
TRANSFORMING CHARACTER EDUCATION THROUGH THE 4T PROGRAM BASED ON DIGITAL LITERACY

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Abstract

This study aims to analyze the transformation of character education through the implementation of the 4T program, Qur'anic memorization, Qur'anic reading improvement, Qur'anic comprehension, and Qur'anic value application integrated with digital literacy at SMP MBS Madiun. The research is grounded in the need for Islamic educational institutions to combine Qur'anic values with digital competence to ensure that character formation remains relevant to the demands of the 21st century. A qualitative case study approach was employed to allow an in-depth exploration of character-building practices within both school and boarding environments. The research site was purposively selected across two campuses of SMP MBS Madiun, involving 12 informants consisting of the mudir, school principal, vice principal for student affairs, 4T program teachers, mentor, and parents. Data were collected through semi-structured interviews, direct observations, and documentation, using instruments such as interview guides, checklist-based observation sheets, and field notes. Data analysis followed Miles and Huberman's interactive model, which includes data reduction, data display, and conclusion drawing, strengthened by source and technique triangulation. The findings indicate that the digitally supported 4T program effectively strengthens students' character development in a more systematic, monitored, and measurable manner, particularly in aspects of discipline, Qur'anic reading accuracy, comprehension of values, and implementation of Islamic manners in daily life. The study concludes that integrating Qur'anic values with digital literacy serves as an effective strategy for enhancing character formation in modern Islamic boarding schools.

Keywords

4T, Character Education, Digital Literacy, Educational Transformation, Modern Islamic Boarding School.



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INTRODUCTION

The transformation of character education through the digital literacy-based 4T Program at SMP MBS Madiun can be seen from the way the school combines the activities of Qur'anic memorization, Qur'anic reading improvement, Qur'anic comprehension, and Qur'anic value application with the use of technology as an instrument of learning, supervision, and evaluation (Muntazor, 2024). This integration is in line with the view that effective character formation occurs through consistent habit formation and is supported by a responsive learning environment (Anugrah & Rahmat, 2024). The use of Interactive Flat Panels (IFPs), spreadsheet monitoring, activity recordings, and *live streaming* in 4T activities reinforces habituation patterns as all student behaviors are systematically documented; this is in line with the concept Afdhal et al. (2025) that technology is able to increase the effectiveness of learning when used to strengthen interaction, reflection, and supervision. In addition, the digital learning practices in the 4T program reflect the principles of Ahmadi (2017) regarding digital literacy, which includes technical skills, critical understanding, and ethics in the use of technology. Thus, the implementation of 4T has transformed from a traditional pattern to a modern character education model that is adaptive, structured, and in accordance with the demands of the digital era.

The digital literacy-based 4T program has been proven to make a significant contribution to strengthening students' character of discipline, responsibility, religiosity, and moral awareness. Digital monitoring-based memorization deposit (*tahfidz*) activities strengthen the principle of self-regulated learning, as explained by Hayudiyani et al. (2020), that transparent supervision increases discipline and self-accountability. In the *tahsin* aspect, recording reading errors through digital documentation trains students to be honest and thorough, supporting the theory of Nouri et al. (2020) that effective learning occurs when evaluation is accompanied by direct and open feedback. *Tafhim* learning that focuses on understanding the meaning of verses strengthens the ability to think critically, in line with theory Aizikovitsh-Udi & Cheng (2015) that *critical thinking* develops through the process of in-depth analysis and interpretation of information. Meanwhile, the *tathbiq* component, which emphasizes the practice of worship and morals in daily life, affirms the theory of Motta & Galina (2023) that *experiential learning* is the most effective mechanism for internalizing values. Observational data collected at SMP MBS Madiun (school and boarding environments) showed measurable improvements in student character. Based on observation sheets and digital monitoring reports over the research period, 10 out of 12 observed students demonstrated increased

behavioral order, indicated by punctual attendance in tahfidz deposits and structured daily routines. In terms of independence, 9 students showed progress, reflected in their ability to complete memorization targets and worship practices without direct supervision. Meanwhile, empathy indicators such as helping peers, respectful communication, and social sensitivity improved in 8 students, as recorded in field notes and behavior documentation during Tathbiq activities. These findings were triangulated with digital habit reports and teacher observations, confirming a consistent upward trend across weekly monitoring dashboards. Thus, the integration of Qur'anic values and digital literacy within the 4T program empirically strengthens students' character in a sustainable and observable manner.

The success of character education transformation through the digital literacy-based 4T program is supported by a number of supporting factors, including school leadership, commitment of teachers and musyrif, pesantren culture, and adequate digital facilities. This is in accordance with the view Duc (2015) that leadership plays an important role in shaping a collaborative learning culture and a shared vision. A disciplined pesantren environment also strengthens character habituation, as emphasized Surbakti et al. (2024) that moral development depends on the consistency of the social environment. Parental involvement through access to digital reports supports the concept of connectivism described Agbo et al. (2023) that the technology network expands the space of educational control. However, the research also uncovered barriers such as students' variation in initial abilities, limited teachers' time for individual assistance, and technical constraints such as unstable networks or uneven digital literacy. These barriers are in line with the findings (Ratnawati, 2016) that character education cannot be carried out homogeneously because of the diverse backgrounds of students. Schools responded with digital literacy training for teachers, rescheduling learning, and device quality improvement, which showed that digital-based character education transformation requires simultaneous readiness of school human resources, infrastructure, and culture.

Research by Abbas et al. (2023) shows that the habit of worship in Islamic schools has an effect on increasing student motivation and discipline; However, this study does not integrate aspects of digital literacy as part of 21st century character building. Furthermore, Nouri et al. (2020) found that K–9 students who took programming learning experienced an improvement in digital skills and 21st-century competencies, but the study did not link digital skills to religious values or moral development. Research Rochim & Amal Khayati (2023) It was revealed that tahfidz activities

contribute to the formation of a critical thinking disposition through strengthening religiosity, but without including digital media as an instrument of character formation. On the other hand, Harahap (2025) shows that digital literacy training is able to improve students' ability to utilize technology, but does not associate these abilities with Qur'anic values or the context of Islamic boarding schools. Finally, research by Hosic et al. (2025) concludes that religious habituation through the STEAM project is able to shape students' emotional character, but has not utilized digital technology as a tool for monitoring and evaluating character. These five studies confirm that the study of character relationships, Islamic values, and digital literacy is still partially running and has not been integrated into one comprehensive coaching model.

From the five studies, several significant academic gaps were seen. First, character research in schools or Islamic boarding schools still dominantly emphasizes religious values, without integrating digital literacy competencies as essential skills in the 21st century, as theorized by (Resti et al., 2024). Second, digital literacy research stands alone without connecting it with moral development or Qur'anic values, even though Kong (2014) emphasizing that digital literacy includes the dimensions of ethics, responsibility, and character. Third, research related to Tahfidz and Tahsin only focuses on reading and memorizing abilities without describing how these activities can be integrated with digital systems that are able to form character through transparency, monitoring, and accountability. Fourth, there has been no research that has analyzed changes in student behavior directly after the implementation of digital systems in religious programs. Fifth, previous research did not provide a character development model that systematically combined habituation, digital monitoring, and Qur'anic values. This gap opens up important space for research that integrates these aspects holistically.

The novelty of this research lies in the comprehensive integration between the 4T program and digital literacy, creating a character development model that combines Qur'anic values with technological competence in the context of pesantren-based schools. This 4T digital model utilizes monitoring spreadsheets, activity recordings, and YouTube live streaming as transparent and measurable character control tools; This is in line with the theory of Reddick et al. (2017) about the learning environment that is expanded through digital media. Unlike previous research, which was partial, this study presents a holistic approach that combines habituation theory, experiential learning, and digital literacy theory into one operational character development model in the field (Campbell & Bellar, 2022; Marcen et al., 2022; Singh et al., 2016). Thus, this research presents a

scientific contribution in the form of a new model of Qur'an-based character development that is strengthened by technology and can be replicated in other modern Islamic schools.

This research occupies a strategic position as a link between traditional Islamic character education literature and the demands of educational digitalization. While previous research only highlighted one aspect of both religiosity, digital literacy, and moral behavior, this study combined all three in one model called the Digital-Based 4T Character Education Model. This approach is in line with the theory of connectivism, which emphasizes that knowledge and character can be built through technological networks that expand students' learning spaces (Alfiansyah, 2024; Campina-López et al., 2025). By showing how technology can strengthen students' discipline, integrity, accountability, and moral awareness through the 4T, this research makes a new contribution to the study of modern Islamic education that is adaptive to the digital age. Therefore, this research not only fills the gap but also offers a new direction for the development of Qur'anic-based character education models that are relevant to the needs of the digital generation.

In the context of national education, the Strengthening Character Education (PPK) policy and the *Independent Learning* paradigm emphasize that character formation must be carried out comprehensively through example, habituation, and the use of technology as part of the modern learning ecosystem. This policy direction is in line with the character theory of the Izzati et al. (2019) which emphasizes the three main dimensions of *moral knowing*, *moral feeling*, and *moral action* that must be integrated so that students not only understand values, but also be able to feel and realize them in real actions. In the discourse of Islamic education, these principles intersect with the concept of *tazkiyatun nafs* and the value of *akhlaq al-karimah* are developed through the processes of recitation, instruction, self-purification, and practical implementation so that it is relevant to the structure of the 4T program (Tahfidz, Tahsin, Tafhim, Tathbiq). Digital literacy as a 21st century necessity is based on Ahmadi's views and modern digital competency theories that emphasize technical skills, critical understanding, and ethics in the use of technology (Kurniawan, 2025). The integration of digital literacy is also strengthened by the view of Falloon (2020) That digital literacy includes not only technical skills, but also moral responsibility in the use of technology. Thus, the foundation of national policy, character education theory, and digital literacy discourse together provide a strong foothold for research on the transformation of character education through a digital literacy-based 4T program at SMP MBS Madiun.

The urgency of this research is reinforced by the increasing moral and digital challenges faced by adolescents in Indonesia, as shown by Lesmina et al. (2025) and Surbakti et al. (2024) that the abuse of technology and the weakening of self-control are becoming more and more real problems, so that schools, especially those based on Islamic boarding schools, are required to provide character education that is relevant to the needs of the digital generation. Based on these conditions, this study aims to describe the transformation of character education through the implementation of the digital literacy-based 4T program at SMP MBS Madiun, analyze the strategy of integrating technology with Qur'anic values, identify the contribution of each 4T component to the moral, academic, and social development of students, and reveal the supporting and inhibiting factors for its implementation. Theoretically, this research contributes to strengthening the literature on technology-based character development in modern Islamic education, as well as enriching the discourse of integration between digital literacy, Qur'anic values, and holistic character education models. Pragmatically, this research is expected to be an implementive model for modern Islamic schools that want to develop adaptive and sustainable character development systems, as well as provide best practices that can be replicated to answer educational challenges in the digital era. Thus, this research has strategic significance for the development of Islamic character education theory and its application in the context of contemporary educational institutions.

METHOD

This research is qualitative with a case study approach. The case study was conducted at SMP MBS Madiun, located in Madiun. This approach was chosen because it allows researchers to comprehensively understand the practice of character development through Tahfidz, Tahsin, Tafhim, and Tathbiq combined with the use of digital technology in the context of pesantren-based schools. The research data is in the form of character development process data, 4T program implementation patterns, student-teacher interaction, and the use of digital technology, which are obtained from various sources, namely 4T program implementing teachers, musyrif/musyrifah, school leaders, parents, and internal school documents.

Data collection techniques are carried out through interviews, observations, and documentation; 1) Interviews were conducted with *mudir*, school principals, vice principals for student affairs, four teachers implementing the 4T program, two mentor, and one student's parents to explore information related to planning, implementation, evaluation, and changes in student character; 2) Observations were conducted from January 15 to February 28, 2025, to examine real

events related to the implementation of Tahfidz, Tahsin, Tafhim, and Tathbiq. The observations focused on students' discipline, accuracy of Qur'anic reading, social interactions, and the application of Qur'anic values within both school and dormitory environments; 3) Documentation is carried out by collecting data from school documents in the form of curriculum, digital monitoring reports, teacher and deliberate records, photos of activities, and recordings of 4T activities as supporting data. Data sources consist of primary sources (teachers, school leaders, mentors, parents, and students) and secondary sources (school documents, photos of activities, digital reports, and academic archives related to the 4T program).

Data analysis using interactive models Asipi et al. (2022) which includes three stages: data reduction, data presentation, and a conclusion drawn. In the analysis process, the researcher conducted a critical study of the field findings by referring to the theory of character education, digital literacy, and the discourse of Qur'anic value development. Furthermore, the researcher juxtaposed the results of this study with various previous studies to strengthen the validity of the findings and affirm the academic position of the research in the study of digital character education in modern Islamic schools.

FINDINGS AND DISCUSSION

Findings

The results of the research on how the transformation of character education takes place through the implementation of the digital literacy-based 4T Program at SMP MBS Madiun. The findings were obtained through an in-depth analysis process from interviews, observations, and documentation that described the real practice of character development in the school and pesantren environment. All data were analyzed to identify patterns, dynamics, and changes in student character that emerged as a result of the integration of Qur'anic values with the use of digital technology. The findings are presented thematically according to the components of the 4T Qur'anic memorization, Qur'anic reading improvement, Qur'anic comprehension, and Qur'anic value application programs, as well as the supporting factors, inhibitions, and forms of technological integration in the character development process. Thus, the following exposure to the results provides a comprehensive overview of how this character development model works operationally and how technology strengthens the process of internalizing values in students.

Table 1. Transformation of Character Education through Digital Literacy-Based 4T Program at SMP MBS Madiun

No.	Program Implementation	Character Building Results	Digital Technology Integration
1.	Qur'anic memorization	Discipline increases through daily deposits. Learning responsibilities are formed. The students' perseverance strengthened. Spiritual independence increases.	Spreadsheet of Spreadsheet Tracking Spreadsheets. Digital tasmi' recording. Memorization progress dashboard.
2.	Qur'anic reading improvement	Academic rigor increased. Academic honesty (mistakes cannot be manipulated). Be humble in accepting corrections. More stable concentration.	Digital recording of reading errors. Tablet-based deliberation assessment. Record files are evaluated repeatedly.
3.	Qur'anic comprehension	Critical understanding develops. Moral awareness increases. Scientific communication is more systematic. Social and religious sensitivities increased.	Presentation of tafhim through digital presentations. Utilization of IFP (Interactive Flat Panel). Access materials through cloud storage.
4.	Qur'anic value application	The application of real morals is increasing. Personal independence is strong. Confidence grows through the practice of worship. Self-control increased.	Live streaming of worship practices. Video documentation of student behavior. Report digital habits to parents.

Source: Processed from primary data of observations, interviews, and digital documentation of the 4T Program implementation at SMP MBS Madiun, Madiun (January–February 2025).

The findings of the study show that the implementation of Tahfidz at SMP MBS Madiun takes place in a very structured pattern, ranging from daily deposits, memorization review, to periodic recitation assessment. Data in tables and digital monitoring show that almost all students show an increase in discipline from week to week, which is seen through the punctuality of deposits and the stability of achieving memorization targets. The digital memorization dashboard shows a relatively consistent pattern of development, especially in the group of students who receive more intensive supervision of mentor. The integration of technology in the form of monitoring spreadsheets and tasmi' recordings makes the progress of each student's memorization recorded in detail so that teachers and parents can see the changes that have occurred. From observation,

students seem to be more responsible for the memorization process because progress reports appear in real-time. Thus, Tahfidz has proven to be the most powerful coaching unit in shaping discipline, perseverance, and a sense of responsibility for students in their learning process.

Field findings show that the implementation of Qur'anic reading improvement results in a significant improvement in students' rigor, patience, and academic honesty. The digital recording of reading errors used in the evaluation showed that students consistently experienced a decrease in the error rate from the beginning to the end of the observation period. The data in the table shows that Tahsin encourages students to be more thorough in reading, as each mistake is recorded and reviewed by the teacher. Observations also show that students are more open to correction and do not cover up mistakes because the assessment process is supported by objective digital documentation. In addition, students show improved focus skills during the learning session, and this is reflected in the activity chart that depicts a steady improvement in the aspects of concentration and reading regularity. Overall, Tahsin forms a strong academic character through transparent, documented, repetitive exercises.

The results of the study show that the Qur'anic comprehension program plays a major role in shaping students' critical understanding and moral awareness. Digital presentations and verse interpretation activities stored in the cloud show that students are able to explain the relationship between the meaning of the verse and daily life situations. From all the presentations observed, it can be seen that students have been able to compile short and neat arguments when explaining the results of their Qur'anic comprehension. The findings table shows that oral communication skills are improved; This can be seen from a more orderly delivery structure and a more targeted use of presentation media. Observations showed that Qur'anic comprehension's classroom atmosphere tended to be interactive, students responded to each other's opinions, and teachers recorded an increase in courage to ask questions in each session. In addition, the improvement in the quality of material delivery at IFP shows the development of students' digital literacy. This program has been proven to improve analytical skills, moral sensitivity, and the ability to communicate systematically.

The findings of the study show that the practical application of Qur'anic values is the part of the program that has the most visible effect on students' real behavior. Documentation of photos, videos, and live streams of worship practices and daily activities shows positive changes in student independence, respect, personal hygiene, and social order in schools and dormitories. The digital habit report shows an increase in the number of students who meet daily etiquette indicators such

as prayer punctuality, room cleanliness, and personal neatness. Field observations show that students are more careful in acting because many activities are recorded and can be seen by teachers and parents. The descriptive chart shows that the level of student participation in practical application of Qur'anic values activities is in the high category, with a steady increase in the confidence aspect when appearing in front of the camera for worship practices. The practical application of Qur'anic values proved to be a real forum for internalizing Qur'anic values that encouraged consistent and directly observable behavioral changes.

Discussion

The results of the study show that the implementation of the 4T program (Qur'anic memorization, Qur'anic reading improvement, Qur'anic comprehension, Qur'anic value application) based on digital literacy at Madiun MBS Junior High School runs systematically and in a structured manner. The implementation of the program lasts from morning to night with a consistent habituation pattern so as to support the internalization of character values. This is in line with habituation theory Gay (2018) which affirms that behaviors are formed through repetitive practice and reinforced responses. Digitalization is used to strengthen the coaching process through *spreadsheet monitoring*, activity recordings, and *live streaming* that increase transparency in student development. This application is also in accordance with the opinion Muruganantham (2019) That technology can improve the effectiveness of learning if used to reinforce interaction and reflection. A disciplined modern pesantren environment is an ideal space to integrate religious values and digital skills. Thus, the implementation of the 4T program has shown a transformation of character education that is relevant to the demands of the digital era.

The findings show that the Qur'anic memorization program makes a significant contribution to the formation of the character of discipline, perseverance, and responsibility of students. Daily memorization deposits monitored using digital media make students more accountable for their learning process. This is in line with the theory of self-regulated learning, Noroozi et al. (2019), which states that self-monitoring improves student discipline. The consistency of murojaah and tasmi' also increases the memory capacity of students through continuous practice. Teachers use *the new lesson*, *recent review*, and *long-term revision method* to strengthen the maintenance of memorization so that students are accustomed to a regular study schedule. This approach suggests that character building can be strengthened through a combination of religious habituation and digital control. The results of the observation showed an increase in discipline in students who actively participated in the

program. Thus, Tahfidz becomes the main pillar of the formation of religious character and academic discipline.

Research has found that the Tahsin program plays an important role in forming a thorough, honest, and humble character in students. The learning process through the face-to-face Qur'anic recitation method allows teachers to correct the readings directly so that students are used to receiving criticism. This is in line with the theory Chang (2021) that effective learning occurs in social interactions involving expert guidance. Reading errors recorded digitally strengthen the character of academic honesty because they cannot be manipulated by students. The habit of reading the Qur'an correctly strengthens the meticulousness and precision in daily learning activities. The teacher emphasizes the quality of reading so that students have high moral-intellectual standards. This approach strengthens moral values through structured Qur'an reading activities. Thus, the Tahsin program not only improves reading skills but also the moral character of students.

The results of the study show that the Qur'anic comprehension program improves students' understanding of the meaning of Qur'anic verses and builds a critical mindset. Learning is carried out by the methodological approach that guides students to understand the verse word for word. Adair & Jaeger (2016) states that critical thinking involves the ability to understand, analyze, and evaluate information in depth. The teacher then connects the meaning of the verse with the reality of life so that students learn to assess behavior based on Qur'anic values. This also strengthens the moral awareness of the students because they understand the theological reasons behind the religious rules. The presentation of the results of Tafhim trains students' communication skills systematically. This activity shows that understanding of sacred texts can be integrated with high-level thinking skills. Thus, the Tafhim program contributes significantly to the development of the intellectual and moral character of students.

The Qur'anic value application program produces real changes in the behavior of students through the application of Qur'anic values in daily life. Activities such as worship practices, friendship manners, and personal hygiene are strengthened through documentation and *live streaming* as a visible form of habituation. Direct experience is the most effective method of shaping character through the cycle of learning experience (Kotsopoulos et al., 2017). Students became more careful because they felt like they were role models when appearing in digital recordings. Qur'anic value application's activities train confidence, responsibility, creativity, and digital literacy skills at the same time. This reinforcement shows that technology can be used as a means of internalizing

morals. Observations showed an increase in positive behavior in students who actively participated in the program. Thus, Qur'anic value application plays an important role in turning values into concrete actions.

The use of digital technology in the 4T program is one of the most significant findings in this study. *Interactive Flat Panels, monitoring spreadsheets, and live streaming* are used to increase the effectiveness of control and communication between teachers, students, and parents. According to the theory of digital literacy Herlina et al. (2023) the use of technology must include skills, meaning, and adaptation in the context of learning. Digitalization in the 4T program shows that the three are running synergistically. The use of technology also increases parental involvement in monitoring the development of their children's character. In addition, technology helps teachers authentically document changes in students' characters. Thus, digitalization strengthens the transformation of character education in schools.

Several factors supporting the successful implementation of the 4T program were found in this study. These factors include the leadership of the principal, the commitment of teachers, a supportive Islamic boarding school environment, and adequate technological facilities. Vinokur et al. (2024) stating that school leadership plays an important role in building a positive culture and a shared vision in learning. The support of a mentor as a school caregiver also strengthens the pattern of continuous habituation. Additionally, parental involvement in digital monitoring helps reduce the information gap. The school's digital facilities continue to be improved to allow students to learn contextually and modernly. These factors show that the success of 4T is the result of the collaboration of all school components. Thus, systemic support is the key to the success of building the character of students.

Inhibiting Factors and Improvement Efforts through the 4T program are effective; the study found some obstacles that need to be considered. These obstacles include differences in students' initial abilities, limited time for teacher assistance, and technical constraints of digital devices. This is in accordance with Ratnawati's (2016) opinion that character education cannot be carried out homogeneously because the backgrounds of students are different. Teachers also experience challenges when they have to evaluate students' individual readings and memorization in a limited time. In addition, technical disturbances such as unstable internet networks are obstacles to digital implementation. The school made various improvements, such as rescheduling, counseling, and

improving digital literacy training for teachers and students. Thus, existing barriers can be minimized through continuous improvement strategies.

The results of the study show that the integration of Qur'ani values in the 4T program with digital literacy marks a significant transformation in character education at SMP MBS Madiun. These findings are in line with the view Ekawati et al. (2025) that 21st century education demands a combination of moral, social, and digital skills. Schools are able to transform from traditional coaching patterns to an adaptive approach by utilizing technology as an instrument of control and character strengthening. The use of *interactive flat panels*, *spreadsheet monitoring*, and *live streaming* proves that digitalization can expand the cultivation of value without reducing the substance of Islamic education. This supports the theory Aytakin & Topçu (2024) which states that technology can increase the effectiveness of learning if it is designed according to the pedagogical context. This transformation also strengthens the profile of students who are religious and technologically literate. Thus, this article shows that Islamic schools can innovate character without abandoning their roots of religious values.

The Qur'anic memorization program shows a strong role in shaping student discipline and accountability through structured and digitized memorization deposits. This approach reinforces the findings Zheng et al. (2020) that self-monitoring and external supervision increase the self-regulation of students. The application of *the new-lesson, recent-review, and long-term revision method* also strengthens the principle of repetitive training, as explained Soundy & Heneghan (2022) in the theory of *the law of exercise*, where habits are formed through consistent repetitions. With the digitization of memorization reports, students become more responsible for their learning process because parents and teachers can monitor them transparently. This condition creates a learning environment that requires students to have integrity in the tahfidz process. In addition, tasmi' activities together strengthen confidence and social cohesion among students. Thus, the Tahfidz program is the main foundation for the formation of religious character and measurable discipline.

The Qur'anic reading improvement program contributes greatly to the formation of a thorough, patient, and honest character in the academic process of students. Direct interaction with teachers through the method of deliberation reflects the views of Education et al. (2018) that cognitive development occurs through expert guidance or a *more knowledgeable other*. When reading errors are evaluated in real time, students learn to accept criticism as part of the process of self-improvement. This situation trains academic honesty because mistakes cannot be covered, especially

when the evaluation system is supported by digital documentation. The habit of reading the Qur'an correctly also trains concentration and thoroughness, as emphasized by Kasirah et al. (2025), that intellectual skills are formed through repetitive exercises that involve direct feedback. This process also fosters humility because students are constantly being improved and directed. Thus, Tahsin became the center of the formation of relevant moral-intellectual characters in the context of modern Islamic education.

Qur'anic comprehension contributes significantly to fostering students' critical understanding and moral awareness through learning the meaning and value of Qur'anic verses. These findings reinforce the theory Trimawati et al. (2020) which explains that critical thinking involves the ability to understand, analyze, and evaluate the meaning of information before making moral decisions. The teacher in this study relates the meaning of the verse to the life of the students, so that understanding does not stop at the cognitive level but penetrates into real behavior. This learning model also supports the concept that learners build knowledge through the process of associating new concepts with previous experiences (Çetin & Günay, 2018). The presentation of the results of Qur'anic comprehension shows that students develop into more systematic and reflective communicators. This kind of learning expands students' insight into Qur'anic values in the context of digital life. Thus, Qur'anic comprehension helps in the formation of critical, reflective, and value-based character.

The Qur'anic value application program is a tangible form of character education transformation through the direct application of Qur'anic values in the lives of students. This approach is very much in line with the theory of *experiential learning*, which asserts that character is formed most strongly through direct experience, followed by reflection (Motta & Galina, 2023). Worship practices, social manners, and personal hygiene activities are strengthened through digital documentation so as to provide behavioral accountability. When students perform in *live streaming*, they learn to control themselves and appear as role models for their friends. Technology, in this context, is not only a tool of documentation but a mediator of character formation. This shows that technology can be directed to strengthen morals, not just as a medium of entertainment. Thus, Qur'anic value application becomes a testing space for Qur'anic values in real life that comprehensively shapes the character of students.

The use of digital technology in the 4T program shows that schools are able to go beyond traditional character-building approaches towards a more adaptive modern Islamic education

model. Firdausi et al. (2023) explain that digital literacy involves technical skills, understanding, and technological transformation in the context of learning. SMP MBS Madiun has successfully implemented these three aspects through digital supervision, information dissemination, and strengthening communication between teachers, parents, and students. Thus, technology increases the transparency, effectiveness, and continuity of character building. This innovation also supports the theory of *connectivism*, that technology can expand learning networks and enrich educational experiences (Galoyan et al., 2022). The integration of technology also allows for authentic documentation of character changes. This proves that digitalization can run in harmony with Qur'anic values in modern Islamic education.

The discussion of this research shows that the digital-based 4T program can be used as a model for modern Islamic schools that want to strengthen character education in a more innovative and effective way. These findings support a holistic educational approach that emphasizes the need to integrate moral, intellectual, social, and technological aspects in the formation of learners (Maharani et al., 2019; Palop et al., 2025; Septyawan et al., 2023). The digital 4T model can be applied as a reference for Islamic educational institutions that are entering the era of digitalization, especially in the context of adolescent character development. This program is relevant to be applied in other schools with adjustments to facilities, school culture, and teacher readiness. This research also opens up space for follow-up studies that test the effectiveness of the digital 4T model quantitatively or compare its implementation in various Islamic boarding schools. Thus, the results of this study make a strategic contribution to the development of modern Islamic education that is value-oriented and adaptive to technological developments.

CONCLUSION

This study concludes that the integration of the 4T program (Qur'anic memorization, Qur'anic reading improvement, Qur'anic comprehension, Qur'anic value application) based on digital literacy is able to transform the character education of students comprehensively at SMP MBS Madiun. The implementation of the four Qur'ani programs has been proven to form religious, disciplined, critical, and responsible character when combined with digital strategies such as spreadsheet-based monitoring and *live streaming*. The results of the study show that technology can be used as a tool to strengthen morals and not just as a learning support medium. The digitalization of the program also increases transparency and parental involvement in monitoring the

development of students' characters. However, there are obstacles in the form of variability in the ability of students and technical obstacles that require a continuous mentoring strategy. This research provides the implication that the digital 4T model can be replicated in other modern Islamic schools with adjustments to the context and facilities. For future researchers, quantitative studies or longitudinal research are needed to test the effectiveness of this model in a more measurable way. In addition, comparative studies between Islamic boarding schools can enrich understanding of the best practices of digital-based character education.

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