

Educational Transformation in the Muhammadiyah Renewal Movement: Continuity of 21st Century Education

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ABSTRACT

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*This study aims to explore the transformation of education within the framework of the Muhammadiyah renewal movement and its relevance in addressing the challenges of 21st-century education. Despite advancements in educational technology, many students still face difficulties in utilizing digital tools effectively. As a modernist Islamic movement, Muhammadiyah has long contributed to the development of Indonesia's education system through a progressive and responsive approach to contemporary issues. Guided by the principle of *tajdid* (renewal), Muhammadiyah continues to innovate in curriculum design, teaching methods, the integration of Islamic values, and the use of technology in learning. This qualitative case study was conducted at SMA Muhammadiyah 14 Central Jakarta, focusing on 36 tenth-grade students. The evaluation results indicated a significant improvement in students' cognitive and digital skills. Approximately 82% of students demonstrated increased competence in using various digital learning applications such as Google Classroom and Canva. The findings highlight both challenges and opportunities in educational transformation and propose a comprehensive, collaborative, and sustainable strategy. This includes strengthening human resources, enhancing infrastructure, and developing relevant curricula aligned with Muhammadiyah's renewal principles.*

Keywords: *educational transformation; Muhammadiyah renewal movement; 21st century education*

ABSTRAK

Studi ini bertujuan untuk mengeksplorasi transformasi pendidikan dalam kerangka gerakan pembaruan Muhammadiyah dan relevansinya dalam menjawab tantangan pendidikan abad ke-21. Meskipun terdapat kemajuan teknologi pendidikan, banyak siswa masih menghadapi kesulitan dalam memanfaatkan perangkat digital secara efektif. Sebagai gerakan Islam modernis, Muhammadiyah

telah lama berkontribusi pada pengembangan sistem pendidikan Indonesia melalui pendekatan progresif dan responsif terhadap isu-isu kontemporer. Berpedoman pada prinsip tajdid (pembaruan), Muhammadiyah terus berinovasi dalam desain kurikulum, metode pengajaran, integrasi nilai-nilai Islam, dan pemanfaatan teknologi dalam pembelajaran. Studi kasus kualitatif ini dilakukan di SMA Muhammadiyah 14 Jakarta Pusat, dengan fokus pada 36 siswa kelas X. Hasil evaluasi menunjukkan peningkatan yang signifikan dalam keterampilan kognitif dan digital siswa. Sekitar 82% siswa menunjukkan peningkatan kompetensi dalam menggunakan berbagai aplikasi pembelajaran digital seperti Google Classroom dan Canva. Temuan ini menyoroti tantangan dan peluang dalam transformasi pendidikan dan mengusulkan strategi yang komprehensif, kolaboratif, dan berkelanjutan. Hal ini mencakup penguatan sumber daya manusia, peningkatan infrastruktur, dan pengembangan kurikulum yang relevan dan selaras dengan prinsip-prinsip pembaruan Muhammadiyah.

Kata-kata Kunci: transformasi pendidikan; gerakan pembaharuan Muhammadiyah; pendidikan abad 21

1. INTRODUCTION

The transformation of education in the Muhammadiyah renewal movement since pre-independence times has become the foundation for contributing to the intelligence of the nation's children. This experience can answer the challenges of education in the 21st century ([González-pérez & Ramírez-montoya, 2022](#)). The world of education is currently at a critical point where social, cultural, economic, and technological changes are moving very quickly and complexly. Global challenges such as the industrial revolution 4.0, as well as digital transformation, have had a major impact on the education system as a whole ([Muhammad Yusuf et al., 2023](#)).

In the midst of this situation, education is no longer sufficient if it is only oriented towards mastering theoretical knowledge, but must be able to prepare a generation that is adaptive, collaborative, innovative, and has a strong character ([Songkram et al., 2021](#)). In the 21st century, education requires major changes in many areas. This includes the use of digital technology, curriculum, and learning strategies. ([Che Awang & Tayeb, 2022](#)).

21st-century education requires students to have a set of competencies that are not only cognitive, but also social, emotional, and spiritual. Among the main competencies that must be mastered are critical thinking skills, creativity, collaboration, communication, digital literacy, and a strong and adaptive character ([Firmansyah et al., 2022](#)). In the context of globalization and rapid technological progress, education is no longer solely oriented towards mastering content, but rather towards the ability to process information, solve problems, and make wise decisions in an ever-changing environment ([Shofan, 2019](#)).

Within the framework of Islamic education, especially in Muhammadiyah schools, 21st-century competencies must be harmoniously integrated with Islamic values that are the main basis of education (Aman et al., 2019). Muhammadiyah as a progressive Islamic movement, has a strong commitment to combining modern science with the values of monotheism, morals, and humanity. Therefore, the implementation of 21st-century competencies in Muhammadiyah schools is not only aimed at producing a generation that excels academically, but also has moral integrity, social sensitivity, and spiritual awareness (Komariah & Nihayah, 2023).

In the learning process, students are not only equipped with digital skills or critical thinking skills, but are also invited to emulate the morals of the Prophet, understand the maqashid sharia, and are able to present community solutions based on a scientific approach and Islamic values. This is in line with the spirit of Muhammadiyah's *tajdid*, which is not anti-progress, but instead makes it a means to strengthen the role of Islam in forming a dignified civilization (Gordon et al., 2024).

Muhammadiyah, as one of the largest Islamic organizations in Indonesia that has a network of educational institutions from elementary to university level, has a big responsibility to direct the transformation of education that not only follows the development of the times (Hastasari et al., 2022). This role has been built since before independence. As an Islamic organization, it also adheres to moderate and progressive Islamic values (Qodir et al., 2023).

Since its inception, Muhammadiyah has placed education as the main pillar in realizing a truly Islamic society. Through the spirit of *tajdid* (renewal), Muhammadiyah strives to continue to adapt to the demands of the times without losing its identity (Damayanti et al., 2021). The digital readiness of Islamic schools in Indonesia shows diverse developments. Some schools have been able to adapt well through the integration of technology in the teaching and learning process, the use of Learning Management Systems (LMS), multimedia-based learning media, and the development of digital *da'wah* content. Leading Islamic schools in urban areas, especially those under large institutions such as Muhammadiyah, have equipped technological infrastructure such as internet access, computer/tablet devices, and teacher training in the fields of ICT and digital literacy (Widiawati et al., 2023).

Muhammadiyah is known as an Islamic organization that always encourages educational reform through the establishment of modern educational institutions. Meanwhile, SMA Muhammadiyah 14 is still constrained by learning that utilizes technology (Baqy & Wardhana, 2021). However, in its implementation in the current digital era, real challenges are still faced, especially in optimizing the use of learning technology by students in the Muhammadiyah school environment. One concrete example can be seen at SMA Muhammadiyah 14 Central Jakarta, where the results of internal observations and information from teachers, around 76% of students have not

been able to maximize the use of learning applications provided by the school. Data sourced from ICT learning achievements from the mid-semester assessment of the 2024-2025 academic year (An et al., 2021).

This condition reflects the gap between the idealism of Muhammadiyah's educational transformation and the reality of practice in the field. The low utilization of digital learning applications shows that the expected educational transformation has not fully reached students as the main subject of education (Galvis & Carvajal, 2022). In fact, the use of technology is one of the main indicators of the success of 21st-century education, where learning is no longer limited to conventional classrooms, but can take place dynamically, flexibly, and digitally (Nikmah & Nurhakim, 2023).

Many Islamic schools still do not have stable internet connections, adequate computer equipment, or basic multimedia facilities. Private Islamic schools, especially those not directly under the Ministry of Religious Affairs, often have difficulty in procuring digitalization devices and programs. Almost all private schools rely on donations or limited fees, making them unable to carry out sustainable digital innovation (Prieto-Latorre et al., 2022). Several factors that influence this condition include low digital literacy of students, lack of intensive assistance in the use of technology, and less than optimal teacher training in integrating digital applications in the learning process (Alfiyanto & Hidayati, 2022).

Systematic efforts are needed to build a digital literacy culture, strengthen the capacity of educators, and create a collaborative and innovative learning ecosystem. The use of digital can improve student learning outcomes (Cheng et al., 2021). Thus, Muhammadiyah is able to develop an inclusive, progressive, and globally competitive Islamic education model without losing its Islamic identity. The continuity of 21st-century education within Muhammadiyah is not only determined by technology (Jung et al., 2022).

2. METHOD

This study uses a qualitative method with a case study approach, which aims to deeply understand the phenomenon of educational transformation in the Muhammadiyah renewal movement, especially in the context of the sustainability of 21st-century education in the environment of SMA Muhammadiyah 14 Central Jakarta. This method was chosen because it is in accordance with the needs of the data collection process and conditions at the school (Spinuzzi, 2023). This approach was chosen because it is able to explore social and educational realities contextually and comprehensively, and provides space for subjective meaning from participants involved in the educational process (Hitchings & Latham, 2021).

The initial step taken in this study was to identify the problem by conducting observations and information from teachers to determine the focus of the study, where

the researcher formulated the problem related to the low utilization of digital learning applications by class X students at SMA Muhammadiyah 14 Central Jakarta. Initial data on the mid-semester assessment showed that 76% of students had not maximized the use of technology in the learning that had been given; this indicates an imbalance in the expected educational transformation process (Rifa'i, 2023).

The next stage is to prepare a research design that includes objectives, problem formulation, data collection techniques, and data analysis strategies. The research focused on class X with 36 students with a sample of 6 students, also involving 2 subject teachers, so that the total is 8 interview samples based on Creswell's theory where the number of interview samples is 5-25 people (Creswell & Plano, 2017). as additional informants also involving homeroom teachers to enrich insight and deepen the analysis. (Gill, 2020).

Data collection through various techniques, including direct observation in class, in-depth interviews with students and teachers based on Creswell's theory, and documentation of the use of learning applications and technological devices in schools (Expósito & De Ciurana, 2022). Observations were conducted in a participatory manner to capture the dynamics of learning interactions and student responses to the use of digital applications. Interviews were conducted in a semi-structured manner to provide space for informants to express their views and experiences freely, but remain within the research focus corridor. Documentation includes records of application usage, school policies, and teacher training schedules related to digital literacy (Ardiansyah et al., 2023)

Data collection techniques by conducting observations to produce facts that actually occur in the field. Next, by conducting interviews, researchers find out the actual information. Then, continued with information from informants in this case, teachers and students who are the objects of research. The data obtained in this process is then tested for data credibility using source triangulation techniques taken from data that has been collected through observation and interviews. This aims to describe the data to the point of saturation so as to produce findings in the research (Lexy J. Moleong, 2019).

3. RESULTS AND DISCUSSION

a. Results of Problem Identification in the Utilization of Learning Media

The results of the initial identification conducted by researchers at SMA Muhammadiyah 14 Central Jakarta, especially in class X with 36 students, showed that there were significant problems in the use of learning technology (Huang et al., 2023). Based on the results of classroom observations, in-depth interviews with students and teachers, and documentation of school academic reports taken from mid-semester assessments, it was found that around 76% of students have not been able to maximize the use of technology in digital learning that has been facilitated by the school, such as the Learning Management System (LMS), interactive learning applications, and online communication platforms between teachers and students (Lwande et al., 2021).

When researchers conducted direct observations in the classroom and outside of class hours, it was seen that most students still rely on conventional learning methods, such as manual note-taking and one-way interaction with teachers. Learning applications that are already available in the learning management system (LMS), and several Android-based educational applications, are only used to passively access materials, not as a medium for exploration, collaboration, or active discussion, which are actually the main goals in 21st-century education (Ichsan & Ali, 2020).

Interviews with several students revealed that the suboptimal use of this technology was caused by several factors. There are still many students whose devices are not connected to the internet to support online learning activities, and there is a lack of internal motivation among students to explore technology-based learning; most still consider digital learning as a complement, not as the main medium that can enrich their understanding (Wilson et al., 2016).

On the other hand, interviews with teachers showed that not all educators have optimal digital pedagogical skills. Several teachers said that training on the use of learning applications had indeed been provided by the school, but the implementation was not uniform in each subject. This means that the integration of technology into learning has not been carried out consistently and continuously, so that students are not used to utilizing it optimally (Ortiz et al., 2020).

Another interesting finding is the gap between school policies that encourage digitalization of learning and the readiness of infrastructure and learning culture that students have. Although schools have provided Wi-Fi networks, LCD projectors, and learning support applications, not all students have the understanding and habits to use them as effective learning tools. Some students even admitted to only opening learning applications when there were assignments or direct instructions from teachers, without the initiative to dig deeper into the subject matter independently.

The transformation of technology-based education in SMA Muhammadiyah 14 Central Jakarta still faces various challenges, both from the perspective of students, teachers, and learning support systems. The low utilization of technology by 76% of students indicates the need for more comprehensive strategic interventions, such as increasing digital literacy, intensive training for teachers, strengthening a digital learning culture, and continuous evaluation of the effectiveness of technology use in supporting 21st-century learning.

b. Developing Learning Steps

The initial step taken was mapping the initial abilities and learning habits of students towards digital learning media. Through observations and diagnostic questionnaires, teachers and the school curriculum development team identified that most students were not yet accustomed to using digital learning media actively, even though they had access to devices and internet connections. Some students only used digital

applications for purely instructional tasks, without making them part of the independent learning process ([Depict Pristine Adi, 2024](#)).

To respond to this condition, the school then implemented a basic digital literacy training program in stages. This training was designed not only to be technical, but also pedagogical, where students were assisted on how to use various learning platforms such as Google Classroom, Canva for Education, YouTube Edu, and create learning videos actively and creatively ([Dahri et al., 2023](#)). The training was carried out in the form of light workshops and direct practice during ICT class hours, and was integrated into cross-subject assignments that involved the use of technology. While many previous studies found that the use of technology was directly related to the use of technology, this ultimately resulted in students and teachers still experiencing many difficulties ([Hidayat & Fauziyyah, 2022](#)).

Next, teachers in class X began to redesign learning strategies with project-based learning and problem-based learning approaches, which require students to use digital media to complete their learning tasks. For example, students are asked to create interactive presentations, short videos, educational infographics, or internet-based research results compiled using applications that have been learned ([Eddy Saputra et al., 2023](#)). With this approach, students not only become users of technology but can also maximize meaningful and contextual educational content, such as project-based learning ([Alemneh & Gebrie, 2024](#)).

The next step is the formation of a digital learning community among students. In this community, students are given space to share knowledge, discuss, and help other friends in overcoming technical difficulties or the use of certain applications. This activity is facilitated by a teacher and uses student-friendly platforms such as Google Meet, WhatsApp Group, and discussion forums on the school's LMS. In addition to strengthening the collaborative spirit, this community is also a means of strengthening students' character, especially in terms of responsibility, independence, and concern for others ([Putri et al., 2022](#)).

To maintain consistency and sustainability, the school also implements a periodic monitoring and evaluation system for the development of students' use of digital learning media. Evaluation is carried out through student reflection after the learning process, digital assignments, and project-based assessments. Teachers also reflect to review the extent to which the strategies implemented are effective in increasing student engagement in the use of learning technology ([Pennington et al., 2024](#)).

As part of the Muhammadiyah Renewal Movement, these steps are not only aimed at improving students' technical skills, but also in order to form learning independence, work ethic, and integrity of progressive Islamic character, which are the characteristics of Muhammadiyah education. Digital learning media is positioned as a means to strengthen Islamic values in modern life, not just a learning tool ([Nurhadi et al., 2023](#)).

Through the implementation of these steps, it is hoped that class X students at SMA Muhammadiyah 14 Central Jakarta will be able to transform into a generation that is not only technologically proficient but also has a lifelong learning orientation, is ready to face global challenges, and remains rooted in strong Islamic and Muhammadiyah values.

c. Implementation of Learning Steps

The implementation of the educational transformation program in the context of 21st-century learning renewal at SMA Muhammadiyah 14 Central Jakarta has gone through a series of systematic stages. After strategic steps were implemented, starting from digital literacy training, redesigning with project-based learning, to the formation of a digital learning community, the results achieved showed positive changes in learning patterns and the involvement of class X students in utilizing technology-based learning media.

One of the most tangible results of this implementation is the increase in active student participation in the digital learning process. Students who previously tended to be passive and only relied on teacher explanations in class began to show initiative to explore learning applications independently. From the results of the evaluation conducted over the past two months, there was a 58% increase in the frequency of students using digital media, especially Google Classroom, Canva, and LMS to access materials, work on assignments, and collaborate on group projects ([Rahmawati & Atmojo, 2021](#)).

Students demonstrate creativity in presenting their learning outcomes. Previously, students' assignments tended to be monotonous in the form of handwriting or regular typing; now, many students are starting to deliver material through infographics, visual presentations, and even short videos that are packaged in an interesting way. This creativity reflects not only increased technical skills but also critical thinking skills and a deep understanding of the learning material being studied.

The implementation of the Project-Based Learning (PjBL) approach, supported by the use of digital media, also has an impact on increasing cooperation and communication between students. In group projects that require online collaboration, students learn to divide roles, create work schedules, and present their work digitally to classmates. This strengthens 21st-century competencies such as collaboration and digital communication that have not previously been developed optimally ([Maros et al., 2023](#)).

Another significant result is the growth of students' confidence in interacting with learning technology, including in making digital presentations in front of the class or submitting assignments via online platforms ([Hopkins et al., 2023](#)). If previously most students felt hesitant and afraid of using the application incorrectly, now they are much more daring to try, even helping each other if they have difficulties in learning ([Wiwin Luqna Hunaida, 2024](#)).

From the teacher's side, the results of this implementation also provide positive feedback on the quality of teaching. Teachers find it easier to evaluate learning because student assignments are systematically documented on a digital platform. In addition, teachers are also more open to using more varied and interactive learning approaches. Teachers are challenged to always develop their competence in teaching to produce learning that is in accordance with the goals of educational transformation in organizations and learning in the 21st century.

From interviews with students, some students still experience obstacles in accessing personal devices or internet connections at home, which has an impact on delays in submitting digital assignments. Students who are constrained are still using internet data packages. Therefore, schools need to continue to adjust policies that are inclusive and support students equally.

The implementation results show that with proper guidance and a supportive learning ecosystem, class X students of SMA Muhammadiyah 14 Central Jakarta are able to adapt and begin to integrate digital learning media into their learning process. This is proof that educational transformation in the Muhammadiyah Renewal Movement can be realized in the context of 21st-century learning, while maintaining Islamic values and the character of strong learners. Of the 76% of students who experienced difficulties, now only 18% are students.

Of the 18% of students, most said that it was due to limited internet networks that relied on data packages, where internet quotas were often limited. However, if they had a data package, in principle, there would be no problem with learning. The problem that occurred was due to limited funds to buy a data package. Through training and habituation, students have begun to get used to using technology in learning.

d. Evaluation Results in Utilizing Learning Media

Evaluation in 21st-century learning aims to assess competencies holistically, namely knowledge, skills, and attitudes, especially in efforts to implement learning by utilizing technology as a means of strengthening literacy, creativity, collaboration, and learning independence. At SMA Muhammadiyah 14 Central Jakarta, the evaluation of the use of learning media by class X students was carried out comprehensively, covering cognitive, affective, and psychomotor aspects in a digital context ([Phafiandita et al., 2022](#)).

Evaluation activities are carried out through various instruments, such as direct observation in class, student reflection through learning journals, open interviews with subject teachers, and analysis of assignments and projects collected online. From the results of the evaluation, a number of positive achievements were found as well as challenges that became material for joint reflection for continuous improvement.

The evaluation results showed a significant increase in students' cognitive and digital skills. Around 82% of Class X students showed a better understanding of using

various digital learning applications, such as Google Classroom, Canva. They not only understand the technical way to use it, but are also able to integrate the application into the learning process independently. For example, several students have been able to compile infographics and visual presentations based on Canva for History and Islamic Religious Education subjects, as well as create simple educational videos for Indonesian language lessons (Wu et al., 2022).

In the affective aspect, the evaluation noted that there was a habituation of students' learning patterns towards the use of technology. Previously, most students felt reluctant and lacked confidence in utilizing digital media; now, more students show enthusiasm and high curiosity towards technology-based learning innovations. They are more active in asking, trying, and discussing with friends and teachers when they encounter obstacles in the digital learning process (Suryatini, 2022).

This positive shift in students' attitudes is evident during classroom activities that integrate technology as part of the learning process. The increased engagement and collaboration among students reflect their growing adaptability and interest in digital-based learning. Figure 2 illustrates a snapshot of the learning process in class using technology, showcasing how students interact with digital tools to support their understanding and participation.



Figure 2. Learning process in class using technology

From the collaborative and communicative aspects, there is an increase in the ability to work together in online groups, especially when given problem-based project assignments. Students are starting to get used to using communication platforms such as Google Meet and digital discussion groups to coordinate and share responsibilities in working on group assignments. This is an indicator of the development of collaboration competencies and social responsibility, which are characteristics of the 21st-century student profile.

The evaluation results also found a number of obstacles that are still challenges. As many as 18% of students are still inconsistent in utilizing learning media optimally, mainly due to external factors such as limited devices, unstable internet connections at home, or a lack of parental guidance in accompanying the online learning process. In

addition, there are still students who use technology only as a tool to fulfill assignments, not as a means of exploration and self-development.

From the teacher's side, the evaluation shows that there is still a need to increase digital pedagogical capacity, so that teachers are able to design learning activities that truly utilize digital media meaningfully and sustainably. Teachers need to continue to be facilitated in the form of training on professional development through routine training and internal learning communities ([Mensah Prince Osiesi, 2025](#)).

The results of this evaluation confirm that the implementation of learning media within the framework of 21st-century learning renewal has had a positive impact on the learning patterns of class X students at SMA Muhammadiyah 14 Central Jakarta. Although not yet completely ideal, this process has raised awareness of the importance of mastering technology as part of the effort to create a generation of Muslims who are digitally competent, independent, and adaptive to changes in the times, as the ideals of the Muhammadiyah Renewal Movement. This evaluation is the basis for developing a more integrated and sustainable follow-up strategy.

e. Readiness for 21st-century Learning Reform

Amidst the dynamics and challenges of the 21st century, educational transformation has become a strategic necessity, not only to improve the quality of learning but also to ensure the sustainability of Muhammadiyah's mission of preaching in producing a generation that excels spiritually, intellectually, and technologically. The research was conducted at SMA Muhammadiyah 14 Central Jakarta with a qualitative approach and case study method, which specifically highlights the implementation of learning by prioritizing the use of technology and digital media for class X students.

After going through a series of renewal and transformation programs, the level of student understanding of digital media-based learning materials reached 82%. This figure is a significant indicator of success, especially when compared to the initial conditions, where only around 24% of students understood and utilized learning applications optimally. This data was obtained through a series of techniques from observation, interviews, and the most dominant in the final assessment of the odd semester of 2024-2025. This increase occurred thanks to a combination of structured, participatory learning transformation strategies and 21st-century learning orientation ([Kaya et al., 2023](#)).

Some of the transformation steps that have been taken include intensive training on the use of digital media for students and teachers, integration of learning platforms such as Google Classroom, Quizziz, and Canva in daily activities, and the implementation of the Project-Based Learning approach to encourage student exploration and creativity. Teachers have also begun to design learning that is collaborative, based on real problems, and that challenges students' critical thinking skills. Through this approach, students are not only required to understand the material but also develop communication skills, information literacy, and digital presentation skills ([Joy et al., 2023](#)).

This 82% increase in understanding is reflected in several key indicators. First, the quality of digital assignments submitted by students showed notable improvement in terms of structure, content, and creativity. Second, students' active participation in online discussions and class forums increased consistently from week to week. Third, their ability to articulate and re-explain the material through digital media, both verbally and in writing, demonstrated deeper internalization of the learning content. Finally, learning independence also improved, as evidenced by a growing number of students who independently explored additional materials through the internet and other digital sources.

In addition to academic aspects, this transformation also has a positive influence on students' learning attitudes and self-confidence in facing global challenges. They become more open to accepting change, adapt more quickly to technology, and are more responsible in managing time and tasks given digitally. This is in line with the profile of 21st-century students that Muhammadiyah wants to shape: intelligent, religious, creative, and ready to compete at national and global levels ([Noora J. Al-Thani, 2025](#)).

Students' self-confidence has increased significantly. They are no longer awkward in expressing their opinions in online or offline forums, and even begin to believe in their ability to use technology as a tool to help them think and create. Project-based activities such as making educational videos, digital Islamic infographics, and presentations in English have helped build a new identity for students as a generation that is not only academically capable, but also ready to compete in the global public space that demands high self-confidence ([Maor et al., 2023](#)).

This increase in self-confidence is also strengthened by the support of a conducive learning environment, inspiring teacher guidance, and a learning atmosphere that provides space for student expression. Within the framework of Muhammadiyah values, students are encouraged to not only be recipients of information, but also as agents of change who are able to convey ideas, solve problems, and develop their full potential based on faith and noble morals ([Daniel Medel RN, 2025](#)).

The study also noted several challenges that need to be followed up. Some students still experience limited access to devices at home, and not all teachers have equal digital competence. Therefore, the recommendations suggested include the procurement of inclusive learning support devices, increasing regular teacher training, and establishing a digital learning community at the school level involving teachers, students, and parents.

With an understanding achievement of 82%, it can be concluded that the transformation of education based on the Muhammadiyah renewal movement has been running well at SMA Muhammadiyah 14 Central Jakarta. This result is proof that the values of *tajdid* (renewal) carried by Muhammadiyah can be translated into educational practices that are adaptive, modern, and relevant to the challenges of the 21st century.

The transformation of education at SMA Muhammadiyah 14 not only produces students who excel in science and technology but also forms the character of students

who are brave, confident, and ready to face global challenges while remaining rooted in Islamic values. The Islamic values that are clearly visible make students more polite and respectful. There is a decrease in the number of reports from BK teachers regarding student delinquency. This adaptive learning attitude and strong self-confidence are important foundations in realizing the profile of 21st-century Muhammadiyah students who are able to actively contribute to community, national, and world life (Mukul & Büyüközkan, 2023).

The results of this study can be applied in other aspects as an effort to improve the quality of education in the future. Muhammadiyah high school students become adaptive students who also have good character in behavior. Educational transformation must adapt to its conditions. One example is incorporating technology into the learning process. Tarbiyatuna Journal Vol. 15 Number 2 (2024). 21st-century education is in line with the spirit of Muhammadiyah renewal by preparing a generation that has competitiveness that can play a role both domestically and abroad.

4. CONCLUSION

SMA 14 Muhammadiyah Central Jakarta has succeeded in integrating Islamic values with 21st-century competencies such as critical thinking, creativity, collaboration, and communication (4C) through a curriculum that is responsive to global challenges without leaving its ideological roots, this school has succeeded in implementing various learning innovations, especially in the use of digital media and technology in the learning environment. Through a structured, collaborative, and responsive approach to the development of the times, this transformation has produced a real positive impact. This transformation has had a real positive impact. This data was obtained through a series of observation techniques, interviews, and most dominantly in the final assessment of the odd semester of 2024-2025. This achievement is a significant leap compared to the initial condition, where only 24% of students were able to maximize the digital learning applications provided by the school. Educational transformation can meet the problems that have existed at SMA Muhammadiyah 14 Central Jakarta into concrete solutions so that they can be considered in answering the challenges of modern technology-based education, a Muhammadiyah renewal movement in creating an adaptive, relevant, and sustainable education system. The success of student understanding of 82% is an indicator that this transformation model is worthy of being replicated and developed more widely in other Muhammadiyah schools by considering the facilities and infrastructure available in each school, as part of a joint commitment to producing a progressive Islamic generation in the global era.

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