



Empowering Educators through Strategic IT Management: A Study on Enhancing Teacher's Technological Competence

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ABSTRACT

This study aims to propose a model for the implementation of strategic management to enhance IT teaching competencies among teachers at SMK Babusalam, Baktiya, North Aceh. Adopting a qualitative approach with five respondents, data was collected through observation, interviews, and documentation, followed by descriptive analysis. The findings reveal that strategic management was implemented through various teacher development training programs, including In-house Training, Subject Teacher Working Group (MGMP), and collaborative training with other schools. This approach not only reduced costs but also strengthened inter-institutional cooperation. The enhancement of competencies was assessed based on the ability to utilize networked learning software and create effective instructional media. The implementation process was influenced positively by supportive factors such as well-equipped Multimedia Laboratories and the availability of IT resources. However, personal factors posed as challenges. The results provide valuable insights into strategic management strategies for improving IT teaching competencies.

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INTRODUCTION

Technology plays a crucial role in managing educational institutions (Fukuyama, 2018; Upadhayaya, 2023). With the advancement of technology, educational institutions are required to be adaptive and optimize technology to enhance learning effectiveness. The COVID-19 pandemic has necessitated online education, requiring human resources with IT competencies (Harris & Jones, 2020; Morgan, 2020). Technology serves as educational infrastructure, a source of teaching materials, a tool for educational management, and a facilitator for both online and offline education (Weleschuk et al., 2019).

The use of technology is closely tied to the quality of human knowledge since technological advancement is inevitable in our lives. Technological progress aligns with the advancement of science (Alqahtani & Rajkhan, 2020). Therefore, technology needs to be utilized to improve the effectiveness and efficiency of administrative tasks, allowing teachers and school principals to focus their attention and energy on meeting students' needs, especially through personalized learning to ensure each student's development (Ahmad & Kim Soon, 2015; Henderson et al., 2017).

Technology provides convenience and new alternatives in various activities, and we are already enjoying many benefits brought about by current technological innovations (Selwyn, 2016). Therefore, technology is crucial, especially in the current pandemic situation, where teachers must be able to use information technology to make the teaching and learning process more effective according to the school curriculum (Smith & Chipley, 2015).

In schools, many teachers have not yet met the expected standards because they lack the skills to manage students. Competence is a collection of knowledge, behavior, and skills that teachers must possess to achieve educational and learning objectives (Prasetyo & Fadhillah, 2022). Competence is acquired through training, education, and self-learning using learning resources (Mandy, 2017).

The role of school principals as policy implementers can help improve teacher performance in bringing about a change in the abilities possessed by teachers in both offline (non-networked) and online (networked) learning processes. This has been ongoing for almost 10 months, with teachers conducting online learning activities, so school principals are taking different actions. Principals assess teachers' abilities in the learning process by knowing

the programs each teacher has, evaluating, and assessing teacher performance by paying attention to the teachers' mastery of learning media. Teachers must be able to create digital learning media or what is known as Information Technology (Nadason et al., 2017; Reese, 2018).

Based on the above opinions, it can be concluded that management plays an essential role in enhancing teacher competencies. This significantly helps achieve educational goals and has a dominant influence on improving the quality of learning outcomes. Teachers are instrumental in helping students develop skills and knowledge. Therefore, teachers should make students interested in participating in learning, hence teacher competence greatly influences the success in achieving educational goals.

In the realm of education, the Ministry of Education and Culture (Kemdikbud) has positioned Information and Communication Technology (ICT) as a primary supporter of education services. The provision of competent educators evenly across Indonesia has been declared as one of the strategic objectives in the implementation of national education. Supplying educators who master ICT competencies is an urgent need to achieve this objective. One of the abilities of teachers to enhance their resources capacity is to understand and master the use of information technology in the student learning process at educational institutions.

The utilization of information and communication technology can be a solution to problems in the learning process, and can also serve as an innovation in the field of education. Teachers are required to use Information and Communication Technology media in the learning process in the classroom (Fisher et al., 2012; Ng et al., 2022). Not only are they required to use ICT media in the classroom learning process, but teachers are also expected to be able to develop various educational media. Teachers are challenged to be continually creative in delivering the material they are teaching to their students, so that the students do not experience saturation in absorbing the provided material, ultimately leading to improved learning achievements.

METHODS

The data was collected in the form of documents and various other information relevant to the object of the problem in this study. This research employed a descriptive method with a qualitative approach. This research

approach is one of the methods that emphasize reasoning based on objective social reality, meaning this method is used for three considerations: first, to facilitate the understanding of multiple realities. Second, to present the essential relationship between us and reality; third, this method is more sensitive and adjusts to the form of value faced. This research was conducted at SMK Babusalam Baktiya, located at Medan - Banda Aceh KM. 326, Alue Bili Rayeuk, Baktiya Subdistrict, North Aceh Regency. Participatory Observation is a data collection method where the researcher observes the object using tools or senses while participating directly in the school. In this stage of participatory observation, the researcher has observed several things related to strategic management in enhancing the IT competencies of teachers at SMK Babusalam Baktiya, North Aceh, which includes strategic planning, in enhancing teachers' IT competencies, and supporting and inhibiting factors for teachers in mastering IT at SMK Babusalam, Baktiya Subdistrict, North Aceh. Interviews are essentially divided into three, namely: structured, semi-structured, and unstructured. Structured interviews are a systematic procedure for extracting information about respondents where a set of questions has been arranged in sequence, unstructured interviews are free-form interviews where researchers do not use a complete interview guide to collect data. The data analysis technique used by the researcher is the interactive model analysis technique from Miles, Huberman, and Saldana, which includes three joint activities, consisting of data condensation, data presentation, and conclusion drawing.

RESULTS AND DISCUSSION

History of SMKS Terpadu Babussalam

This research was conducted at SMKS Terpadu Babussalam, Baktiya Subdistrict, North Aceh Regency, located on Medan-Banda Aceh Road, Alue Bili Rayeuk Village, Baktiya Subdistrict, North Aceh Regency. This school is one of the vocational high schools under the auspices of the Dayah Babussalam Foundation and under the supervision of the Aceh Provincial Education Office, both in terms of education curriculum and management. SMKS Terpadu Babussalam Baktiya was founded by the leaders of the Dayah Babussalam Foundation and formally obtained operational permission on June 4, 2013, based on the decree of the Aceh Provincial Education Office.

Strategic Management at SMKS Terpadu Babussalam

In implementing strategic management at SMKS Terpadu Babussalam Baktiya, strategic management greatly influences the enhancement of teacher competencies in the field of information technology. It considers managerial actions to achieve school goals formulated based on internal and external environmental considerations. This approach helps teachers better understand the use of information technology, and facilitating activities, particularly in delivering learning materials at SMKS Terpadu Babussalam, to make learning more effective than expected. The managerial role of the principal and the cooperation of teachers and the school committee significantly influence the realization of professional teacher competencies in the field of information technology, aiming for higher-quality education.

Strategic management, as applied at SMKS Terpadu Babussalam, serves as a crucial element in the process of organizational development. This managerial approach has the capacity to direct and influence a broad spectrum of activities within the institution toward achieving a cohesive, unified objective.

Strategic management, in its essence, not only focuses on the macroscopic organizational structure but also delves into the microscopic elements, thereby creating opportunities for individual empowerment (Frederick W. Gluck, 2020). It provides an environment that facilitates the empowerment of individuals within the school, fostering a conducive atmosphere that promotes both personal and professional growth (Da Rocha Miranda & De Souza Costa, 2005). This empowerment transcends traditional hierarchical boundaries, enabling individuals to assume proactive roles within their respective domains, thereby contributing to the overall enhancement of the educational progression within the institution.

The role of strategic management extends beyond the realm of mere planning and organizing (Kawinzi, 2021). It instills a sense of confidence that the execution of activities can align with the institution's objectives in an efficient and effective manner. This confidence is derived from meticulous planning, consistent monitoring, and periodic evaluations, which are all integral components of strategic management (Armstrong, 2019).

Strategic management functions as a driving force for educational change. In an era characterized by rapid advancements in educational methodologies and technologies, strategic management allows SMKS Terpadu Babussalam to

remain agile and adaptable. It encourages the adoption of innovative pedagogical methods, the integration of cutting-edge technology, and the reevaluation and revision of outdated practices, thereby ensuring that the institution remains at the forefront of educational advancements.

Strategic management within SMKS Terpadu Babussalam is not merely a tool for efficiency but a comprehensive approach that shapes the organization empowers individuals, and drives educational change. It is an integral part of the institution's journey towards improving the quality of education and nurturing a conducive learning environment.

IT Competence of SMKS Terpadu Babussalam Baktiya Teachers

The competence of teachers at SMKS Terpadu Babussalam is a critical factor in the learning environment. This competence is significantly influenced by the evolving dynamics of the learning situation, especially in the context of recent activities that heavily involve the use of information technology (IT).

The integration of IT in learning is not merely a tool but a determinant of how the learning process evolves and aligns with the planned educational objectives. This marks a transition from traditional learning methods to a more tech-oriented approach, necessitating teachers to upskill and adapt to these new methodologies.

As expected, the ability of teachers extends beyond their knowledge of the subject matter. It is contingent on meeting certain competency standards that span both pedagogical and professional aspects. Pedagogical competence refers to the ability to plan, implement, and evaluate learning effectively, while professional competence pertains to the teacher's understanding of the subject matter and their ability to communicate this knowledge effectively to students.

These competencies serve as the foundation for determining the success of the teaching-learning process. They represent a benchmark against which the effectiveness of teachers is measured, thus playing a crucial role in shaping the educational outcomes of students at SMKS Terpadu Babussalam.

The competence of teachers at SMKS Terpadu Babussalam, influenced significantly by the learning situation and the application of IT, forms the backbone of the teaching-learning process. Ensuring that teachers have the necessary pedagogical and professional competencies is critical to the successful implementation of the institution's educational plan. Observations at SMKS

Terpadu Babussalam reveal that many teachers at the school still have deficient teaching practices. Each subject has distinctive characteristics, and thus cannot be taught using the same model, method, or approach. Therefore, a strong mastery of the subject matter will assist teachers in determining strategies when delivering learning materials.

Based on these problems, training is necessary for the technological development of teachers who still have difficulties in using information technology, which serves as a medium to facilitate teachers in delivering learning materials, both online and offline.

Discussion of Research Results

Digital technologies have become an essential aspect of education institution. As a result, academic research has primarily focused on exploring the possibilities of digital technologies in supporting, expanding, and even enhancing student learning experiences (Kusumawardhani, 2017; Rovai & Downey, 2010).

Learning institutions across the globe have recognized the transformative power of digital tools and platforms in the realm of education. These technologies offer diverse opportunities to engage students in interactive and immersive learning experiences, enabling them to acquire knowledge and skills in innovative ways. With the advent of digital technologies, students now have access to a wealth of information and resources at their fingertips, breaking down barriers of time and space.

Digital technologies have become an integral part of school education, and academic research has predominantly focused on harnessing their potential to support and enhance student learning. By embracing these technologies and addressing associated challenges, school can empower students with the necessary skills and competencies to thrive in a digital age. The success of an educational process refers to professional resources possessing competencies, especially in mastering information technology. Therefore, with strategic management, the enhancement of teacher competencies becomes more directed. Moreover, strategic management allows us to see the strengths and weaknesses of the school, aiming to realize quality education in line with the school's vision and mission. Strategic management at SMKS Terpadu

Babussalam Baktiya starts from planning analysis, operation, implementation, and supervision.

Every school must have competent teachers capable in information technology and educational innovation in developing the school. Thus, strategic management can be considered as a fundamental basis in control, inseparable at every stage of school operations. The function of teacher management can be carried out at any time, during the management process and after it ends, to determine the level of achievement of an organization's objectives.

The function of strategic management is performed on planning and its implementation activities, intending to know the level of success and failures that occur after the plan is made and implemented. Success needs to be maintained and, if possible, enhanced in the realization of subsequent management/administration in the school environment. Conversely, every failure must be corrected by avoiding its causes, both in composing planning and its implementation.

Strategic management holds immense benefits for SMKS Terpadu Babussalam as it serves as a catalyst for shaping a more productive and efficient organization while directing and influencing various activities. The strategic management process presents opportunities that empower individuals within the school to enhance educational progress, particularly at SMKS Terpadu Babussalam Baktiya.

By implementing strategic management practices, SMKS Terpadu Babussalam can establish clear goals and objectives aligned with its vision and mission. This enables the school to prioritize and allocate resources effectively, ensuring that efforts are directed towards achieving educational excellence. Strategic management provides a framework for decision-making, allowing the school administration to make informed choices that positively impact the overall organizational performance.

Strategic management promotes a culture of continuous improvement and innovation within the school. It encourages the identification of strengths, weaknesses, opportunities, and threats (SWOT analysis) specific to SMKS Terpadu Babussalam. This analysis helps the school to capitalize on its strengths, address weaknesses, seize opportunities, and mitigate potential threats. By leveraging these insights, the school can adapt to changing educational trends and implement initiatives educational progress.

Strategic management fosters collaboration and engagement among stakeholders within the school community. It encourages open communication, involvement, and shared decision-making processes. This inclusivity empowers individuals, including teachers, students, and parents, to contribute their ideas, expertise, and perspectives towards the school's strategic goals. By involving stakeholders, SMKS Terpadu Babussalam can create a sense of ownership and collective responsibility, leading to a more cohesive and supportive educational environment.

Strategic management provides a platform for monitoring and evaluating progress towards the school's strategic objectives. It enables the school to measure outcomes, identify areas of improvement, and make necessary adjustments to ensure continuous growth and development. Regular assessment and feedback loops help SMKS Terpadu Babussalam to stay on track and make informed decisions for the betterment of educational outcomes.

In conclusion, strategic management plays a pivotal role in shaping SMKS Terpadu Babussalam into a more productive and forward-thinking organization. It empowers individuals within the school community, enhances educational progress, and provides a framework for effective decision-making and resource allocation. By embracing strategic management practices, SMKS Terpadu Babussalam Baktiya can seize opportunities, address challenges, and create a thriving educational environment that benefits all stakeholders involved.

This is also in line with Anidarwati's concept. She believes that one of the efforts made by the principal in enhancing teacher competencies is the "strategy used in forming a planning program for competence improvement for teachers at SMKS Terpadu Babussalam to increase teacher competencies. Teachers at SMKS Terpadu Babussalam are advised to participate in activities. The training programs in school or outside school that organize training activities, such as using computers to create learning media, utilizing software like Zoom, G-Meet for networked learning, and others, in terms of enhancing competencies in the field of information technology in utilizing technology information at SMKS Terpadu Babussalam Baktiya". With this strategy, teacher competencies will improve, and with increased teacher competencies, the learning process becomes easier, safer, comfortable, and effective.

The integration of digital technologies in vocational school education has significantly impacted traditional methods of teaching, bringing about a paradigm shift in the way knowledge is imparted and acquired. Here are some key ways in which digital technologies have influenced traditional teaching.

According to Upadhayaya and Smirnova, digital technologies have revolutionized access to information (Smirnova et al., 2020; Upadhayaya, 2023). In the past, students relied heavily on textbooks and limited resources within the physical confines of the library. However, with digital technologies, students now have instant access to a vast amount of information from various online sources, databases, and academic journals. This availability of information has expanded the horizons of learning and enabled students to explore diverse perspectives and engage with up-to-date knowledge.

Digital technologies have transformed passive learning into active and interactive experiences. Traditional lectures often involved one-way communication, with students solely listening and taking notes. However, digital tools such as multimedia presentations, online discussions, interactive simulations, and virtual reality applications foster active engagement and participation. These technologies encourage students to question, analyze, and collaborate, promoting deeper understanding and critical thinking skills.

According to Oddone and Tsai, digital technologies have opened doors to personalized learning experiences (Oddone et al., 2019; Tsai, 2023). Traditional teaching methods often followed a standardized approach, where all students received the same instruction regardless of their individual needs and learning styles. However, digital tools provide opportunities for adaptive learning, where content and activities can be tailored to suit each student's pace, preferences, and capabilities. Personalized learning enhances student motivation, engagement, and overall learning outcomes.

The integration of digital technologies has given rise to blended learning approaches, combining online and face-to-face instruction. Traditional classroom settings are now complemented by online resources, virtual classrooms, and e-learning platforms. This blended approach offers flexibility in terms of time and location, allowing students to learn at their own pace and revisit materials as needed. It also encourages a more collaborative and interactive learning environment, as students can engage in online discussions and collaborative projects.

Digital technologies have transformed the assessment and feedback process (Vanderlinde et al., 2012). Traditional methods of assessment relied heavily on paper-based exams and assignments, which often involved manual grading and delayed feedback. With digital technologies, assessments can be conducted online, offering immediate results and feedback. Additionally, digital tools enable innovative assessment methods, such as multimedia projects, online quizzes, and peer assessments, fostering a more comprehensive and authentic evaluation of student learning.

While traditional teaching methods still hold value, the integration of digital technologies has expanded the possibilities and enriched the teaching and learning experience in higher education. It has empowered educators to create dynamic and learner-centered environments, catering to the needs and preferences of today's tech-savvy students. However, it remains crucial to strike a balance between digital and traditional methods, ensuring that the benefits of technology are harnessed while preserving the essential aspects of face-to-face interaction and human connection in education.

Online platforms and learning management systems provide platforms for collaborative learning, enabling students to engage in discussions, share ideas, and work on group projects regardless of their physical location. Interactive multimedia content, such as videos, simulations, and virtual reality applications, can enhance understanding and retention of complex concepts. Additionally, digital assessment tools offer efficient and timely feedback, allowing students to track their progress and make improvements.

According to Scot and Borba, digital technologies open up avenues for personalized learning experiences (Borba et al., 2016; Scott, 2023). Adaptive learning systems can tailor educational content to match individual student needs and learning styles, promoting a more personalized and effective learning journey. This customization fosters greater engagement and motivation among students, as they can explore topics at their own pace and delve deeper into areas of interest.

Strategic management to enhance IT competence of teachers at SMKS Terpadu Babusalam, Baktiya Subdistrict, North Aceh, is carried out with several steps implemented by the principal. These include analyzing data, identifying strengths in planning, organizing, observing school conditions and opportunities, anticipating incoming threats, and considering internal and

external organizational environments. The strategy to enhance teachers' IT competence is achieved through teacher development training such as in-house Training, MGMP, and training in collaboration with other schools. This strategy not only minimizes costs but also strengthens inter-institutional cooperation. To improve IT competence and meet the expectations of the head of SMKS Terpadu Babussalam, teachers must have several abilities including: developing innovation, learning innovation, creating quality teaching, evaluating learning, and possessing personal, professional, and social pedagogical competencies.

Operationally, strategic management contributes positively to improving teachers' IT competence with the following indicators of success: (1) teachers can use online learning software, (2) teachers can prepare learning tools, and (3) teachers are capable of preparing learning media and presentation slides that can influence the learning process. In this regard, the school principal is very enthusiastic about enhancing teachers' IT competencies. With the implementation of this strategic management, school resources have the ability to master information technology at SMKS Terpadu Babussalam Baktiya.

Strategic Management implementation is influenced by several critical factors, which can be divided into two categories. Firstly, supporting factors within the school environment play a crucial role. SMKS Terpadu Babussalam possesses well-equipped facilities and infrastructure, including fully equipped laboratories for Multimedia and Tatabusana majors. Additionally, the school ensures the availability of essential resources such as textbooks, computers, laptops, internet services, and classrooms equipped with projectors for effective learning experiences. These supportive factors create a conducive environment for implementing strategic management practices.

Inhibiting factors that pose significant challenges to enhancing the IT competence of teachers at SMKS Terpadu Babussalam. Teacher indiscipline, resistance to change, and a preference for traditional teaching methods hinder progress in improving IT competencies. Many teachers face difficulties in utilizing computer devices, both in utilizing online learning applications and in preparing instructional materials. These obstacles make it challenging for the school principal to enhance teachers' technological skills and promote effective integration of technology in teaching practices.

Overcoming these inhibiting factors requires dedicated efforts and strategies to address teacher resistance and provide comprehensive training

and support. The school administration needs to emphasize the importance of IT competencies and offer professional development programs to enhance teachers' confidence and familiarity with digital tools. By addressing these challenges, SMKS Terpadu Babussalam can successfully enhance its teachers' skills in the field of technology and create an environment conducive to effective IT integration in education. While the potential of digital technologies in education is vast, it is crucial to recognize the challenges that accompany their integration. Issues such as access to technology, digital literacy skills, and ensuring equitable opportunities for all students must be addressed to bridge the digital divide. Moreover, the ethical use of digital technologies, including privacy concerns and digital citizenship, should be considered to create a safe and inclusive learning environment.

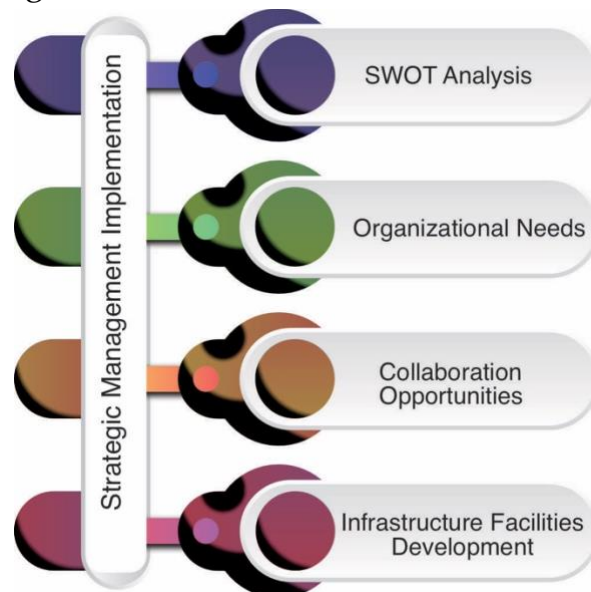


Figure 1: Strategic Management Impelementation

The novelty or new findings in strategic management to enhance IT competence are shown in Figure 1, which shows the strategic management flow in enhancing teachers' IT competence. In the strategic management point, there are several strategic steps, namely: strategy analysis, policy strategy, and strategy implementation. These steps are related to SWOT analysis, influencing planning and operation, and finding opportunities in strategic management, and are crucial for anticipating threats coming from both internal and external environments.

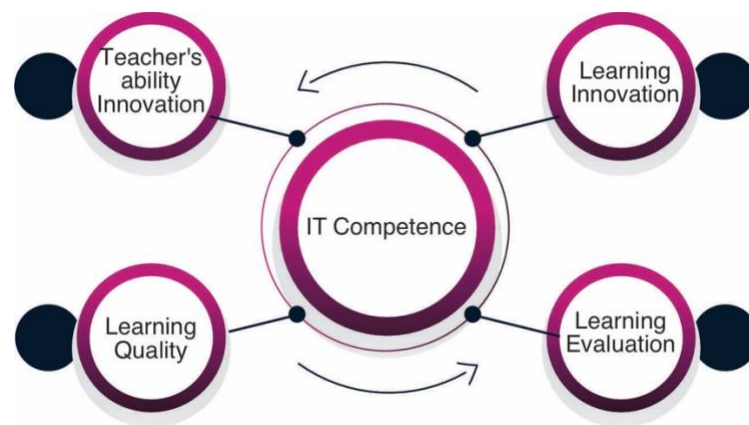


Figure 2: Information Technology Competence

In the IT competence point, there are several important interconnected points, including: technology design related to teachers' ability to develop innovation, technology development influenced by learning innovation, technology management related to quality learning and evaluation. This point is used to evaluate teacher competencies in learning. Therefore, the charts arranged as above are interrelated in forming strategic management to improve the IT competence of teachers at SMKS Terpadu Babussalam Baktiya.

There are several crucial interconnected points that deserve careful consideration. These points encompass the technological design aspect, which pertains to teachers' ability to foster innovation and create novel approaches to teaching and learning. Additionally, the development of technology is greatly influenced by the drive for learning innovation, as advancements in educational practices often coincide with technological advancements. Furthermore, technology management plays a pivotal role in ensuring the delivery of high-quality education and effective evaluation methods.

The aforementioned points serve as a means to evaluate the competencies of teachers in facilitating learning experiences. It is through the integration of these interconnected points that strategic management can be effectively employed to enhance the IT competence of teachers at SMKS Terpadu Babussalam Baktiya.

By recognizing the interdependencies between technology design, development, and management, the school can establish a comprehensive framework for improving teachers' IT competencies. This strategic approach enables the school administration to identify areas of improvement and

implement targeted initiatives that address specific challenges faced by teachers. For instance, by focusing on technology design, teachers can be encouraged and equipped to explore innovative teaching methods that maximize the potential of digital tools and resources.

Fostering a culture of learning innovation becomes crucial in driving technology development. By encouraging teachers to embrace emerging technologies and leverage them to enhance instructional practices, SMKS Terpadu Babussalam Baktiya can stay at the forefront of educational advancements. This requires a proactive approach in providing professional development opportunities and resources that support teachers in their journey towards digital fluency.

Effective technology management ensures that the integration of IT in classrooms aligns with the principles of quality learning and evaluation. It involves establishing robust systems and processes to monitor and assess the impact of technology on student outcomes. By leveraging data and feedback, the school can make data-driven decisions and continuously refine its IT strategies to optimize learning experiences. The interrelated points of technology design, development, and management form the basis for strategic management aimed at enhancing the IT competence of teachers at SMKS Terpadu Babussalam Baktiya. By recognizing the significance of these points and implementing targeted initiatives, the school can empower teachers to embrace technology, foster innovation, and create a dynamic learning environment that prepares students for the challenges of the digital age.

CONCLUSION

Strategic management at SMKS Terpadu Babusalam, Baktiya, North Aceh, focuses on enhancing teachers' IT competencies through steps like data analysis, planning, and internal and external environmental considerations. This is achieved via teacher development programs and fostering innovative, quality teaching competencies. The principal's enthusiasm and strategic management contribute positively to teachers' IT competence, preparing them to use online learning software and create effective learning materials. However, challenges such as teacher indiscipline and reluctance to adopt new technologies persist. Despite these, with strategic management steps like SWOT analysis and strategy implementation, the school aims to boost teachers' IT skills, thereby

improving the overall quality of education at SMKS Terpadu Babusalam Baktiya.

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