Islamic Boarding Schools in the Middle of Digitalization: A Comprehensive Study of the Impact of Information Technology on Teaching and Learning Methods

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Abstract

The existence of technology helps to improve teaching and learning methods in schools. Islamic boarding schools as one of the many educational institutions in Indonesia are also affected by the influence of this information technology development. This research was conducted to see how Islamic boarding schools survive amid digitalization due to the emergence of information technology. This research will be carried out using a descriptive qualitative approach. This research was carried out using a literature study on various research results and previous studies that are still relevant. The results of this study then found that the use of information technology can provide an increase in the efficiency and also the effectiveness of the learning process and management of Islamic boarding schools. The existence of information technology can also help improve Islamic propagation and da'wah in society. Even though the information technology infrastructure in Islamic boarding schools is still largely inadequate, it does not mean that Islamic boarding schools need to wait until the infrastructure is completed, because this can cause Islamic boarding school education and learning to be left behind by other public schools.

Keywords: *Islamic Boarding School, Information Technology, Teaching and Learning Methods.*

Introduction

Islamic education is part of the life of Muslims to actualize the teachings of Islam. Islamic Boarding Schools have historically played a significant role in nation-wide education. The earliest Islamic institutions in Indonesia are Islamic residential schools. Islamic residential schools as a form of Islamic education in Indonesia are traditional in nature and emphasize the study and practice of Islam as a guide for daily life, as well as the importance of morals in social life (Muhajir, 2022). In the realm of education, pesantren can be described as a highly developed Islamic educational institution. Due to the fact that Islamic boarding schools are Islamic educational institutions that seek to explore Islamic religious knowledge and practice it as a guide for daily life, or tafaqquh fi al-din by emphasizing the importance of morality in social life (Latif & Hafid, 2021). As the oldest Islamic educational institution in Indonesia, Islamic boarding schools in this era of globalization, still seem relevant if we review how these Islamic boarding schools are developing now, do they still exist in the current era? Are the existing classic characteristics still being maintained or are they being eliminated with modern characteristics to catch up with the times? or do you still maintain the old characteristics and modify them with new things? How exactly is the ongoing modernization of the Islamic boarding school? (Anggadwita et al., 2021) Globalization and modernization are two sides of one coin. It also offers an ambivalent choice, one side is a blessing if we are ready, and maybe it can also be disastrous if we stutter. Globalization also offers a variety of choices that can be both profitable and harmful. Because in globalization there is competition, not only the strong and the strong are competent, but the strong and the weak are also required to be competent (Hopwood et al., 2021). Globalization is a real necessity that we will inevitably face together, it is inevitable (inevitable). Globalization also offers a million dreams, hopes, and ease of accessing information. What and how can globalization be created and what is the fate of Islamic boarding schools in this era of globalization? (Benedikter, 2022).

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E-learning was spawned as a result of developments in information and communication technology, which have brought about numerous changes, including in the field of education. E-learning improves the effectiveness and efficiency of the learning process. Information and Communication Technology could also be used in Islamic Boarding Schools to create the concept of e-Pesantren. E-Pesantren provides students, Ustadz, and Islamic Boarding School administrators with numerous advantages, such as the adaptability of educational programs, the dissemination of Islamic teachings, and the ability to create more engaging and memorable study materials (Asad et al., 2021). The incorporation of information and communication technology into education at Islamic boarding schools will enhance the quality of education at Islamic boarding schools and make proselytizing easier. Computer literacy in Indonesian society will increase as a result of the incorporation of information and communication technologies in education (Hastasari et al., 2022). In Indonesia, the application of technology to the educational process has begun to be implemented gradually. In accordance with the ongoing development of technology and the expansion of these technological advances into the interior, it is now possible to learn via a computer with internet access, despite the limitations. This type of education is also known as web-based learning (web-based learning) and internet learning, also referred to as e-learning (Anshari & Almunawar, 2022). Based on the brief explanation above, the researcher is then interested in seeing how the role given by information technology can impact the teaching and learning methods implemented in Islamic boarding schools.

Literature Review

Islamic Boarding School

The Pondok Pesantren is the oldest Islamic educational institution in Indonesia, serving as a stronghold for Muslims, a center for da'wah, and a hub for the development of Muslim communities. In Java, the term Pondok Pesantren was first recognized; in Aceh, it was known as the Rangkah and the Dayah, and in West Sumatra, it was known as the Surau (Kayane, 2020). The term Pondok comes from the Arabic word funduq which means hotel or hostel. While the word Pesantren comes from the word Santri, which begins with the word "pe" and ends with the word "an" so it has the meaning "the place where the students live" (Minarti & Isroani, 2022). This understanding indicates that Islamic boarding schools in carrying out the educational process provide dormitories for their students or students. But that doesn't mean that every educational institution that prepares dormitories for students is categorized as a boarding school, because nowadays, several schools already have them, and even have all the facilities that support them (Hastasari et al., 2022). M. Dawam Raharjo put forward almost the same definition. According to popular belief, Islamic residential schools are religious institutions that teach, cultivate, and disseminate Islamic religious knowledge. Islamic residential schools can play an active role in the struggle for social, economic, and cultural justice despite the fact that they are traditional Islamic institutions (Mahyudin, 2022). From these various meanings, Islamic boarding schools consist of several elements, namely: elements of Kyai, students, Ustadz, and dormitories, as well as the education that is developed which emphasizes religious and moral education. So Islamic boarding schools are Islamic educational institutions that teach religious disciplines in one dormitory. Islam has never neglected general knowledge, but what is most prominent in education at Islamic boarding schools is religious moral education (Rahman et al., 2022). Each Islamic boarding school has different educational goals, often following the philosophy and character of the founder. Even so, every Islamic boarding school has the same mission, namely in the context of developing Islamic da'wah. In addition, because they are in the Indonesian environment, each Islamic boarding school is also obliged to develop the ideals and goals of national life as stated in the Pancasila State philosophy and the 1945 Constitution (Naim et al., 2022).

In general, and specifically, the objectives of education in Islamic boarding schools are as follows:

1. Specific objectives: to prepare students to become devout in the religious knowledge taught by the Kyai in question and to apply it in society (Mukri & Hermanto, 2023).

2. General objectives: to guide students to become individuals with Islamic personalities who, through their knowledge and deeds, are capable of becoming preachers in the surrounding community (Afista & Abu Bakar, 2020).

Information Technology

The advancement of human civilization is accompanied by the evolution of information transmission methods, referred to hereafter as (Information Technology). Information technology was initially developed by humans in prehistoric times as a system for recognizing the forms they knew; they described the information they discovered on cave walls regarding hunting and the animals they pursued. Until now, information technology has been expanding, but delivery and form have become more contemporary (van Biljon & Osei-Bryson, 2020). According to Bambang Warsita, information technology is the facilities and infrastructure (hardware, software, userware) systems and methods for acquiring, transmitting, processing, interpreting, storing, and organizing data in a meaningful manner. The same sentiment was expressed by Lantip and Rianto: information technology is defined as knowledge in the field of computer-based information, and its development is very rapid (Kumar et al., 2021). Information technology is defined by Hamzah B. Uno and Nina Lamatenggo as a data-processing technology. Processing includes processing, obtaining, compiling, preserving, and manipulating data in a variety of ways to produce quality information, specifically information that is relevant, accurate, and timely (Guo et al., 2020). According to McKeown, information technology refers to all types of technology used to create, retain, transform, and use information in all of its forms. Williams also posited that information technology refers to any technology that helps generate, manipulate, store, communicate, or transmit data. According to Behan and Holme's second theory, information and communication technology is everything that facilitates the recording, storage, processing, retrieval, transmission, and reception of data (Jacobson & Gruzd, 2020). According to Abdulhak, there are three classifications of ICT usage: first, ICT as an educational medium (auxiliary instrument), namely only as a supplement to clarify the presented descriptions. Second, ICT as a source, specifically as a source of information and for information-seeking purposes. Thirdly, ICT as an educational system (Zieni et al., 2023). According to Bambang Warsita, there are three general applications of information technology, instructional computers, and the internet for education and learning: First, learning about computers and the internet, particularly computers, can be used as learning objects, for instance computer science (Werang & Leba, 2022). Second, learning with computers and the internet, i.e., information technology, facilitates school-based curriculum-aligned education. For example, the Ministry of National Education's Pustekkom developed subject-specific interactive multimedia CD programs (Szymkowiak et al., 2021).

This view was also supported by Heinich, who defined IT as all uses or applications of computers and the internet for education. Uses and applications of information technology, including: 1) Tutorial, a program in which the delivery of material is conducted in a tutorial fashion, i.e., a concept is presented with text, still or moving images, and graphics; 2) Practice and practice (drill and practice), i.e., to train students so that they have proficiency in a skill or strengthen their understanding of a concept. This program usually provides a series of queries or questions (Chen et al., 2023); 3) Simulation, which attempts to simulate an event that has or has not occurred and is typically associated with a risk, such as an airplane crashing or crashing, a catastrophe occurring, etc. 4) Trial or experiment, this format is comparable to the stimulation format, but is geared more toward experimental activities, such as practicum activities in science, biology, or chemistry laboratories; 5) Game, which alludes to the learning process; with this format of multimedia programs, it is anticipated that learning activities will occur during play (Abou Elassad et al., 2020).

Learning Methods

The learning method is an operational or implementation step of the selected learning strategy in the pursuit of learning objectives. The efficacy of a learning strategy will be demonstrated by the precision with which a method is applied. The learning strategy is still conceptual, and certain learning methods are used to implement it. In other terms, a strategy is "a plan of action for accomplishing something,"

whereas a method is "a means of accomplishing something" (Xia et al., 2021). The method is one of the strategies or methods used by the teacher in the learning process to be attained; the more precise the method used by a teacher, the better the learning will be. The term method originates from the Greek word methodos, which means way or path (Rapanta et al., 2020). Sudjana argues that the method is an overall plan for presenting language learning material in an orderly manner, no one part contradicts, and everything is based on a certain approach. The approach is axiomatic, namely an approach that has clear truth, while the method is procedural, namely an approach by applying steps (Ji et al., 2023). The procedural method means that the application in learning is done through regular and gradual steps starting from preparing teaching plans, presenting teaching, teaching and learning processes, and evaluating learning outcomes. On the basis of this opinion, we can conclude that the learning method is a comprehensive and systematic plan for presenting the topic. Learning methods are regularly and progressively implemented in a variety of ways to attain specific goals under varying conditions (Radianti et al., 2020). According to Uno Hamzah B. learning method variables are classified into 3 (three) types, namely:

1. Learning Organization Strategy
    This method organizes the contents of the field of study that has been selected for learning. "Organizing" refers to actions such as content selection, content arrangement, diagramming, formatting, and others at the same level (Kuba & Jeong, 2022).
2. Learning Delivery Strategy
    This method is to convey learning to students and or to receive and respond to input from students. Learning media is the main field of study of this strategy (Saripudin et al., 2021).
3. Learning Management Strategy
    This method organizes interactions between students and other learning method variables. This strategy relates to making decisions about which organizational strategy and delivery strategy to use during the learning process (Alfawaire & Atan, 2021).

The use of learning methods is crucial because, with them, a teacher can plan a comprehensive and systematic learning process for the presentation of learning material. According to Degeng, methods are different ways to achieve different teaching results under different conditions. Another opinion about the learning method according to Knowles, the method is organizing students to achieve learning goals (Jeong & So, 2020). The definition above designates the method as a tool to achieve teaching goals. As mentioned, that the method is a systematic way of working showing its very operational nature. Thus, it can be concluded that the method is the basic principle of a way of working that technically can be developed for the implementation of classroom learning (Muñoz-Gil et al., 2021).

Method

This research was carried out using a qualitative approach through the literature study method. The qualitative approach allows the researcher to gain an in-depth understanding of the phenomenon under study through the interpretation and analysis of qualitative data. In this case, the literature study is a relevant method because it allows researchers to collect existing secondary data, such as scientific journals, books, and related articles, to then be analyzed and synthesized. In this research, the literature study provides an opportunity for researchers to explore theoretical concepts relevant to the research topic. Research data that is then successfully collected will be processed immediately so that later the results of the desired research can be found (Nasution, 2023).

Result and Discussion

Learning Methods in Islamic Boarding Schools
The understanding of traditional methods is the opposite of modern methods. The traditional method departs from a very simple learning pattern that has emerged from the beginning, namely the sorogan,

bandongan, and wetonan learning patterns in studying religious books written by medieval scholars, and these books are known as the yellow book.

1. **Sorogan**

    Students read in front of the Kyai as part of the sorogan-based learning technique. And if there is an error, the Kyai faces the error head-on. Sorogan is typically performed by two or three students from a Kyai family or students who are expected to become devout in the future at the large Islamic boarding school. In this method, intelligent pupils present the Kyai with a book to be read in front of the Kyai. This sorogan method is mainly carried out by special students who have more intelligence. This is where a Santri can be seen in his proficiency in reading the book and interpreting it or vice versa (Fadli et al., 2021).

2. **Wetonan**

    The wetonan learning method is carried out by the Kyai reading the same book at a specific time, while the students carrying the same book listen and pay close attention to the Kyai's reading. Absenteeism cannot be determined using this procedure. This implies that students may attend or not, and there is no exam (Wahyudin & El Karimah, 2021).

3. **Bandongan**

    Bandongan is a method of learning that is intertwined with the serogan and wetonan methods, which form a series. In the bandongan method, a Santri is not required to demonstrate comprehension of the topic at hand. Typically, Kyai reads and translates simple phrases. In West Java, the wetonan method is also known as the bandongan method. In contrast, the term halaqah is used in Sumatra, and this method is also known as balaghan.

    In addition to the traditional methods that are typical of salafiyah institutions, the khalafiyah movement has accelerated the growth of Islamic boarding schools. Several contemporary learning strategies are employed here, including:

4. **Classical**

    The learning method in a classical way is by establishing schools, both groups that manage the teaching of religion and science which are meant to be in a general category, in the sense that they are included in the disciplines of Kauni sciences (ijtihadi = human acquisition) which are different from religion which is taufiqi (in the direct sense of the word, the form and form of the teaching are determined) (Levrini et al., 2019).

5. **Courses**

    In addition to holding skills that contribute to the development of psychomotor abilities, such as courses in sewing, computers, and screen printing, this learning method emphasizes the development of English language skills. This method of education leads to the formation of students with practical and effective skills who are not expected to be dependent on jobs in the future, but rather capable of creating careers based on their abilities (Park et al., 2022).

6. **Training**

    The developed pattern of training includes the cultivation of practical skills, such as training in construction, plantations, fisheries, cooperative management, and crafts, which support the development of integrative autonomy. This is closely associated with other skills that tend to produce intellectual pupils and qualified scholars (Cui et al., 2023).

7. **Experiment**

    The experimental method is a learning method that involves students carrying out experiments on certain subjects. Thus, students will be directly involved in academic work, exercises, and problem-solving on certain topics (Babinčáková & Bernard, 2020).

8. **Sociodrama**

    Sociodrama consists of two words "socio" which means society, and "drama" which means a person's situation or events experienced by someone, their nature, and behavior, one's relationship, one's relationship with other people, and so on (Fahmi et al., 2023).

9. **Group Work**

The group work method is the presentation of material by dividing tasks to study a predetermined study group situation to achieve goals. Thus, the group work method can be used if there are interests and individual differences in students and there are several work units that need to be completed at the same time (García-Alberti et al., 2021).

Modernization of Education in Islamic Boarding Schools

Nowadays, Islamic education institutions in Indonesia, especially Islamic boarding schools, are starting to show their existence as Islamic educational institutions that are capable of meeting the needs of the times, which are marked by the existence of madrasas and schools, as well as the implementation of an education and teaching system that is arguably more advanced. Islamic Boarding Schools have a new tendency in the framework of renovating the system that has been used so far, namely:
1. Become familiar with modern scientific methodology
2. Being more oriented towards education and function means being open to developments outside of oneself.
3. Diversification of programs and activities is increasingly open and absolute dependence on clerics and at the same time can equip students with various knowledge outside of religious subjects as well as skills needed in the workforce.
4. Can function as a community development center.

On the other hand, Islamic boarding schools are now experiencing a transformation of culture, systems, and values. Islamic boarding schools that were formerly known as salafiyah are now better known as khalafiyah. For Salaf, students who are taught classical books tend to maintain a tradition that is very closed in matters of religious understanding, while khalaf students who are taught modern books tend to break tradition by carrying out religious reforms following the times. Both of them are indeed able to influence and color the traditions of thinking, behaving, and behaving the students, even though they have received higher education, and are even involved in various activities in society and the State.

This condition shows that the Islamic Boarding School has transformed itself into a modern Islamic educational institution, not traditional anymore. Modern in the sense of the physical field, systems and methods, curriculum, and other physical devices used to support ongoing educational and teaching activities. For its existence to continue to exist, there are various steps that Islamic boarding schools can take in facing the globalization era following their identity.

The Role of Information Technology in Islamic Boarding Schools

The strength of Information and Communication Technology (ICT) has encouraged educational personnel to utilize it in the field of education. The strength of ICT has led to changes in the curriculum, which include changes in goals and content, learning activities, exercises and assessments, learning outcomes, and positive added value. Consequently, terms such as e-teacher, e-test, e-library, e-assignment, e-education, virtual school, virtual university, e-learning, etc., are currently in use. E-learning is the transformation of the learning process between educators and students through the use of ICT. The primary objective of using this technology is to improve the efficacy and effectiveness, transparency, and accountability of education. E-learning may use computers, LAN (local area network), WAN (wide area network), internet, intranet, satellite, TV, CD-ROM, and other forms of ICT to deliver instructional content. Text, graphics, animation, simulation, audio, and video are components of multimedia learning materials. This is one of the benefits of computer-based media. In addition, e-learning must provide online access to subject-matter experts for added convenience. The e-learning model is centered on the student. E-learning requires students to be independent and accountable for their own learning because they can study anywhere, at any time, as long as the necessary tools are available. E-learning necessitates student participation. Through e-learning, students can seek for and retrieve information/learning materials based on the teacher's/education manager's set curriculum/criteria. Students will have access to a plethora of relevant information because they can retrieve it from any location. Students can also correspond with experts in their disciplines online, via e-mail or chat, for instance. Thus, it is evident that

student engagement in e-learning significantly influences the learning outcomes they attain. The more active he is, the more knowledge or skills he will acquire.

Professionally designed and developed e-learning materials will pay attention to and incorporate multimedia elements. This means that in addition to text, these educational resources also include images, graphics, animation, simulations, audio, and video. Choosing an appropriate and attractive color will also enhance the visual appeal of the monitor screen. This makes e-learning materials more engaging, memorable, interactive, and visually appealing. This enables students to always remember what they have learned. The internet is a product of information technology that can help us improve our standard of living through education. The central role of education has been carried out by Islamic Boarding Schools since this institution was founded, by conveying messages that can become community guidance. The presence of the internet can be used as a means to support the implementation of activities in Islamic boarding schools, in conveying their noble messages. The internet (with the involvement of Islamic boarding schools) has become a means of learning, returning to its original function. Islamic boarding schools inevitably have to keep up with technological developments. However, internet access is felt to be still expensive until now, especially for Islamic boarding school administrators. Thus, Islamic boarding schools, which have become part of the culture of society, and are integrated into Islamic society in Indonesia, rarely access the internet freely.

Based on the fundamental role of information and communication technology, it can be seen that the great benefits of this technology are in creating a conducive climate for the growth of national competitiveness and independence through its ability to increase innovation capabilities, increase productivity, and form synergies between state stakeholders to achieve unity, stability, and national economic growth. ICT advances have encouraged creative people to realize and advance ideas or ideas effectively and efficiently. At present several groups of young people, who (perhaps) do not have real Islamic boarding schools, have attempted to build electronic Islamic boarding schools (e- Islamic boarding schools), which is an answer to the need to develop Islamic boarding schools education systems in the digital and information era; can also enliven the information age with the colors and mission that do not change from existing (conventional) Islamic boarding schools. With ICT, the media for preaching or spreading Islam from Ustadz and students can increase. Every time they deliver a sermon, they will encounter fewer obstacles due to the media's easing. Taking into account the characteristics of the e-Pesantren, it is evident that this model is extremely beneficial, not only for students and teaching staff (Ustadz), but also for Islamic Boarding School administrators. E-Pesantren facilitates and broadens distance learning. This e-Pesantren will train and increase the independence of the Santri, which is evident to the Santri. As for Ustadz, e-Pesantren also provides many benefits. Among the most important is that he is always able to provide up-to-date materials and issues to be studied by his students. For Islamic Boarding School managers, e-Pesantren also has very broad benefits, one of which is increasing the prestige and accountability of the institution. E-Pesantren allows the creation of distance education and virtual school/boarding systems. With this system, it is clear that Islamic boarding school managers no longer need to be bothered with procuring study rooms and other facilities as in traditional Islamic boarding schools. This means that e-Pesantren will save on the costs of procuring infrastructure for learning and the operational costs of maintaining equipment and buildings. This phenomenon shows that Islamic boarding schools can adapt and reposition the function of community education following the progress of the times and the needs of society. Noting this along with the progress of ICT, because Islamic boarding schools are also a learning community, Islamic boarding schools can utilize ICT to expand the scope of da'wah and community education. In addition, of course, can improve and improve the quality of formal education. This is very possible to do because, from the human resources side, it is clear that it is complete. In a sense, there are resource persons (Kyai and Ustadz), there are students who are usually independent, there are interaction media, there are educational facilities and infrastructure, and Islamic boarding school management. Because in the real world, Islamic boarding schools are generally

running well and regularly, therefore it is very possible to bring real Islamic boarding schools to virtual Islamic boarding schools or electronic Islamic boarding schools.

To increase the number of ICT-literate Islamic Boarding Schools can be done by innovating and developing methods, concepts, and references, or through collaboration with various related parties. There are at least three main requirements for the implementation of e-Pesantren, namely: (1) learning activities are carried out through the use of computer networks; (2) availability of learning support services that can be utilized by students, for example, CD-ROMs and/or printed materials; and (3) the availability of tutor support, including from Kyai and Ustadz, who can help the students when they experience difficulties. Utilization of ICT in Islamic Boarding Schools can indeed increase efficiency and effectiveness, both in the learning process and in management. However, the role of Kyai and Ustadz cannot be completely replaced by technology. This means that in its implementation e-Pesantren acts as a supplement. One thing that cannot be replaced by ICT is the example of clerics and religious teachers. Taking into account the various conditions of Islamic boarding schools in Indonesia today (some are modern and some are not), of course, the level of availability of infrastructure and human resources is also different. The stages of ICT development in Islamic boarding institutions can therefore be categorized as emerging, applying, integrating, and transforming. Emerging is the phase in which all educational personnel are concerned with ICT. The stage at which education personnel begin to learn how to use ICT is applying. Infusion is the stage in which educators begin to understand when and how to use ICT. Lastly, the transforming stage entails the specific use of ICT to complete learning duties and manage education. The use of ICT in Islamic Boarding Schools will have a broad follow-up impact. If an Ustadz makes use of ICT in his learning, this will have the impact that like it or not, the students must also be able to use ICT. If Santri is a prospective Ustadz, then he will be able to use ICT to teach his students. This will further stimulate the students to learn and use ICT. Thus, sooner or later, Indonesian people will become computer literate. Therefore, Islamic boarding schools that will produce prospective Ustadz should provide ICT skills for learning for their students.

Conclusion

The power of ICT has driven changes in learning. Institutions outside Islamic boarding schools, either individually or with the support of cooperation/government, have tried to advance their learning process by utilizing ICT. This means that they immediately enter the virtual college concept. Thus, they can reach targets without regional boundaries. This causes education to appear cheaper and more attractive. Utilization of ICT in learning provides many advantages, both for students, Ustadz, and Islamic Boarding School administrators. Utilizing ICT can improve the efficacy and effectiveness of Islamic boarding school management and the learning process. In addition, ICT will increase and enhance the dissemination of Islamic doctrine and public education. Even though the infrastructure for organizing e-Pesantren is inadequate, it is only natural that the concept of e-Pesantren is introduced to the students. This is done so that the students are not left behind in the rapid flow of ICT development which is very fast. It is not wise to wait until the infrastructure for implementing e-Pesantren is sufficient. If this choice is made, the world of Islamic boarding schools will be far behind compared to other educational institutions.

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