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ABSTRAK

Pendidikan menjadi semakin modern seiring dengan perkembangan teknologi yang semakin luas. Praktik tersebut dapat diinternalisasikan ke dalam sistem pembelajaran dan manajemen sekolah. Penelitian ini bertujuan untuk menganalisis transformasi pendidikan dan manajemen melalui penerapan sekolah digital di Program Khusus SMP Muhammadiyah Al-Kautsar. Penelitian ini merupakan penelitian kualitatif deskriptif dengan metode penelitian lapangan. Metode pengumpulan data yang digunakan adalah wawancara mendalam dan observasi. Hasil penelitian menunjukkan Program Khusus SMP Muhammadiyah Al-Kautsar telah menunjukkan langkah signifikan dalam menciptakan transformasi digital dalam pembelajaran dan sistem pengelolaannya. Penerapan teknologi ini mengalami kendala pada koneksi jaringan internet dan kesiapan infrastruktur pendukung karena terbatasnya anggaran yang disediakan. Internalisasi teknologi dalam pembelajaran meningkatkan aksesibilitas dan pengalaman belajar siswa. Sementara itu, sistem pengelolaannya bisa lebih efisien dan efektif, sehingga memudahkan pengadministrasian dan pengelolaan data secara transparan. Orang tua dan guru diberikan kemudahan dalam memantau perkembangan setiap siswa. Sekolah terus berupaya untuk menjamin perkembangan peserta didik secara holistik, baik dalam keterampilan teknologi maupun penanaman nilai-nilai moral. Penelitian ini memberikan kontribusi penting untuk memahami proses transformasi digital di sekolah. Implikasi penelitian ini dapat dijadikan pedoman dan bahan evaluasi untuk mengoptimalkan proses digitalisasi lembaga pendidikan di Indonesia.

Kata Kunci: Transformasi Pendidikan; Pengelolaan; Sekolah Digital

ABSTRACT

Education has become more modern with the development of increasingly widespread technology. The practice can be internalized into the learning and school management system. This research aims to analyze the transformation of education and management through implementing digital school in Muhammadiyah Al-Kautsar Junior High School Special Program. This research is a descriptive qualitative research with a field research method. The data collection methods used are in-depth interviews and observations. The research results show that Muhammadiyah Al-Kautsar Junior High School Special Program has demonstrated significant steps in creating digital transformation in learning and its management system. The implementation of this technology experienced obstacles in internet network connectivity and the readiness of supporting infrastructure due to the limited budget provided. Internalization of technology in learning improves accessibility and student learning experience. Meanwhile, the management system can be more efficient and effective, making it easier to administer and transparent data management. Parents and teachers are given convenience in monitoring the development of each student. The school continues to strive to ensure the development of students holistically, both in technological skills and the cultivation of moral values. This research makes an essential contribution to understanding the digital transformation process in schools. The implications of this research can be used as a guide and evaluation material to optimize the digitalization process of educational institutions in Indonesia.

INTRODUCTION

The rapid development of technology has affected various aspects of life, including education. In this era of digitalization, education has transformed to become more modern with the widespread adoption of technology (Sundari, 2024). The adoption of technology is not only introducing sophisticated devices and applications but also encouraging learning innovation (Qurtubi et al., 2024). The integration of technology in education brings several benefits, such as more interactive learning and increased effectiveness in learning activities (Dito & Pujiastuti, 2021).

One of the innovations that has begun to be implemented in Indonesia's education is the digital school concept (Fauzi et al., 2024). This innovation integrates information and communication technology into the classroom so that it can create a more dynamic and responsive learning environment to the individual needs of students (Baharuddin & Hatta, 2024). This innovation can meet the individual learning needs of students more effectively through the use of digital devices (Dzikri, 2023). The use of technology also allows for more intensive interaction and more interesting teaching materials (Defriansyah et al., 2023). On the other hand, the school administration and management process is not spared from the touch of digitalization. This opens up opportunities for data management to be more effective and efficient.

Although it has many benefits, the process of integrating this technology is undoubtedly inseparable from various obstacles (Putri et al., 2023). Not all schools have readiness, both in terms of infrastructure and human resources. The limitations of internet access in remote areas must also be overcome immediately. In addition, the ability of teachers and education personnel to use technology effectively also needs to be improved through professional training (Baharuddin & Hatta, 2024). Without adequate readiness, technology will not be able to be optimized in the learning process.

Several previous studies have discussed the integration of technology in education. For example, the research of Febriani et al. (2024) revealed that there are obstacles to the stability of the internet network, limited teachers' ability to use technology, and a lack of variety in the learning applications used. Meanwhile, research by Syahid et al. (2022) highlighted that as many as 44% of teachers are at a competent level in mastering using computer application programs for learning. Baharuddin & Hatta (2024) found that the integration of technology and innovation in education management significantly improves student engagement, teaching quality, and more comprehensive access to information.

This research will discuss more thoroughly the findings of the above studies to provide a clearer picture of the transformation of education and school management through the implementation of digital schools. The results of the initial observations made by the researcher showed that the Muhammadiyah Al-Kautsar Junior High School Special Program implemented the Special Comprehensive Guidance Program, which is a system designed explicitly for comprehensive child assistance, both in terms of intellectual, emotional, spiritual, and student behavior and all the potential it has. In addition, Muhammadiyah Al-Kautsar Junior High School Special Program also implements digitalization in its learning and management so that it is labeled as a digital school. The most obvious thing is the use of e-modules in learning activities and digital management systems.

The use of e-modules and digital management systems reflects their commitment to internalizing technology in education, especially in learning. This makes this school an ideal location to explore and analyze the process of education transformation and school management through the implementation of digital schools. So that this research can provide a



METHOD

This type of research is descriptive qualitative research with field research methods. This research procedure produces descriptive data in the form of written or spoken words from observable people (Kusumastuti & Khoiron, 2019). This research analyzes the process of education transformation and school management in Muhammadiyah Al-Kautsar Junior High School Special Program in the implementation of the digital school concept. This research uses a qualitative approach focusing on a deep understanding of social phenomena or human behavior by analyzing non-numerical data such as text, images, interviews, or observations. The main goal of this approach is to uncover the meaning, context, and complexity of the situation being studied, rather than quantitatively measuring the variables (Hardani et al., 2020).

The data collection method used in this research is an in-depth interview with the Head of Muhammadiyah Al-Kautsar Junior High School Special Program, Mr. Muhammad Rifqi Nugroho, M.Pd., and the Deputy Head of Facilities and Infrastructure. Data collection was carried out in August 2024. After the data collection stage is completed, the next step is data analysis, which is the final stage of the research. Data analysis includes reduction, display, concluding, and verifying.

RESULTS

Early Implementation of Digital School

Interview data was obtained related to the initial implementation of digital school at Muhammadiyah Al-Kautsar Junior High School Special Program. The results of the interview explained that the implementation of digital school began to be launched when the government transitioned to the Computer-Based National Exam (CBT). This transition was then adopted and became the initial gateway to the digitalization process in this school. The school began to develop supporting infrastructure such as internet transmitters in each classroom. Meanwhile, the need for electronic devices such as laptops is brought by students themselves.

The implementation of technology in education also requires adequate infrastructure readiness. Based on the results of the interview, at the beginning of this implementation, several obstacles were found. For example, the accessibility of learning materials and the implementation of computer-based exams are disrupted due to unstable internet connections. Disruptions in the system also arise due to high access loads that are not balanced with adequate school servers. Because of this problem, the school is making improvements by installing additional access points and increasing bandwidth to ensure student accessibility to technology.

Learning Transformation through Digitalization

Digitalization has provided a striking change in the interaction between students and teachers with teaching materials. The results of the interview mentioned the digitization of student learning resources by creating interactive and communicative e-modules as a substitute for printed package books. The existence of this e-module increases students' accessibility to learning materials because it is more flexible so that it can be accessed at any time. This also allows for more intensive interaction and more engaging teaching materials.

In addition to the use of e-modules, this school also utilizes internet sites that can be used to support the learning process, especially with the development of various sites supported by artificial intelligence. The school strives to continue to improve the quality of its learning along with increasing its resources as well. This year, the school plans to innovate the use of Virtual Reality (VR) and interactive whiteboards (smart boards) in learning.



The school management system is not spared from the touch of digitalization. From the observation results, it is known that there is a particular website portal to support the digital management system, namely the alkapro.site. This allows for efficiency and transparency in the administrative process and management of school data. Various information, such as student data, teacher data, tracer habits, academic assessments, and other information are integrated into one digital system that makes it easier for teachers and parents to monitor student development.

Based on the results of the interview, the supervision and management of digital management is carried out by the school's information and technology (IT) team, while the learning process is under the coordination of the Deputy Principal for Curriculum. The school also collaborates with Muhammadiyah Al-Mujahidin Junior High School Yogyakarta which has implemented a digital-based management system first. The digitalization of school management shows a significant step forward in the management of adaptive, modern, and progressive education.

Challenges in Digital School Implementation

The implementation of digital school in Muhammadiyah Al-Kautsar Junior High School Special Program faces some challenges, especially regarding the availability of facilities and infrastructure. Based on the results of the interview, the most visible obstacle is that the technological infrastructure is not fully adequate. The need for sophisticated networking devices requires significant investments. However, as a private school, the considerable cost of procuring digitalization support facilities that are not cheap is the main obstacle for the school. This happens due to the limited budget available. In addition, another significant challenge is ensuring that the formation of students' character continues to run well amid the increased use of technology.

DISCUSSION

Early Implementation of Digital School

The decision taken by schools to implement digital schools is in line with the theory of technology-enhanced learning (TEL) which emphasizes that the use of technology can increase the efficiency and effectiveness of the learning process (Vassiliadis & Stefani, 2022). The use of technology in education makes it easier for students to access a variety of more diverse learning resources (Robiah et al., 2024; Saputra, 2024). On the other hand, the use of technology also provides opportunities for students to learn according to their respective learning speeds and styles (Stianingsih & Farisi, 2024). This can also support collaborative learning between students (Fauziah et al., 2024; Firnando, 2024; Resti et al., 2024).

The addition of internet transmitters in each class is an essential strategic step to ensure the smooth adoption and use of new technologies. The availability of infrastructure plays a crucial role in this implementation (Heryani et al., 2022; Johnson et al., 2016). The adoption of the Bring Your Own Device (BYOD) approach is the right alternative solution to overcome space and cost limitations. Students bring personal laptops as part of this strategy. It also instills a sense of responsibility for students towards their learning tools.

This discussion indicates that Muhammadiyah Al-Kautsar Junior High School Special Program has set significant steps toward digitalization while ensuring that the implementation is inclusive and supported by adequate infrastructure. Suggestions to the school to consider additional strategies, such as the procurement of device loans or technology subsidies in anticipation of potential access gaps. Thus, the quality of education can be improved evenly through digital transformation.

Learning Transformation through Digitalization

Digitizing learning with interactive e-modules hints at significant efforts to improve student accessibility and engagement during the learning process. In addition to increasing the flexibility of access to teaching materials, more dynamic interactions between students and learning materials have also emerged with the adoption of this technology (Casfian et al., 2024). Students can learn at their own pace and can explore more deeply what they are learning (Resti et al., 2024). This is in line with the theory of constructivism which emphasizes that active and interactive learning experiences are essential elements in building student understanding (Kurniawan et al., 2024).

The use of technology such as VR and smart boards signals the seriousness of the school in creating an innovative learning environment that is relevant to the latest technological developments (Fauzi et al., 2024; Suhartawan et al., 2024). The utilization of VR allows students to experience real-state simulations and deep visualization of abstract concepts, which are impossible to achieve through traditional learning methods (Çakiroğlu et al., 2023; Rahmawati et al., 2022). Several studies have also shown that the use of VR can improve interactive learning experiences and significant learning outcomes (Cevikbas et al., 2023; Predescu et al., 2023; Ridloka et al., 2023). Similarly, smart boards can facilitate more interactive and collaborative discussions in the classroom (Sofiansyah & Mufidah, 2024).

However, efforts to apply this technology need to pay attention to the readiness of students and teachers to adapt existing innovations. The Technology Acceptance Model (TAM) theory shows that the success of technology implementation in learning is highly dependent on the perception of ease of use and benefits of the technology (Pangestu et al., 2023). The implication is that schools need to provide a qualified training platform to ensure that teachers can make optimal use of technology (Aisah et al., 2024). Technology has the potential to be a powerful tool to enrich learning experiences and shape resilient students to face future challenges (Wahiddiyah et al., 2023).

Digital Management in School

Operational efficiency in education is increasing in line with global trends in the application of technology, for example through the digitization of school management systems. The integration of various information in one digital system can create a more structured and easily accessible flow of information. This makes it easier for teachers and parents to monitor the development of their students or children. In addition, accountability in the educational process can also be optimized.

The implementation of digital-based management allows for simplification of administrative procedures, reduction of data duplication, and increased transparency (Taufan & Hidayat, 2023). Schools can also save time on manual data processing, reduce the likelihood of errors, and speed up responses to student and teacher needs (Sufiana et al., 2024). Furthermore, this system supports student attendance tracing as well as better academic and non-academic performance so that this system can be the key to modern and effective education management.

The collaborative approach can be seen through the collaboration with Muhammadiyah Al-Mujahidin Junior High School Yogyakarta in terms of digitalization. In line with the theory of Innovation Diffusion by Rogers (1983), support for sharing experiences and knowledge by schools that have successfully implemented digitalization holds the key to the effectiveness of innovation adoption (Sugiono, 2024). In addition to accelerating the adoption process of new technological innovations, the collaboration also ensures that best practices are applied by taking into account the local context and the specifics of school needs. The adoption of a digital-based management system and the development of collaboration with other schools shows that



Muhammadiyah Al-Kautsar Junior High School Special Program is making vital efforts toward more responsive, adaptive, and progressive education management.

Challenges in Digital School Implementation

The availability of facilities and infrastructure has become an everyday reality in the digitalization process faced by many schools. The adoption of new technologies often encounters significant obstacles, such as enormous costs and limited infrastructure (Susanto & Hermina, 2024; Taufik, 2024). In this case, the initial investment required in the development of adequate technological infrastructure is the biggest challenge, such as network tools and other digital equipment (Sundari, 2024). As a private school, given the high cost of technology procurement, a limited budget can hinder this process. Therefore, in-depth financial planning and exploration of circular funding sources, such as partnerships with the private sector, need to be considered.

In addition, a harmonious approach between the use of technology and the deepening of moral values is needed to fortify the formation of student character amid the rapid flow of digitalization (Alfikri, 2023; Nurfatimah et al., 2023). The proliferation of diverse content on the internet presents a risk of digital distraction to the vulnerability to exposure to inappropriate content (Ahyati et al., 2024). Therefore, the school should provide regulations on the wise use of technology and internalize moral values through character education programs, especially regarding digital ethics (Sugiarto & Farid, 2023). Thus, students not only receive sufficient instruction in using technologists but also obtain moral and ethical integrity in using technology.

Although this challenge is significant, Muhammadiyah Al-Kautsar Junior High School Special Program remains committed to continuing to move forward with the digitalization of education. Efforts such as improving the internet network, increasing bandwidth, and procuring additional equipment are being carried out to overcome these obstacles. The school continues to strive to ensure that this digital transformation can be enjoyed and developed even better. Of course, with the cooperation of teachers, students, parents, and other parties who support the digitalization of education.

These steps are in line with Kurt Lewin's Change Management theory, success in going through change challenges requires good management and the involvement of all members of the organization so that change can run effectively (Widyaningrum et al., 2022). Improving infrastructure and solutions to various challenges of digital transformation can improve the quality of education as a whole. The key to the success and sustainability of schools in realizing modern, adaptive, and progressive education is continuous efforts to overcome these challenges.

CONCLUSION

Muhammadiyah Al-Kautsar Junior High School Special Program has shown significant steps in realizing digital transformation so that it can optimize the student learning experience. The increase in affordability and interactivity in the learning process emerged through early implementation in terms of the shift to computer-based exams and the adoption of e-modules. Despite encountering obstacles such as connectivity problems and infrastructure readiness, the school's response by trying to make improvements hints at its commitment to optimizing quality education. The design of innovations in the use of technology, such as VR and smart boards, further underlines the school's position in utilizing modern technology to realize more adaptive and contextual learning.

Not only in the learning aspect, the school management system also adopts digitalization. This can be seen from the development of a particular website portal that opens up opportunities for efficiency and transparency in data management. In addition to making administration more



accessible, this digital management system also facilitates the supervision of student development by teachers and parents. However, there are significant challenges that follow, including budget constraints for technology infrastructure and ensuring that the use of technology does not hurt the formation of student character. These constructive efforts increase the readiness of Muhammadiyah Al-Kautsar Junior High School Special Program to face the digital era and ensure that their students can develop comprehensively, both in terms of technological ability and moral integrity.

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