to conduct tests and choose technology, so schools or teachers usually use technology that is often used or familiar (Iglesias-Pradas et al., 2021).

Nevertheless, in reality, schools still encounter numerous challenges in effectively implementing information technology, for instance, inadequate facilities such as internet networks, costs, and even the competence to use information technology in the learning process (Amir et al., 2020)(Bordoloi et al., 2021)(Turnbull et al., 2021)(Sataroh et al., 2024). The results of research conducted in elementary schools stated that the implementation of online learning remains difficult because many students still need Android, parents still need clarification about how to use Android, and the internet network is often lost (DS et al., 2022). In addition, in research (Rohman & Susilo, 2019), the lack of facilities and teacher abilities to use information technology devices is one of the obstacles to the utilization of information technology-based learning media. Even more, the use of learning media at SLB Negeri Bugih Pamekasan, before there was training, could have been much higher. It can be seen from the questionnaire results, which showed that only around 28.4% of teachers had used learning media routinely for each lesson chapter, and around 43% used learning media even though it was not routine. There were still around 28.5% of teachers who had never used learning media at all (Ramadani et al., 2021). In another study (Saharudin et al., 2022), it was revealed that at SMPLB Jambi, teachers did not use the internet with students in classroom learning, apart from the fact that the school provided internet and computer facilities only for teachers and most students did not have personal laptops or internet devices,

also because the use of technology and the internet had only been in schools for about a year before the COVID-19 pandemic. The evaluation of information technology management at the Riau Province Communication, Informatics, and Statistics Office in the field of e-government services using the MEA02 domain exhibited a level of 3.92 or had not been fully met and had not achieved the goals of the organization (Asnal & Gita, 2020). Based on the results of a questionnaire from the study (Jauhari et al., 2020), out of 50 respondents, 16% of physical education teachers have not implemented online learning, with one of the reasons being that teachers do not understand the use of Zoom, Google meet, and other learning applications. The interview results also found that the equipment and infrastructure are expensive (Kurniawan et al., 2021). Numerous teachers must still contribute to the school website and possess an email address (Dwi Herlina, 2020). Another research (Farida, 2019) uncovered that teachers in schools need a higher awareness of the importance of technology in supporting the teaching profession. A study (Pondaag et al., 2021) also reported that existing human resources must be improved for using information technology in teaching and learning activities.

In this case, special schools are very suitable for children with special needs who need more attention and teaching since they will be given particular teaching, which also sees their conditions and situations (Pramartha, 2015). With the help of information technology in learning at special schools, teachers can see each student's needs and find the correct and appropriate learning methods to make it easier for them to understand the material.

Several studies are relevant to this topic, such as research by (Kurniawan et al., 2021) entitled "*Information and Communication Technology-Based Learning Management at SMP Negeri 3 Sungai Lilin*," where their research is almost the same as the researchers' topic, except that their research was conducted in a regular school, not specifically for a special school. Other research was conducted in a special school, such as (Harista, 2021), entitled "Using Media in Learning Indonesian Subjects for Children with Special Needs at SMPLB in Bangka Regency," only that research focused more on the use of media or its implementation than the planning and organizing. **The absence of research** discussing information technology management, especially the planning and organizing of learning for children with special needs in special school, makes this research relevant and essential to conduct

For that reason, **the research problem formulation** includes understanding management, especially the planning and organizing of information technology, in special needs children's learning at Toboali State Special Schools at this time. The study results are expected to overview

information technology management in special needs children's learning, especially at particular schools.

RESEARCH METHODOLOGY

This study employed a **qualitative approach with a descriptive design**. The study was conducted at Toboali State Special Schools and was implemented from September 2023 to January 2024. Primary data were taken from **four informants** using purposive sampling to obtain data. Thus, **the data collection technique** used observation, semi-structured interviews, and documentation. Furthermore, the **data analysis technique** using triangulation with the help of ATLAS ti.8 software applied the Miles and Huberman model (Sugiyono, 2019), encompassing 1) data reduction, 2) data presentation, and 3) concluding/verification. The research flow can be seen in Figure 1.

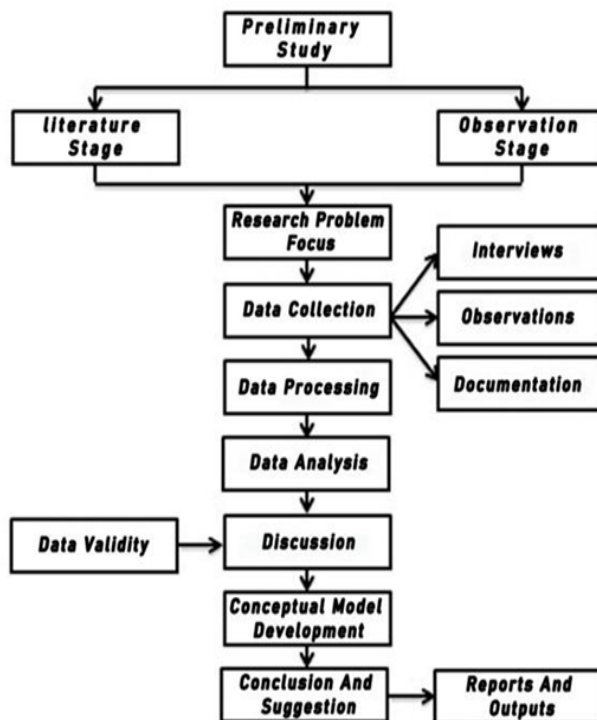


Figure 1. Research flow

RESULTS AND DISCUSSION

Based on the results of interviews and observations with the principal, vice principal for curriculum, and teachers with the help of ATLAS ti.8

software, the results of the study were obtained regarding management based on George R. Terry (Hasanah, 2021), especially the planning and organizing of information technology in children with special need learning at special school. The following are the research results obtained by the researchers.

Planning Information Technology for Learning for Students with Special Needs in Special Schools

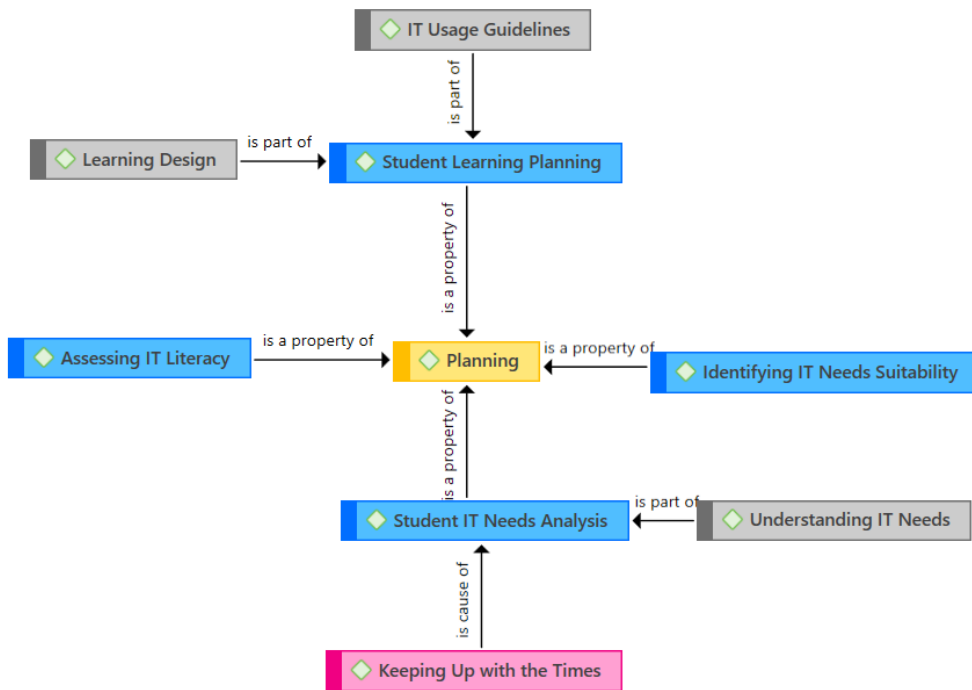


Figure 2. IT Planning Map in Learning

The results of data analysis at Toboali State Special Schools stated that the management of information technology in learning for children with special needs in special schools began with planning. The first step in planning information technology for special needs children's education at this special school was to analyze students' IT needs, as Neneng et al. (2024) supported. This ensures that the IT tools selected are tailored to meet the unique challenges faced by each student, promoting a more inclusive and effective learning environment. At special school Negeri 1 Toboali, an IT needs analysis was conducted to evaluate student abilities before the learning process began. This evaluation is usually carried out by looking at the student's background so that the school has a comprehensive understanding of the student's abilities based on the results of the evaluation that has been conducted. The necessity for an analysis of students' IT needs is based on the demands of today's technological

developments, which is supported by research by Susilowati et al. (2022) and Huong (2020), asserting that for educators who follow developments in the era, learning activities can run better.

The next step was to understand students' IT needs, as supported by research indicating that understanding the specific needs of students with disabilities is foundational for effective educational planning and the integration of assistive technologies (Neneng et al., 2024). Regularly, the school carried out the process of understanding students' IT needs at the beginning of the new school year through discussions or meetings before the start of learning, as seen from the results of interviews with respondents regarding how to understand students' IT needs. Evaluating or assessing the level of information technology literacy from students and teachers was to determine which information technology could be implemented in the classroom. This evaluation could be done through observation, tests, or interviews. The principal of Toboali State Special Schools tended to use observation to monitor the duration of application or device use by students and teachers. This finding aligns with research by (Ussarn et al., 2022), which explains the importance of students' digital literacy needs and increasing digital literacy to face the demands of the digital era. It was also found that high school students are more likely to need IT than elementary school students, in line with research conducted by (Handayani et al., 2022), which states that the higher the students' IT literacy, the more students want to use more interactive IT.

In Toboali State Special Schools, there have been no concrete steps to assess IT literacy, but there is an intention to hold workshops to improve teachers' IT literacy. This aligns with research by Cosby et al. (2023), which highlights that workshops can effectively enhance IT skills through direct learning. Similarly, Saputra and Hidayati (2024) emphasize the importance of school principals developing their staff by providing inspiration and motivation. School employees can enhance their inner qualities by fostering a stimulating and motivating environment, which is crucial for successfully implementing IT in learning. When the research was conducted, there had been no specific method to verify the suitability of information technology (IT) needs, although there have been initial identification efforts. For example, schools can evaluate the suitability of IT needs by conducting direct interviews with teachers in the classroom. Teachers can provide input on whether the use of IT has increased student learning focus and learning effectiveness, the extent to which students are involved in using IT, and the extent to which IT needs have been met in the learning process.

Student learning plans were prepared through meetings involving teachers, vice principals of curriculum, and principals, supported by workshops

to provide teachers with additional understanding of the use of technology in the learning process (Atlar & Uzuner, 2023). The workshops also aimed to obtain input on optimizing the features of the technology. Teachers identified students' needs and abilities in using information technology in the classroom. In addition, teachers noted the obstacles and needs that must be met to increase the effectiveness of using information technology in teaching and learning. The final step included preparing learning materials and methods appropriate to student's needs, as seen from the interviews with respondents regarding student learning plans.

However, in Toboali State Special Schools, the instructions for using information technology in learning for children with special needs have not been specifically explained. Explanations were only available in the laboratory and were limited to general regulations, implying a lack of detailed guidance on properly using information technology in the laboratory space.

In designing learning in special schools, identification of appropriate information technology needs should be done through consultation with teachers or homeroom teachers who better understand the conditions of students. After that, training or counseling programs can be provided to teachers and related parties regarding the use of the devices. It allows for a more profound introduction to the devices to be used by teachers. It can involve training and similar activities on an ongoing basis.

The Lesson Plan was typically used for a more formal learning design, with a title, indicators, competency achievements, and media components. It is corroborated by research by Kurniawan et al. (2021), stating that the principal provides support to educators (teachers) and teaching staff by holding training related to the use of ICT in the learning process and making learning tools, syllabus, Lesson Plan, and managing student grades using computers or laptops and through the use of ICT with various available products, which can be used as learning resources for educators and students. In comparison, using the Individual Learning Approach is recommended in the context of special schools. This Individual Learning Approach is similar to RPP but is intended for individual use, so it is inclusive. However, not all teachers in special schools have implemented the Individual Learning Approach. For example, teachers in elementary schools have implemented the Individual Learning Approach, while teachers in senior high schools still use the Lesson Plan. It exhibits differences in implementation between teachers and between one level and another in the Toboali State Special Schools' environment.

Organizing Information Technology for Learning for Students with Special Needs in Special Schools

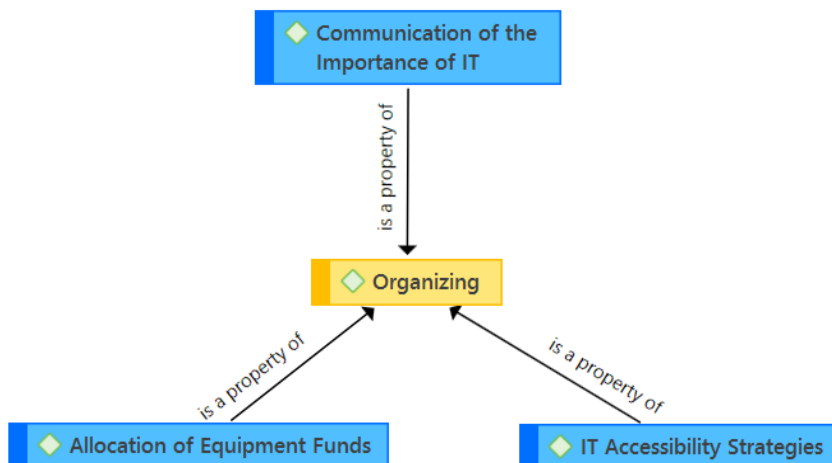


Figure 2. IT Organizing Map in Learning

The results of data analysis at Toboali State Special Schools stated that the management of information technology in learning for children with special needs at the special school after the planning stage is organized. The first step in organizing information technology for special needs children's education at this special school was communication on the importance of IT. As stated by Abraha (2022), teachers or schools need to regularly involve parents in the instructional process by designing a communication plan with appropriate means of interaction. At Toboali State Special Schools, communication about the importance of IT before the school year began by the school providing direction or information about information technology to be used in schools in teaching and learning activities, so communication was carried out with parents directly to allow students to use cellphones or laptops at home for learning activities. After that, it could be socialized at school or directly. It agrees with the research of (Ramanlingam and Maniam, 2020), which asserts that parental involvement is highly influential in improving the quality of student learning and shows that communication is the most critical factor in this improvement. Teachers continued communicating with parents during learning but might only informally with parents who picked up their children, so it was not intense. It was also because students had been given buses to take them to their respective homes so that only a few parents could be involved or communicated with during learning.

At Toboali State Special Schools, the IT accessibility strategy involved several essential steps. First, an assessment was made of the availability of personal IT devices at students' homes and schools. Furthermore, an evaluation was carried out on the IT skills of students and teachers. Although there was no special IT teacher at the school Negeri Toboali, efforts were still made to appoint one regular teacher to become an IT teacher. Moreover, the use of government assistance in the form of IT devices has been increased along with the improvement of teacher and student capabilities and infrastructure such as internet networks. It is advocated by research by (Rahmadhon et al., 2020), which states that teacher competence in using technology-based learning media is said to be quite good, indicated by teachers already knowing devices related to ICT, such as computers, laptops, and internet networks.

Schools also allocated resources in the form of money to complete the facilities needed at school, including purchasing hardware, such as projectors, printers, and various other hardware and software needed by applying for financial assistance for school operations, as supported by Genc et al. (2021) that highlights assistive technologies are vital tools that can increase motivation and success among learners with special needs. Without adequate funding, schools may struggle to provide the necessary devices, which can hinder students' educational progress. Therefore, school management must prioritize budgeting for technology resources directly impacting student learning.

CONCLUSION

This research revealed aspects of the planning stage of information technology in learning for children with special needs in special schools consisting of analyzing the needs of each student, assessing IT literacy, identifying the IT needs suitability, and planning student learning according to the results obtained. After the planning stage, the organizing stage was followed, involving communicating the importance of IT in student learning, IT accessibility strategies, and allocating device funds to assist student learning. For further research, it would be better if we could compare IT management practices in multiple special schools across different regions or countries to identify variations and best practices while proposing a development framework or model for effective IT management explicitly tailored for special schools, including guidelines for infrastructure, training, and content creation.

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