

**Management of Technology-Based Learning Innovations  
in Improving the Quality of Learning**

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**Abstract**

Using technology to transform the paradigm of learning creates new relationships between teachers and students. This research aims to describe the management of technology-based learning innovations in improving the quality of learning at MTsN 2 Asahan. This research was qualitative research with descriptive research design. The data were collected through interview methods, observation and documentation studies. The data that has been collected was analyzed using data reduction, data presentation and drawing conclusions. The validity of the data was tested using data triangulation techniques. The results showed that learning innovation necessitates empowerment in the teaching process as an effort to improve the quality of learning. The pandemic period became a turning point in awareness of the empowerment of online learning platforms such as WhatsApp Group (WAG), Zoom, and Google Classroom at MTsN 2 Asahan. This has an impact on teachers' skills in packaging open materials so that they are interesting and easy for students to learn and understand through digital content. In short, learning innovation demands teacher empowerment in order to improve learning quality.

**Keywords:** learning innovation, learning quality, online media

## INTRODUCTION

The development priority of developed countries lies in human resources. Human capability as a measure of the success and progress of a nation has been proven for generations (Liu, et al., 2024; Zahara & Fithriana, 2018). The creation of superior quality humans did not actually appear suddenly or accidentally, because basically every human being is superior. The superior potential in every human being has been present since birth, this is reflected in the interests and talents that begin to appear with age (Puspa, et al., 2023; Winters, 2011).

Students' growth shows a variety of shifts in attitude, mindset, and abilities from an early age into maturity. This demonstrates that, in keeping with the understanding that every person is unique, every human being does in fact have the capacity for greatness (Krooi, et al., 2024; Assingkily & Barus, 2019). Similar to how not everyone recognizes their own specialness or uniqueness, it is not unusual to find students who are depressed, under stress from their studies, or who exhibit abnormal attitudes and behaviors. Because of this, education is necessary to start the process of making each person aware of their privileges (Donkoh, et al., 2023; Assingkily & Hardiyati, 2019).

By using technology as a medium to shift the paradigm of learning, "new" relationships between teachers and students are produced. With internet access, engagement and communication become more effortless, akin to a world without boundaries. Innovation in technology-based learning is therefore required (Artajaya, 2022; Lubis, et al., 2022). It is the school's joint obligation to use technology as a teaching tool. This means that educators must utilize and introduce renewable technology as an online learning platform, and school administrators must support the administration of these advances in technology-based learning by putting in place organized activities or programs (Sari, 2021; Rahayu, et al., 2022).

The fundamental abilities required of students align with the goal of education in the twenty-first century, which is to produce graduates who can think "independently" and who may be identified as *Pancasila* and *Rahmatan Lil Alamin* students (Septikasari & Frasandy, 2018; Nahdiyah, et al., 2022). Students should be exposed to digital-based learning innovations at a young age in order to prepare them for an all digital learning environment in the future (Mardhiyah, et al., 2021; Purnawanto, 2022). In addition, there are other benefits that come with using digital media for learning, like instantaneous and precise information transfer, unrestricted involvement and communication, flexibility in learning, and simple access to knowledge from any location.

Additionally, researchers believe that another factor influencing the quality of learning when using teaching materials and technology-based learning media is the lack of adequate facilities, infrastructure, and resources, such as computers, laptops, gadgets, and a stable internet network (Puspita & Andriani, 2021; Rangkuti, 2023). Teachers in remote places, where internet connectivity is scarce, are not the only ones affected by the lack of infrastructure and learning resources. Due to the lack of technology-based learning resources in many urban schools, teachers and even students supply their own personal learning resources, such as laptops and internet networks, making the use of technology in the classroom extremely rare (Nuzli, 2021; Mulasi & Saputra, 2019).

Learning still prioritizes the use of the lecture method in Islamic-based schools, where there is a trend for minimal use of technology in the implementation of learning (Devi, et al., 2023; Hasanah, et al., 2022). This contrasts with the way that learning is implemented at MTsN 2 Asahan, where students learn through a variety of activities, contemporary thought, and technology advancements to make learning engaging and

enjoyable. To stay up with changes in the curriculum and the times, MTsN 2 Asahan keeps refining its educational program. Schools take this action to ensure that learning standards do not fall behind those of public schools and that they can generate competitive graduates.

Relevant research on technology-based learning has been discussed by previous researchers in various scientific fields. Among them is research conducted by Solichin, et al. (2023), concluded that novelty in PAI learning is a dynamic form of education to improve the quality of education. Furthermore, Yuliana (2019) added that the results of her research found that the modern era education development model based on technology necessitates the use of the internet as the main access for distance learning. Thus, the use of sophisticated technology in education is the answer to the innovation and dynamics of modern era learning.

Starting from the relevant research description above, it is understood that there is a gap analysis study, namely in the aspect of the research case study method which focuses on discussing the management of improving the quality of learning at MTsN Asahan based on the use of technology. The management of technology-based learning innovations carried out at MTsN 2 Asahan makes the learning atmosphere effective and enjoyable. This can be seen from the many achievements obtained by schools at both district/city, provincial and national levels which have been contributed by students and teachers. So that residents and prospective students show enthusiasm for further studies at MTsN 2 Asahan. Based on this, researchers are interested in conducting research with the title "Management of Technology-Based Learning Innovations in Improving the Quality of Learning".

## **METHOD**

This study employed a qualitative methodology with a descriptive study design. Researchers conducted fieldwork and collect data via observation, documentation studies, and interview techniques. MTsN 2 Asahan, which is situated at Jalan Melur, Kisaran Naga, Kota Kisaran Timur District, Asahan Regency, served as the study site. The data that has been collected is analyzed using data reduction, data presentation and drawing conclusions. The validity of the research data was tested using data triangulation techniques (Assingkily, 2021).

## **FINDINGS AND DISCUSSION**

### ***Technology-Based Innovative Learning Planning at MTsN 2 Asahan***

Digital-based learning media innovation tends to provide extensive opportunities to improve the quality of learning in schools. However, the problem that schools will face is the provision of technology-based learning facilities or infrastructure (Pratiwi, et al., 2022; Achyanadia, 2016). So far, if the learning being practiced by the teacher experiences an obstacle, including the learning media, it can be covered through the teacher's creativity in utilizing the surrounding environment as a medium. However, digital-based media is a polemic that cannot simply be replaced with creativity or use of the surrounding environment, because it requires internet access, tools in the form of smartphones, and computer skills (Adventyana, et al., 2023; Maryani & Reinita, 2024).

In connection with the problems above, the role of the government through the relevant agencies or ministries is needed in providing learning facilities, in order to improve the quality of education. Digital learning innovation will continue to experience changes and developments along with advances in today's technology (Rahma, et al.,

2023; Ekawati et al., 2021). To balance this, learning no longer just emphasizes written results (report cards), but also the product and integrity of students (Utomo, 2023; Triyanto, 2020). This process must of course be measurable and capable of delivering quality education at a high level.

Based on the results of interviews with teachers at MTsN 2 Asahan, the following were obtained:

*“...When we discuss educational innovation, technological use is undoubtedly included. These days, technology has a big impact on how innovative the education sector is. In the field of education, technology can be used for a variety of purposes, such as the learning process. Technology can be incorporated in the learning materials. Nowadays, a number of online learning platforms—Quipper, Ruang Guru, Zenius, and others—are beginning to appear. In addition, pupils prefer digital information when it comes to the learning materials we will deliver. Understandably, today's children are more interested in digital media than print media”.*

The following quote from the interview attests to the fact that digital technology has grown to be a significant aspect of our lives, particularly in the field of education. Digital technology has revolutionized education by providing teachers and students with new ways to access resources, enhance learning experiences, and foster greater student participation. Learning will become more advanced and of higher quality in this way. In addition, the MTsN 2 Asahan madrasa's deputy head of curriculum stated that:

*“...digital technology-enabled madrasas can incorporate various management strategies and best practices into their learning innovations. These include the use of mobile and tablet devices, e-learning platforms and applications, social media for learning, voice recognition, visual aids, and virtual reality. or augmented reality, collaboration and remote learning, project-based learning using a STEM (Science, Technology, Engineering, and Mathematics) approach, progress monitoring, and data analysis. This digital-based learning interaction and communication will support the dynamics of technological progress and sophistication. Furthermore, students will learn according to the context of their era based on smartphones, of course this makes it easier for students to receive learning”.*

The madrasah has created a management plan for innovative digital-based learning, according to the interview extract above. First, using tablets and mobile devices. Schools can include mobile devices and tablets into the curriculum to give students convenient access to interactive media and learning materials, as these devices are becoming more and more common (Mumtahanah & Suyuthi, 2020; Khumaini, et al., 2022). Second, platforms and apps for online learning. Using e-learning systems and apps like Google Classroom, Edmodo, and Moodle enables teachers to instantly exchange resources, homework, and comments with students (Putra, et al., 2021; Nur & Rukmana, 2023).

The third is social media education. Social media platforms like Instagram, Twitter, and Facebook can be utilized in educational settings. Instructors can exchange knowledge and materials, and if students require additional assistance, they can offer online tutoring (Kustijono, et al., 2018; Widaningsih et al., 2023). Fourth, speech recognition, virtual or augmented reality, and visual aids (Ramdani, et al., 2021). The use of this technology can assist children who struggle with writing, reading, or even making

conceptual connections. Furthermore, augmented reality and virtual reality can be utilized to create a more engaging and dynamic learning environment.

The fifth strategy is STEM (Science, Technology, Engineering, and Mathematics) project-based learning. Develop your critical thinking and problem-solving skills by working on STEM projects like creating an app, a robot, or computer simulations to learn about science ideas (Maula & Fatmawati, 2020). Sixth, remote learning and cooperation. Students can work together with their peers virtually as well as in the classroom thanks to digital technology. Digital whiteboards, virtual classrooms, and video conferencing can all be used to improve distance learning (Sakiah & Effendi, 2021).

Data analysis and progress tracking come in seventh. Utilize learning management systems to gather information about students' progress. You can also utilize data analysis to identify learning trends and implement the appropriate remediation strategies (Lombu, 2019). In order for learning innovation in digitally connected schools to be implemented with best practices in management planning, teachers' assistance and guidance is crucial. As a result, it's critical that schools give educators the guidance and assistance they need to successfully integrate digital technology into the classroom.

### ***Implementation of Technology-Based Learning Innovation Management at MTsN 2 Asahan***

Based on information provided by the deputy head of the madrasah for MTsN 2 Asahan curriculum, information was obtained that:

*“...the procedures we use to implement technology-based learning innovation management in madrasahs (MTsN 2 Asahan) are, of course, gradual. They include using game-based learning to boost student interest, motivation, and enthusiasm for learning, as well as implementing distance learning and giving students a bigger role in the learning process. In the end, we expect that it will contribute to raising the standard of instruction in madrasahs. So, the important point is that we want these children to be actively involved in the learning process, so that their potential can be optimally explored”.*

According to the above-mentioned interview excerpt, efforts have been made to control the adoption of technology-based learning innovation in madrasahs. The first item in the description is distant learning. For teachers, distance is currently not a barrier to conducting instruction (Parlindungan et al., 2020; Davani, 2022). Since there are numerous tools available to enable distance learning, like Google Classroom, Zoom Meetings, and Google Meet.

Second, giving students a bigger say in what they study (Tasaik & Tuasikal, 2018; Siregar, 2022). There is potential for improvement regarding the role that students play in the classroom. As pupils, they will not be able to concentrate on the given content for very long. Teachers can gain insight into students' preferences in the learning process when they incorporate the role of the student. Third, learning through observation (Jaelani, et al., 2020). The observation method, which involves going to the site to be observed in person to provide the teacher and students with educational material, can be employed in the learning process. Students will comprehend the topic more readily as a result of this.

Fourth, learning through games (Qodr, 2020). Using games that are relevant to the content being delivered is one method that can be used in the learning process. Students' curiosity will be piqued by learning presented in the form of this game. Teachers still need to be aware of the components of the subject matter that will be covered while

employing innovative teaching strategies. The teaching and learning process can function more efficiently, amicably, and creatively using learning innovation, which will increase students' excitement for learning. Additionally, learning objectives can be met, which will eventually raise student learning achievement.

### ***Evaluation of Technology-Based Learning Innovation at MTsN 2 Asahan***

Based on the range of learning activities, MTsN 2 Asahan's technology-based learning innovations are evaluated for their ability to improve learning. An extract from an interview given by a teacher at MTsN 2 Asahan is as follows:

*“...evaluation is crucial, my friend. Because we make an effort to gauge students' degree of learning achievement. Furthermore, it's a digital platform. Our work is split into three categories: learning program evaluation, learning process assessment, and, of course, learning outcome evaluation. This allows for the process-to-end measurement of student learning outcomes. Apart from seeing the development of each student, we also see what needs the student needs for the next lesson”.*

The aforementioned interview extract highlights three distinct evaluative dimensions. The first involves an assessment of the learning program, which encompasses learning objectives, program content, teaching and learning methodologies, and other program elements (Rosmana, et al., 2022). The assessment of the learning process involves two key components: the degree to which the process aligns with the predetermined program outline, the teacher's proficiency in facilitating the process, and the students' capacity to adhere to the process (Fitrianti, 2018). Third, assessment of learning outcomes, which includes the degree to which students have mastered the general and particular learning objectives, examined in terms of cognitive, emotional, and psychomotor components (Wisman, et al., 2021).

There are both advantages and disadvantages to using technology in the classroom when trying to raise the standard of instruction at MTsN 2 Asahan. According to the following instructor:

*“...the benefits of integrating technology into education are as follows: (1) learning will be more efficient in terms of time, money, and logistics; (2) information will be easier to obtain and disseminate without regard to time or space constraints; and (3) children will have access to a wider range of learning opportunities. In addition, there are other negative effects of technology use in education, such as altered social lives, behavioral changes, and altered ethics, norms, or morals. Children who use technology excessively may become antisocial because they are more interested in the virtual world than the real one, and children who develop a technology addiction may act wastefully and idly”.*

It is clear from the foregoing explanation that technology-based learning has a significant positive impact on the quality of programs, procedures, and learning results in madrasas. Likewise, if students use technology for studying without supervision and support, bad things will happen to their ethics and manners. Students therefore require support, oversight, and direction during the digital media-based learning process.

### ***Discussion***

Education is dynamic in line with changes that occur naturally in humans. Humans' desire to innovate and the nature of being dissatisfied with something means that education must try to balance these natural dynamics. Learning innovation in

Indonesia actually started in the early 2000s with the use of projectors, computers and the internet in the learning process (Bao, et al., 2024; Aini & Fahriza, 2020). However, significant changes have occurred since the Covid-19 pandemic, where limited access to face-to-face learning has become a turning point in the large-scale use of technology as a learning medium (Hapsari & Pamungkas, 2019; Tajhi et al., 2022; Putra et al., 2022).

The use of technology in the learning process actually makes students aware that scientific progress and developments are increasingly rapid. Balancing this, there must be encouragement of a spirit of achievement and independent learning, as well as realizing that every student is part of global life (Rahmawati & Atmojo, 2021; Davani, 2022). This means that it is not just about competing and collaborating between individuals at a regional or national level, more than that, students have the opportunity to take part in global change in the future. The basic needs for students are communication skills, creative and innovative thinking, higher order thinking skills, and literacy skills.

Learning as an interactive process requires media assistance in sharing information. The existence of learning media in the digital era, apart from utilizing technological sophistication, must also be responsive to local, global needs and teaching structures (Febriyani & Hidayati, 2023). This underlies the principles of policy design which aims to realize responsive digital media-based learning, so that it is used effectively and efficiently during the interaction or communication process in the classroom (Ningsih, et al., 2021; Maisarah, et al., 2022). Furthermore, this form of responsiveness is related to the preservation of local wisdom and digital media-based innovation.

The implementation of learning innovation management means that learning facilities are an important and inseparable part of achieving optimal learning outcomes. The learning process for students must be designed and developed based on current developments. Because meaningful learning is complex and is required to be able to answer the needs of global society (Supriadi, 2018). This is in line with the goal of learning innovation, namely achieving maximum learning results and products (Ridwan, 2019).

Based on the description above, it is understood that the focus of previous research in analyzing technology-based learning was more on exact material such as Mathematics, Science, Biology, Physics or Chemistry, as well as general material such as social sciences, geography and language learning, while Islamic religious learning includes fiqh, history of Islam, al-Qur'an hadith and moral beliefs and has not studied much technology-based pedagogical aspects. Apart from that, the background of this research is the focal point of the study in analyzing technology-based Islamic learning. Likewise, the weakness of this study is that it does not discuss the specifications of digital media in the learning process implemented by teachers.

## **CONCLUSION**

Based on the description above, it can be concluded that learning innovation necessitates empowerment in the teaching process as an effort to improve the quality of learning. The pandemic period became a turning point in awareness of the empowerment of online learning platforms such as WhatsApp Group (WAG), Zoom, and Google Classroom at MTsN 2 Asahan. This has an impact on teachers' skills in packaging teaching materials so that they are interesting and easy for students to learn and understand through digital content. Apart from that, the background of this research is the focal point of the study in analyzing technology-based Islamic learning. Likewise, the

weakness of this study is that it does not discuss the specifications of digital media in the learning process implemented by teachers.

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