Digital Technology and Socio-Dynamic Aspects of Indonesian Islamic Religious Education: A Total Quality Management Perspective

Intan Zakiyyah[1*], Suparto[2], Imron Azhari Karo-Karo[3] & Muhammad Nur Ahsan Zakir[4]

[1,2]Graduate School Syarif Hidayatullah State Islamic University, Jakarta
[3]Sumatera Utara State Islamic University, North Sumatera
[4]Institut Teknologi Bandung (ITB) Bandung, West Java

ABSTRACT

The management of Islamic education learning based on digital technology, adapts to Islamic values, recognizing that religious education cannot rely solely on digital tools. Therefore, teachers still play a guiding role in providing direct support to students. This research aims to analyze the management of digital technology use in Islamic Religious Education (PAI) Total Quality Management Perspective. The findings indicate that character-based PAI learning through digital technology encompasses four key elements: digital teaching modules and Learning Management Systems (LMS), digital technology-based learning infrastructure, teacher training, and support for character development in students. These four elements are accompanied by total quality management, so that PAI learning using digital technology accelerates the achievement of educational goals. This research is qualitative, descriptive, and analytical, utilizing a phenomenological approach. Primary data for this research was obtained directly from the Islamic Development Network (IDN) in Bogor.

Correspondence Address:
intanzakizakiyyah@gmail.com

1.   **INTRODUCTION**

Concerns about the use of technology in education arise in some developed countries. In Sweden, the government banned cell phones in schools due to concerns that they distract students and hinder expected learning outcomes (Kessel et al., 2019). Similar policies have been applied in Denmark and England. Neil Selwyn has argued that banning cell phones in schools offers an opportunity to enhance students' digital understanding and awareness (Selwyn & Aagaard, 2021). Conversely, Anita Grigic Magnusson et al. argue that, with teacher supervision and approval, students' cell phones can serve as educational tools that complement other digital technologies in the classroom (Magnusson et al., 2023). Grady Wells also challenges Kessel et al.'s perspective, emphasizing that technology represents an investment in the future (Prodjodikoro, 1991). Supporting this view, Sahana Murthy states that ICT must be utilized in student-centered learning; however, its effectiveness depends on well-implemented active learning strategies (Murthy et al., 2018).

In contrast, the Indonesian government, through the Ministry of Communication and Information, encourages the public to use digital advancements more productively. The Minister of Communication and Information stated that productivity in this context means that the digital space should accelerate individuals' thinking and actions. "In this way, digital progress will contribute to societal advancement" (KOMINFO, n.d.). Budi Arie also noted that to support digital transformation in Indonesia, it is essential to develop digital infrastructure, while the government is also working to enhance public digital literacy in the use of digital spaces and technologies (KOMINFO, n.d.-a). In the education sector specifically, digital skills are crucial, not only adequate infrastructure. These skills are especially important for teachers, who act as key innovators in driving change in the classroom (Hermans et al., 2008).

Some studies raise concerns regarding digital-based learning. For instance, a study by (Al-wahid 2020) on *Islamic Religious Education Learning Model Based on Digital Technology* concludes that there is a relationship between digital technology use in Islamic religious education and factors such as curriculum technology, brain-friendly technology, child-friendly technology, and environmentally friendly technology, influencing critical and creative thinking. This research also proposes an effective model to address various challenges associated with digital technology in Islamic religious education for secondary schools (Iro & Cln, 2013).

This study shares similarities on digital technology in religious education. This emphasizes digital technology-based religious learning using Total Quality Management (TQM) and strategic management application, while Alwahid employs a child- and environmentally-friendly technology approach. Additionally, (Behera's 2023) research, titled *Technological Interventions in Education: An Empirical Review of Their Impact on Learning Outcomes,* examines the effects of various technological tools—such as mobile devices, online learning, and educational software—on student achievement, motivation, and engagement. The findings highlight the benefits of technology-enhanced learning, including improvements in academic achievement, engagement, and motivation (Behera, 2023). While both studies demonstrate that technology positively impacts learning, this dissertation specifically explores the role of digital technology in Islamic Religious Education (PAI) from a TQM perspective.

A study by (Dziubaniuk et al. 2023), titled *Learning and Teaching Sustainable Business in the Digital Era: A Connectivism Theory Approach*, concluded that connectivism serves as a theoretical framework emphasizing the role of digital technology in enhancing knowledge development and connections within the learning process (Dziubaniuk et al., 2023). Similar to this study, this paper analyzes digital technology-based learning using the principle of connectivity. However, this research specifically focuses on the use of digital technology in foundational learning at Islamic boarding schools through the perspective of Total Quality Management (TQM). Additionally, it aims to explore the phenomena and implications of digital technology in improving educational quality and cultural shifts within Islamic boarding schools, while ensuring the approach aligns with Islamic values and principles.

This research differs from previous studies in three key aspects. First, the object of study is the Islamic Development Network (IDN) located in Bogor, an IT-oriented Islamic boarding school that integrates digital technology into religious learning. Second, this study applies TQM as a management model and uses digitalization as an educational tool to enhance the quality of education. Third, TQM—a model traditionally used in business management—is adapted as an educational management approach for digital technology-based Islamic boarding schools, exploring the role of digital technology in religious learning from a TQM perspective. The overall objective of this study is to provide an *Analysis of the Management of Digital Technology Use in Digital-Based Islamic Religious Education (PAI)* learning, based on Edward Sallis' Total Quality Management (TQM) framework.

2. METHODS

To develop a constructive framework, qualitative research methods were utilized with a phenomenological approach and educational management context. This research is more directed at understanding social phenomena from the participant's perspectives in the implementation of TQM and religious learning in digital technology-based Islamic boarding schools using several steps. The primary data were gleaned from the Islamic Development Network (IDN) Jonggol Bogor in the form of documents, notes of interviews with leaders, teachers and staff, testimonials from students and student guardians., observations on learning activities and Islamic boarding school activities. In addition to interview and observation, documentation was also carried out to collect data of learning Implementation Plans/ *Paper Planning*, Learning Portfolio Report, IDN Student Discipline Book, IDN Monitoring Book, IDN Student Achievement Data, PPDB (New Student Admissions) Data for 2022-2023 and 2023-2024, Data on the Distribution of IDN Graduates for 2023, IDN MiniMagz (*Mini Magazine*), IDN teaching proposal, the book "Our Friends" by Dedi Gunawan, founder of IDN.

3.   **RESULTS AND DISCUSSION**

The Islamic Development Network, abbreviated as IDN, was initially established in 2008 as ID Networker, and in 2013 it evolved into PT. Integrasi Data Nusantara, led by Dedi Gunawan, MT., CCIE., (Gunawan. Personal Interview, Juni 20, 2023) with offices located in Jakarta and Semarang. The organization has acquired numerous clients and projects both domestically and internationally. In 2016, IDN was founded with the motto "IT Experts Who Excel in Religious Knowledge." During the period of 2016-2017, the IDN Foundation was established. Unlike traditional pesantren (Islamic boarding schools), which are typically founded by religious leaders with community support, IDN was established by a corporate entity, PT. Integrasi Data Nusantara, rather than by a kyai (religious leader), as Dedi Gunawan can be considered a businessman. When interviewed, IDN utilized two terms: pesantren and boarding school, with the pesantren referring to a modern style of Islamic boarding school (Saputra and Paramida, Personal Interview, July 31, 2023). Bobi stated that regarding licensing, IDN has obtained permission from the Ministry of Religious Affairs as a pondok pesantren, while the permits for the junior high school (SMP) and vocational school (SMK) fall under the Education Office. Bobi also mentioned that at the inception of IDN, the term "boarding school" was used because, during its establishment, the public was sensitive to the term "pesantren." Over time, according to Bobi, the community has accepted the term "pesantren," thus IDN incorporates both terms (Saputra, Personal Interview, December 8, 2023).

Currently, IDN has established five branches: Jonggol Bogor Ikhwan, Solo, Pamijahan, Sentul, and Akhwat (Documentation, 2023). A unique aspect of IDN compared to other pesantren is its emphasis on expertise in both IT and religious studies. Every student, as mentioned by Bobi from the Talent Development Network, is expected to excel and produce tangible results (Saputra and Paramida, Personal Interview, 2023). Consequently, IDN is supported by various industries, including IMA Studio.co.id, ID-Networkers Indonesian Expert Factory, CISCO Networking Academy, Mikrotik Academy, and UBIQUITI Training Academy (IDN Boarding School, n.d.).

The vision of IDN is to be an Expert Factory. Its missions include, first, producing IT experts; and second, cultivating good da'wah (Islamic preaching) cadres in their communities based on the understanding of the Quran and the Sunnah of the Salafus Salih (righteous predecessors). The philosophy of IDN starts with a child progressing from ignorance to knowledge, from knowledge to capability, from capability to training, and from skill to expertise. The focus of IDN's educational approach is to develop students into experts, or "IT Experts Who Excel in Religious Knowledge."

In its curriculum, IDN employs three curricula: the pesantren curriculum, the nature school curriculum, and the Ministry of National Education curriculum. The diniyah (Islamic religious) education at IDN encompasses Islamic studies, including *fiqh* (Islamic jurisprudence), *aqidah* (creed), history, and *adab* (morality). Unlike traditional pesantren that often rely on classical yellow books *(kitab kuning)*, IDN has designed its own curriculum for diniyah studies and utilizes technology as a medium for learning. IT education is mandatory in all subjects at IDN, reflecting its focus on technology. Referencing Zamaksyari Dhofier's theory on the elements of pesantren, IDN does not fit the traditional model as it does not study the kitab kuning. Thus, in relation to this, IDN can be classified as an Islamic school with a boarding system. However, if referring to the substantive understanding of kitab kuning, IDN aligns with the pesantren concept as its

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references are based on the Quran and Hadith.

This opinion is further supported by Azyumardi Azra, who states that the core elements of a pesantren are: 1) tafaqquh fi ad-din (deep understanding of religion); 2) producing scholars; and 3) the transmission of culture. This is reinforced by the Directorate of Diniyah Education and Pondok Pesantren, which notes that there are many types of kitab kuning, and they are not static but can continue to evolve. Additionally, the writing styles of kitab kuning are very diverse. Some discuss fiqh without directly mentioning the Quran and Hadith, but their content is based on the ijtihad (juridical reasoning) of scholars derived from the Quran, Hadith, and other Islamic legal sources, as per the principles of Usul Fiqh. Essentially, the scholars who write these books do so with care; if they write carelessly, lacking a foundation or with a basis that is methodologically unsound concerning Islamic scientific methodology in deriving conclusions from the Quran and Hadith, they will face criticism from other scholars (*Direktorat Pendidikan Diniyah dan Pondok Pesantren* (Ditpdpontren), n.d.).

IDN Boarding School contributes to a religious-based educational solution with the motto "IT Experts, Proficient in Religious Studies." To realize this motto, IDN Boarding School strives to plan and implement an integrated system between its various units, emphasizing not only academic aspects but, more importantly, character development through moral and mental training, as well as the aqidah (faith) and worship of its students (Zaelani, 2021). Bobi Saputra, representing the Talent Development Network, noted that many pesantren in Indonesia regard the internet as their main enemy. The internet is accessed through laptops or mobile phones, leading to some pesantren that focus on Quran memorization prohibiting their students from using such devices, a practice that still occurs today. However, schools should prepare individuals for real-life situations. The fatwas issued by the Indonesian Ulema Council (MUI) have never prohibited the use of the internet, mobile phones, or laptops. In fact, graduates from pesantren are expected to use such technologies, highlighting a broader perspective on this issue.

In reality, teachers at these pesantren also utilize mobile phones and laptops, yet they often fail to teach their students how to use technology wisely for fear of negative influences. From this perspective, IDN adopts a different viewpoint. Unlike traditional pesantren, which often distance children from technology, IDN, according to Bobi, aims to be a pioneer in creating a generation that actively utilizes technology to spread goodness, preparing individuals to be more adept in real-world situations (Saputra, Personal Interview, July 31, 2023).

The author has chosen IDN (Islamic Development Network) Bogor as the research subject, based on its robust use of technology in education, which is supported by solid infrastructure, digital technology implementation, and a cultural approach to digital technology usage. IDN's motto is "IT Experts Proficient in Religious Studies." The curriculum at IDN is divided into three integrated components: the Education Office curriculum, the Nature School curriculum, and the Pesantren curriculum. In this setup, students receive 25 hours of IT instruction each week, effectively training them to become IT experts. Additionally, IDN requires students to bring laptops to class.

This has led the author to investigate further, particularly regarding digitalization as a tool or medium to accelerate and facilitate customer satisfaction or quality from the perspective of Total Quality Management (TQM). In the realm of technology, IDN has achieved numerous accolades, including being a speaker at the International Mikrotik User Meeting (MUM) in 2019 in Cambodia, securing second place in the National Islamic Apps competition held at Universitas

Darussalam Gontor, conducting in-house Android training at the National Nuclear Energy Agency (BATAN) in Serpong, speaking at the Iboxing Week event at Botani Square in Bogor, being invited to the Apple office in Jakarta, reaching the finals in a national youth creative competition at Telkom University Bandung, placing second in the 3 GB hosting competition at Universitas Dian Nuswantoro Semarang, and winning the overall championship at the OSI-H (Olimpiade Sains Indonesia Hardiknas) national competition organized by Yapresindo. The IDN Akhwat junior high school has won a total of 45 medals, including 7 gold, 21 silver, and 17 bronze (Quaneisha, 2023).

IDN has been established for seven years, since 2016, and has produced graduates who are now spread across both domestic and international locations (Documentation, 2023). The management and utilization of digital technology in diniyah education at IDN is an area that requires further research, particularly considering how this pesantren, despite its higher costs, attracts significant interest from the community in enrolling their children in an IT-focused pesantren.

The policy requiring all students to bring laptops that meet specified standards at IDN is supported by the availability of digital technology infrastructure in every classroom and all dormitory environments. There is also an infostructure in place, which includes responsibilities for supervising students during lessons and regulations regarding laptop usage during class. Additionally, IDN is equipped with CCTV in every classroom, ensuring that when students work on assignments outside of regular class hours using their laptops, they are monitored. This surveillance fosters a sense of accountability and instills proper etiquette in laptop usage.

At IDN, character education is conducted every morning during a session called "Morning Spirit," held from 07:00 to 07:15. This session covers a variety of topics, including study motivation and proper ethical conduct. Furthermore, student activity history is monitored through a Mikrotik system every three months, allowing for tracking of student engagement and usage patterns (Saputra and Paramida, Personal Interview, July 31, 2023).

The policies at IDN strongly support the use of digital technology in learning, backed by a comprehensive infrastructure, infostructure, and *infokultur*, which will be elaborated on in the subsequent discussion. Additionally, the presence of digital applications such as the IDN website further enhances the educational experience.

Analysis and Discussion Researchers use digitalization as a tool or medium to accelerate and facilitate the achievement of customer satisfaction from an educational quality management perspective using TQM theory, namely customer satisfaction, analyzing how digital technology is used in Islamic Religious Education (PAI) learning, then how it is implemented. PAI learning is based on digital technology according to a TQM perspective. In the results and discussion here, several sub-themes will be discussed, including the first being the principles of using digital technology in PAI learning from a TQM perspective, the use of digital technology in PAI learning at IDN, the application of TQM principles, and finally conclusions, suggestions and recommendations will be discussed.

3.1   Principles of Using Digital Technology in PAI Learning from a TQM

Four main principles are essential in the use of digital technology in PAI learning: digital teaching modules and Learning Management Systems (LMS), learning infrastructure, teacher training, and mentoring to support students' character development.

a.   Digital Teaching Module and *Learning Management System*

The PAI teaching module at IDN involves several components. First, planning, which includes creating a digital-based Learning Implementation Plan, designed using Canva and stored on IDN's Google Drive. Second, an introductory learning module, prepared by teachers in PDF format, summarizes content from various book references and incorporates learning applications such as Kahoot, Quizizz, and Canva. Notably, IDN does not have its own Learning Management System (LMS). According to Khairul Setiadi, teachers are expected to use digital media, but the primary focus remains on the learning itself rather than the technology. Thus, teachers supervise the use of digital tools to ensure alignment with educational goals (Setiadi, Personal Interview, February 6, 2024). Third, IDN employs digital technology in the evaluation of early childhood or religious learning, using portfolio reports to document progress.

b.   Digital Technology Based Learning Infrastructure

Overall, IDN facilities are equipped with Wi-Fi accessible to teachers, staff, students, and guests. At IDN Vocational School, there are three study programs: multimedia design, software engineering, and communications and network engineering. Classrooms are designed to be interactive, featuring smart TVs, air conditioning, laptops for every student, interactive tables, and ample electrical outlets. IDN Middle School classrooms are similarly equipped. In the dormitories, students have adequate facilities, including beds and wardrobes.

Unlike traditional schools, where libraries are separate rooms, the IDN library functions more as a student reading area, allowing students to access materials via their laptops. Although IDN supports digital-based learning, it currently lacks a dedicated Learning Management System (LMS) and primarily relies on Google services and internet access for educational resources.

c.   Teacher Training

One of IDN's key training and coaching programs focuses on strengthening English proficiency for both teachers and students. English is emphasized as a core part of IDN's education because it is essential for digital technology, making it a mandatory language at school and in boarding facilities. Since its inception seven years ago, IDN has required students to speak English, a rule also stated in the IDN student regulations.

Students are expected to: (a) speak both Arabic and English in accordance with IDN's guidelines; (b) participate in all language activities (microdata, *muhadatsah*, *muhadharah*, etc.) as part of the IDN program; and (c) maintain a vocabulary journal provided by the language department. Additionally, students are prohibited from (a) making light of Arabic or English; (b) leaving language activities before they conclude; (c) mocking peers for pronunciation errors or their efforts to learn Arabic or English; and (d) for new students, speaking Indonesian is allowed in their first six months if they have not yet gained proficiency in Arabic and English. Students are also required to periodically submit their memorized vocabulary to the language department at specified times, and speaking in regional languages is not permitted (Zaelani, 2021).

IDN collaborates with industry experts—including IMA Studio.co.id, ID-Networkers Indonesia Expert Factory, CISCO Networking Academy, Mikrotik Academy, and UBIQUITI Training Academy—to provide specialized training for teachers and students (IDN Boarding School Profile | IDN School, 2016). Training is conducted periodically, with teacher development activities occurring daily. For example, from 7:00-7:15 a.m., junior high school teachers engage in lesson preparation, and hostel meetings foster a positive morning atmosphere for students. Weekly coaching and leadership meetings are also held.

Additionally, collaboration training is scheduled as needed, taking place either at IDN or externally. For instance, teachers have been trained in Pare to improve their English conversational skills, while digital technology training at IDN is conducted with expert institutions. IDN even offers teacher training for industry certifications. Prospective IDN teachers and staff must demonstrate basic computer skills to meet recruitment standards (Adinda, Personal Interview, Juli 31, 2023; Saputra and Paramida, Personal Interview, July 31, 2023; Setiadi, Personal Interview, February 6, 2024).

d.   Mentoring and Development of Student Manners

Ethical development is as important as digital technology-based learning. Science and technology remain meaningful and holistic when accompanied by Islamic values, which emphasize practicing good manners in everyday life. At IDN, guidelines for appropriate conduct are not limited to digital technology use; they extend to all aspects of daily life, ensuring that students integrate ethics into their routines.

3.2   Utilization of Digital Technology in Learning Islamic Religious Education at IDN

The Pre-learning Fiqh (Islamic Law) subjects at IDN commence with the teacher preparing digital infrastructure, including PowerPoint presentations, smart TVs, laptops, and access to the IDN website for junior high school students. In the evening, when classes are held at the Islamic boarding school, students are equipped only with laptops and internet access due to the indoor setting. Teachers verify the readiness of students' equipment, including laptops and internet connections in junior high schools; during evening sessions at the boarding school, students are required to bring notebooks instead. The lesson begins with the teacher engaging in apperception, recalling previously covered material. The teacher then communicates the learning objectives, which include students' understanding of religious concepts in theory, their practical application, and the creation of IT projects based on initial content. Attendance is taken, followed by a prayer.

At IDN, core activities begin with the teacher's mastery of the subject matter. In junior high schools, teachers are expected to demonstrate a strong command of the material. However, in Islamic boarding schools, instructors often exhibit limited mastery, frequently relying on their laptops during presentations. To enhance understanding, teachers connect the material to relevant knowledge using video and image tools displayed on a smart TV. Unfortunately, Islamic boarding schools typically lack such technological support, and instruction is primarily delivered through lectures.

The learning approach employed is Contextual Teaching and Learning (CTL), wherein the teacher serves as a role model, drawing examples from the lives of the Prophet's companions. However, inquiry-based activities related to religious subjects are minimal in the dormitory setting; students primarily engage in listening and answering questions posed by the teacher. After this, students are encouraged to participate by asking and responding to questions.

Teachers systematically implement lessons according to the competencies they aim to achieve. In classroom settings, where student numbers are fewer than 20, the teacher maintains effective classroom control. In contrast, dormitory classes often contain 30-40 students with only two teachers present, resulting in less oversight, as the teacher typically remains seated at the front of the classroom, focused on their laptop.

The learning process follows the designated time allocations. The use of learning resources and media is evident as teachers demonstrate proficiency in utilizing these tools, actively involving students in digital-based learning resources. Multimedia from the IDN website is employed to stimulate student engagement. Interactive arrangements of desks and chairs foster communication between students and teachers, as well as among students themselves, facilitated by teacher-led questioning.

At the closing stage of initial learning at IDN, teachers facilitate reflection on the learning experience by collaboratively drawing conclusions. In junior high school, educators provide follow-up directions and assignments based on IT projects related to religious material. The outcomes of student projects are documented in student publications, such as the IDN MiniMagz (Mini Magazine) and IDN's social media platforms.

Learning at IDN emphasizes the use of digital technology not only in IT courses but also across other subjects, including early childhood education. For new grade 7 students, there are challenges in utilizing technology, particularly with Microsoft Office Word, as many students are unfamiliar with its functionalities, from basic typing techniques to understanding the various features. To address these issues, an IT teacher provides essential support, particularly in facilitating the integration of technology into other subjects.

IDN has established a robust infrastructure to support the effective use of technology, including fast and reliable Wi-Fi, interactive classrooms equipped with smart TVs, and tables and benches arranged to foster collaborative discussions among students. The student-to-teacher ratio is maintained at fewer than 20 students per class, which allows for close supervision and individualized support. Additionally, each classroom is equipped with CCTV for enhanced monitoring.

Stakeholder satisfaction regarding the use of digital technology to enhance academic quality were assessed through effectiveness and efficiency in learning outcomes. Each aspect of education—including results, outputs, processes, and inputs—possesses both quality and quantity dimensions. For instance, the quality of input, such as a teacher's proficiency in utilizing digital technology in the classroom, is critical and should be monitored using specific indicators outlined in technology usage guidelines. The quality of educational outputs generally encompasses contributions to rational thinking, problem-solving abilities, lifelong learning motivation, sound judgment, and creativity. Improvements in quality are highly contingent on the processes implemented (McMahon, 2003).

Effectiveness pertains to output; the incorporation of technological media in learning enables students to enhance their academic performance. Efficiency, on the other hand, involves the systematic input of data and the capacity to develop educational indicators that facilitate monitoring of the educational system. For example, at IDN, an initial learning report is generated to document learning outcomes for each semester. This digital report card is designed to align with the learning processes of both students and teachers, streamlining the reporting of student performance.

Digital technology-based learning is aimed at increasing the effectiveness and efficiency of the education system, thereby minimizing resource wastage and maximizing the potential for quality educational improvements. Consequently, it is essential for teachers to be judicious in selecting appropriate digital technology media.

3.3 Aplication of TQM Principles

The regression results show that Interaction has a positive effect on the dependent variable with a coefficient of 1.182 and a moderate effect (0.280), while Motivation has a smaller negative effect (-0.087) with a relatively low effect (0.193). These results indicate that Interaction has a significant positive effect on the dependent variable, meaning that an increase in interaction will raise the value of the dependent variable. Meanwhile, Motivation has a smaller negative effect on the dependent variable, meaning that an increase in motivation tends to decrease the value of the dependent variable, although its effect is not large.

In the implementation of Total Quality Management (TQM) at IDN, Ustaz Bobi, who oversees the IDN Talent Development Network and serves as a guardian for IDN students, noted that the institution seldom employs TQM terminology explicitly. Instead, various institutions often utilize different terminologies; however, the principles of TQM are effectively integrated within IDN's operations.

To facilitate continuous improvement, a weekly meeting is conducted every Wednesday from 08:00 to 12:00 WIB, where the director, deputy director, and branch leaders convene to discuss existing challenges, explore alternatives, and propose solutions, thereby fostering an environment of ongoing enhancement. Furthermore, IDN establishes quality standards, including competency achievement benchmarks for each student grade promotion (SKK) and graduate competency standards (SKL), which are continuously monitored for effectiveness.

Additionally, IDN aims to cultivate a supportive organizational culture as outlined in the book *Our Friends*. This culture is reinforced through various initiatives, such as weekly English language learning sessions for teachers and the implementation of icebreakers during meetings. The 5S culture—emphasizing greetings, politeness, and smiles—is also actively promoted (Saputra, Personal Interview, July 31, 2023).

a. Continuous Improvement

Continuous improvements are made in the management of Islamic education and institutions must always strive to improve the quality of their education. Improving the quality of TQM education can be carried out comprehensively and in various aspects, such as learning, facilities and infrastructure, curriculum, learning methods, and human resource development. Continuous improvement at IDN was shown by planning various agendas, meeting agendas, teachers *training*/training agendas, *family meetings* and *raising children* student guardians, IT

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Sharing experts, And *intern student* meetings. The IDN management meeting is held every week on Wednesday from 08.00-12.00 WIB and is attended by the director, deputy directors, and all leaders of each IDN branch. During the meeting, problems and alternative solutions to these problems were presented. During the meeting, Bobi revealed that all school principals had to detail what the obstacles. Then the principal gave a complaint about what alternatives should be addressed, but the decision was taken by the deputy director at the meeting. (Saputra, Personal Interview, December 9, 2023). Then in its implementation, all supporters, directors, chairmen, teachers, guardians, students, and committees are involved to make the quality targets a success. In its implementation, it cannot be separated from continuous improvement with training for foundation administrators, teachers, and staff (Saputra, Personal Interview, December 9, 2023).

b.   Determination of Quality Standards

Quality standards at IDN are established in alignment with the institution's vision, mission, and goals, and are monitored by their respective departments. The IDN employs an effective coordination framework that embodies the principles of Total Quality Management (TQM), fostering a well-organized structure tailored to each task and standard operating procedure (SOP).

The organizational structure of IDN includes several key roles: First, the Education Director, appointed by the IDN Foundation, is responsible for leading and managing the institution; in Islamic boarding schools, this role is commonly referred to as the caregiver, while at IDN, the title used is director. Second, the Principal assists the Education Director in overseeing matters related to formal education. Third, the Dormitory Head is appointed by IDN following established procedures to support the Education Director in managing student affairs and dormitory operations (Zaelani, 2021).

c.   Cultural Change

IDN's cultural transformation is guided by the book *Our Friends*, which encourages all teachers, staff, students, and guardians to embrace a culture characterized by growth, community membership, recognition, productivity, and ambitious aspirations (Gunawan, 2020). In addition, IDN promotes the 5S culture—comprising Smiles, Greetings, Salutations, Politeness, and Courtesy.

To facilitate the implementation of this culture, IDN has established programs such as weekly English language training for teachers, coupled with icebreaker activities prior to meetings for the internal team. The adherence to these cultural values is closely monitored, and any violations are addressed by the counseling team (BK). Furthermore, the implementation of IDN's culture is supported by the Student Council (OSIS), which actively supervises both students and staff in upholding these cultural standards.

d.   Organizational Change

Students engaged in digital technology-based learning, particularly during the initial stages, find the process to be more engaging, challenging, and enjoyable, which facilitates quicker acceptance of learning objectives. This approach enhances students' enthusiasm for learning, leading them to revisit and reinforce the material presented. The teaching and learning process based on digital technology promotes interactivity, collaboration, democracy, and a multi-source approach to education.

Contemporary students exhibit a preference for typing over handwriting, multimedia over traditional media, and favor instant, easily accessible resources rather than those requiring significant time and effort to obtain (Asiah, Personal Interview, July 31, 2023; Fazri et al., Personal Interview, October 22, 2023; Suretno, Personal Interview, October 22, 2023; Ridha, Personal Interview, November 10, 2023).

IDN stands out as an Islamic boarding school with significant advantages in the field of Information Technology, aligning its curriculum with the demands of the international IT industry. Every student, particularly at the vocational school level, is prepared to acquire skills and certifications for global participation. Educators and educational staff at IDN, across both general and religious domains, are expected to possess at least basic IT skills, with a heightened emphasis on competency for IT instructors.

e.   Relationship with Customers

IDN also maintains relationships with customers with various strategies. One example of an IDN retaining internal customers such as teachers and staff includes: First, housing is free, for singles, they are given a teacher's room or dormitory, for those who are married the cost of the housing contract is suspended. Second, free health services. Third, one Family Card (KK) educational scholarship for teachers/staff is free of charge can be for younger siblings, and is not limited. Bobi also said that to satisfy and maintain relationships with external customers, namely student guardians, form First, create class groups and dormitories (group every day) to inform all IDN activities, including dhuha prayers, asar, fasting, halaqah-related to daily activities. Second, parenting sessions, are usually implemented in one semester 1-2 times, one online, the other beside. Online childcare activities by inviting resource persons, usually psychologists, for example regarding the role of parents in educating and collaborating with Islamic boarding schools. So besides the session is for parents to come to the school/Islamic boarding school, for example, children are asked to cook or make creations which will later be given to parents to bring children closer to their parents. IDN facilitates this as one of the TQM principles, namely satisfying customers. Third, when taking the report card, the student who presents the results of the report card is the student who wrote it slide and can also speak English if parents understand, the homeroom teacher only provides additional information if there is a lack of explanation. According to the testimony of the guardians, the students were satisfied with their children's achievements, because at IDN all students had to excel and it was written on the student's portfolio report card. This presentation contains a simulation carried out by the homeroom teacher before it is presented to parents and students because they are used to it a teacher today with the IDN program every day, so when giving report cards to parents they are confident (Saputra, Personal Interview, December 31, 2023).

IDN in implementing TQM certainly has obstacles and supporters. If there are problems, IDN immediately provides alternatives/solutions in the meeting and also brings in expert consultants, or can also collaborate with, for example, the Community Health Center or others, then the decision will be taken by the deputy director at that time. that meeting. Supporting administrators must involve the entire community, teachers, principals, directors, and even parents, students, and school committees to make IDN's quality targets a success. (Saputra, Personal Interview, December 31, 2023).

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One of the primary objectives of Total Quality Management (TQM) is to address customer needs. To enhance the quality of school services, institutions must first identify their customers, determine the services offered to them, and establish metrics for evaluating service quality. Addressing this challenge is complex, as schools differ from factories that produce tangible products for sale. School customers can be categorized into two groups: external and internal customers. External customers include students, parents, government bodies or foundations, and the community of alumni. In contrast, teachers and staff are considered internal customers (Fitria, 2021).

Incorporating technology into academia facilitates administrative tasks for both teachers and leaders. For instance, at IDN, traditional paper-based assignments have been replaced; all submissions are centralized on Google Drive, accessible to all teachers and staff. This approach not only reduces operational costs but also allows resources to be redirected toward more valuable activities. Furthermore, technology fosters the development of students' abilities by encouraging creativity and innovation through practical application. By integrating technology into the learning process, teachers can create a more dynamic and engaging educational experience, thereby avoiding monotony (Saputra and Paramida, Personal Interview, July 31, 2023).

f.   Services that Focus on Customer Satisfaction

In implementing learning administration services at IDN, teachers, students, administrators, and parents are inseparable. If the quality of internal and external services can run according to plan, then leaders as managers must supervise and evaluate the course of education. Good administrative services, especially in learning, will be maximized if the teacher as user or implementer is adequate. Therefore, leaders must consistently accompany and guide teachers so that teachers continue to increase their knowledge and experience. At IDN, teachers are given training, guidance from IT experts, and mentoring once a week, covering technical learning issues, IT use, and the UK. If you look at the input, IDN teachers and staff or employees are very adequate in using digital technology. Teachers, in this case as an internal service, have an important role in IT-based learning to produce quality external customers, namely students.

Administrative services are also supported by qualified human resources. In recruiting administrative staff at IDN there are several criteria to support excellent service, including being proficient in operations. *Microsoft Office*, preferably experienced as administrative staff, understand the rules for making reports and archiving, ability *fast type* And *Microsoft* layout and preferably have their laptop. It doesn't stop at employee recruitment or the input of qualified administrative staff, but all employees are inseparable from planned SOPs, implementation monitoring, and continuous evaluation. However, in its implementation, IDN empirically adopts total company service management. Testimonies from student parents regarding IDN customer satisfaction are more about the aspects of morals, enthusiasm for learning, *life skills, and work skills*, their children can create games and websites, memorize hadiths, speak fluent English, memorize the Koran, develop character, dare to communicate, be independent, have fighting power, develop religion and change their personality to be more responsible and trustworthy. Some said they were satisfied with the communication delivered every day *The* WhatsApp student group. From the explanation above regarding the implementation of TQM and digital implementation in the curriculum, TQM and digital technology are interconnected in the IDN management system. The implementation of TQM is assisted by digital technology, both in

academic services in the implementation of religious learning and in administrative services to help provide convenience, attractiveness, and definite service to every educational customer. The implementation of TQM in Islamic boarding schools based on digital technology will have implications and contribute to the cultural context of Islamic boarding schools and the quality of Islamic boarding schools. The implications and contributions of technology-based TQM will be explained in the next chapter.

g.   Supporting and Inhibiting Factors

In implementing PAI learning based on digital technology from a TQM perspective, there are supporting and inhibiting factors. Good supporting factors at IDN: *First*, *best input* both for teachers and students. *Second,* have clear SOPs and main tasks such as company systems, IDN employees, teachers, and education stakeholders, and have one vision and mission. *Third*, the existence of infrastructure, both internet and digital technology-based learning support infrastructure. *Fourth*, the existence of initial capital as financing for quality education. *Fifth*, IDN policies are not authoritarian but are more democratic and open to the problems faced by teachers, staff, and students. The inhibiting factor in implementing the use of digital technology in religious learning from a TQM perspective is the rapid turnover of new teachers, so IDN must continue to train and guide these teachers.

CONCLUSION

This research concludes that four fundamental principles must be integrated into the use of digital technology in Islamic Religious Education (PAI) learning. These principles include the development of digital teaching modules and Learning Management Systems, adequate learning infrastructure, comprehensive teacher training, and mentoring, as well as the character development of students. Currently, the management of PAI learning at IDN, which is based on digital technology, remains sporadic and lacks a cohesive framework for integrating digital technology into the learning process.

While the quality of education at IDN has not fully capitalized on the potential of digital-based modules, various factors contribute to its overall improvement. Notably, the application of Total Quality Management (TQM) principles has led to satisfactory outcomes for stakeholders, evidenced by enhanced academic performance, the attainment of competencies reflected in certificates that facilitate student entry into the workforce, successful admission of students into prestigious schools both domestically and internationally, and an increase in enrollment figures.

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