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Lecturer's Efforts to Improve Student's Digital Literacy through Online Learning

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Abstract

Nowadays, as digital consumers in the adolescent and early adult demographic, students tend to prefer search engines over printed books when seeking information. This shift reflects changing preferences in information access, with the internet and search engines like Google becoming the primary sources of knowledge for the current generation. However, even though students tend to rely on search engines, they must develop a profound digital literacy level. This study aims to determine the efforts of lecturers in the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban to strengthen students' digital literacy through online learning. This research approach is quantitative. The data obtained from the results of questionnaires to lecturers as respondents are then described, and conclusions drawn. The results obtained from this study are that all lecturers are still consistently implementing online learning and are considered quite effective in strengthening student digital literacy. Efforts by lecturers to improve students' digital literacy include activities such as assigning tasks, reinforcing lecture materials, and replacing class hours with sessions conducted via Google Classroom, Google Meet, Zoom Meeting, and WhatsApp. No significant obstacles are experienced by lecturers and students of the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban operating the online learning platform. It's just that sometimes they are constrained by the internet network and cottage students who cannot independently access online learning applications due to limited computer technology facilities. This research demonstrates the importance of student's ability to operate technology in learning and highlights the role of lecturers in the success of students' digital literacy in the future.

Keywords: *Digital Literacy*, *Higher Education*, *Online Learning*.

Abstrak

Saat ini, sebagai konsumen digital di kalangan remaja dan dewasa awal, pelajar cenderung lebih memilih mesin pencari dibandingkan buku cetak ketika mencari informasi. Pergeseran ini mencerminkan perubahan preferensi dalam akses informasi, di mana internet dan mesin pencari seperti Google menjadi sumber pengetahuan utama bagi generasi saat ini. Namun, meskipun siswa cenderung mengandalkan mesin pencari, mereka harus mengembangkan tingkat literasi digital yang mendalam. Penelitian ini bertujuan untuk mengetahui upaya dosen di Fakultas Tarbiyah IAI Al-Hikmah Tuban dalam memperkuat literasi digital mahasiswa melalui pembelajaran daring. Pendekatan penelitian ini adalah kuantitatif. Data yang diperoleh dari hasil angket kepada dosen sebagai responden kemudian dideskripsikan, dan ditarik kesimpulan. Hasil yang diperoleh dari penelitian ini adalah seluruh dosen masih konsisten menerapkan pembelajaran daring dan dinilai cukup efektif dalam memperkuat literasi digital mahasiswa. Upaya yang dilakukan dosen untuk meningkatkan literasi digital mahasiswa antara lain dengan melakukan kegiatan seperti pemberian tugas, penguatan materi perkuliahan, dan

penggantian jam pelajaran dengan sesi yang dilakukan melalui Google Classroom, Google Meet, Zoom Meeting, dan WhatsApp. Tidak ada kendala berarti yang dialami dosen dan mahasiswa Fakultas Tarbiyah IAI Al-Hikmah Tuban dalam mengoperasikan platform pembelajaran online. Hanya saja terkadang terkendala oleh jaringan internet dan siswa pondok yang tidak bisa mandiri mengakses aplikasi pembelajaran online karena keterbatasan fasilitas teknologi komputer. Penelitian ini menunjukkan pentingnya kemampuan mahasiswa mengoperasikan teknologi dalam pembelajaran dan menyoroti peran dosen dalam keberhasilan literasi digital mahasiswa di masa depan.

Kata kunci*: Literasi Digital, Pembelajaran Online, Pendidikan Tinggi*.

Introduction

In today's digital era, digital literacy has become essential for everyone, including students. Digital literacy uses information and communication technology (ICT) intelligently, responsibly, and ethically. This skill is important because students are confronted with a vast array of information circulating on the internet, both accurate and inaccurate. Students, as the younger generation familiar with digital technology, often get trapped in misleading or unverified information. That can lead to various negative impacts, such as cyberbullying, online fraud, the spread of hoaxes, and hate speech (Ardhiani et al., 2023; Muzayyin & Handayani, 2023). Therefore, students must possess strong digital literacy skills to avoid these negative consequences.

Lecturers play an important role in strengthening students' digital literacy. They can integrate digital literacy material into their courses, both directly and indirectly (Habibah, 2022; Yulmiati et al., 2019). Lecturers can also help students learn and practice digital literacy (Alamsyah & Purnama, 2017). Online learning has become an effective medium for strengthening students' digital literacy. Lecturers can deliver digital literacy materials more engagingly and interactively through online learning. Students can also access learning materials anytime and anywhere.

Several studies on digital literacy and online learning have been discussed, including: the importance of digital literacy for students in distance learning (Maphosa & Bhebhe, 2019), the poor psychological state of Madrasah Ibtidaiyah students due to online learning affecting both cognitive and affective aspects (Bali & Astutik, 2023), undergraduate students digital literacy level falling into the moderate category with a high motivation to complete their final assignments (Akbar & Anggaraeni, 2017), no significant difference in interest between male and female students regarding digital technology, a positive correlation between learning outcomes and digital literacy (Brata et al., 2022), students enthusiasm and enjoyable expression in participating in blended learning with e-tutorials (McGuinness &

Fulton, 2019), analysis showing students digital literacy skills in good standing across 7 aspects and excellent in the functional skill and beyond aspect (Dinata, 2021), good perception both lecturers and students for use of technology excellently to face digital transformation in higher education (Bond et al., 2018), and active participation of the digital community in teaching and learning activities through social media (Gleason & von Gillern, 2018).

None of the students mentioned above have addressed the efforts made by lecturers to enhance students' digital literacy through online learning. This gap in research is noteworthy given the varying academic demands for digital literacy at different levels of education in Indonesia, particularly in higher education institutions. As digital consumers in the adolescent and early adult demographic, students prefer search engines over printed books when seeking information. This shift reflects changing preferences in information access, with the internet and search engines like Google becoming the primary sources of knowledge for the current generation (Rodin & Nurrizqi, 2020). However, even though students tend to rely on search engines, they must develop a profound digital literacy level.

With the advancement of information and communication technology, the internet has become a prevalent source of information among students due to its easy, fast, and nearly unlimited access to information (Nurjanah et al., 2017). The utilization of information technology has permeated every sector, including education. The rapid development in information and communication technology underscores the need for every individual to have advanced literacy skills. However, the literacy skills required today are not limited to conventional reading and writing abilities but also involve additional skills that support adaptation in the 21st-century life era (Syabaruddin & Imamudin, 2022). The rapid development of technology and information in the 21st century has created significant societal transformations and challenges (Ririen & Daryanes, 2022). The abilities and skills of students in the 21st century encompass aspects such as high-quality character, literacy, and competence (Saenah, 2022). As a result, technological advancements provide opportunities for students to think critically, communicate effectively, and be creative, leading to successful learning outcomes.

Current students are millennials born in an era heavily dominated by digital technology and urbanization. They grow up in an environment where technology continues to advance rapidly. However, they must possess good digital literacy skills to harness digital technology effectively. Digital literacy encompasses the ability to use digital devices and

applications and the capacity to critically assess, comprehend, and apply information and knowledge within the context of learning and academic achievement in this digital age (Syabaruddin & Imamudin, 2022). Furthermore, educators can also use technology devices to assess students' self-confidence levels (Sharp, 2018). Digital literacy is the ability to understand and utilize information in various formats from diverse digital sources and present it through computers (Nurjanah et al., 2017). It also includes the skill to manage digital media, digital devices, or networks to find, evaluate, create information, and use these resources responsibly to build communication relationships in everyday life (Manubey et al., 2022).

Digital literacy is also defined as the competence in understanding and utilizing digital sources to obtain information (Syabaruddin & Imamudin, 2022) and as individuals' awareness, attitude, and skills in using digital technology (Maphosa & Bhebhe, 2019). Additionally, digital literacy involves using communication devices to access, manage, link, analyze, and evaluate information. Moreover, digital literacy encompasses developing new knowledge and communicating with others through digital means (Rini et al., 2022). With these skills, individuals can actively participate in modern society.

In the fourth Industrial Revolution era marked by rapid advancements in information and communication technology, digital literacy has become a crucial skill for students. This ability is important not only for specialized expertise but also as a general skill. In this context, digital literacy refers to the capability to access, comprehend, and communicate through digital technology. Students with solid digital literacy skills can search for and evaluate relevant information and understand effective ways to communicate their ideas and thoughts in the digital space. Digital literacy equips students with the ability to think critically, collaborate, and innovate, ultimately supporting success in the learning process and preparing them for the evolving demands of the workforce. Students can optimize their opportunities to participate actively in an increasingly digital society by mastering digital literacy (Dinata, 2021).

There are 8 aspects of digital literacy related to an individual's ability to operate computer devices to generate various information (Hidayati, 2022). These aspects include 1) functional skills and beyond; this aspect of digital literacy focuses on competence in using information technology. 2) creativity, which relates to an individual's creative thinking in acquiring knowledge through the utilization of Information and Communication Technology (ICT). 3) collaboration: this aspect involves the process of discussion and collaboration in

digital spaces to build new knowledge. 4) communication pertains to an individual's ability to listen, analyze, and express ideas effectively. 5) the ability to find and select information; it refers to the skill of locating and choosing relevant information. 6) critical thinking and evaluation: thinking critically and assessing information. 7) cultural and social understanding pertains to comprehending social and cultural contexts. 8) e-safety refers to maintaining internet security (Dinata, 2021).

On the other side, Sari categorizes the elements of digital literacy into 7 components or aspects, including 1) information literacy, 2) research literacy, 3) learning skills, 4) Information and Communication Technology, 5) career management, 7) communication and collaboration, and 7) media literacy. Furthermore, concerning the development of digital literacy, Douglas divides it into 8 elements: 1) cultural literacy, related to understanding cultural diversity. 2) cognitive literacy is linked to critical thinking when evaluating digital content. 3) constructive literacy associated with creating high-quality digital content. 4) Communication literacy is related to the capability to communicate effectively through digital media. 5) confidence, related to self-assurance in participating in the digital environment. 6) creative literacy, the ability to generate unique ideas using digital tools. 7) critical literacy, the capacity to critically evaluate information, and 8) responsible literacy, concerning ethics and responsibility in using digital technology (Manubey et al., 2022).

Technological development and the internet have created an overflow of digital information resources. Now, people have the freedom to share information online easily. The term "digital native" describes the younger generation who grew up in the digital era, where the internet is a crucial part of their daily life. Present-day students heavily depend on search engines like Google to find the necessary information (Rodin & Nurrizqi, 2020). Although it is generally perceived that students can utilize technology, many still lack a comprehensive understanding of how to use the internet wisely (Hidayati, 2022). Students need to develop high digital literacy skills to comprehend and manage information from the vast array of forms and sources available through the internet (Hidayati, 2022).

As previously explained, digital literacy involves critical thinking when facing digital media and getting specific information. This process begins with an individual's curiosity, which motivates them to seek relevant information that fits their needs. In this digital era, curiosity is a primary motivator for individuals to explore the internet and seek knowledge (Rini et al., 2022). Therefore, students and others need to sharpen their critical thinking skills to assess the reliability of the information they see and understand its context accurately.

This ability is crucial in filtering information from the internet to be used wisely and responsibly.

Therefore, this research is important to investigate the initiatives of lecturers at higher education institutions, especially the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban, in strengthening student's digital literacy through online learning. The aim is to ensure that the *Tarbiyah* Faculty students understand how to use technology wisely and critically. So, this study aims to determine the efforts of lecturers in the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban to strengthen students' digital literacy through online learning and describe the challenges they face. IAI Al-Hikmah Tuban is one of the Islamic colleges based on the *pesantren* system. The majority of its students are also pesantren students at Al-Hikmah boarding school. Limited communication access uniquely challenges lecturers to enhance students' digital literacy skills in a rural area.

Methods

This study employs a quantitative descriptive approach. The objective is to assess the extent of instruction's efforts in utilizing online learning to enhance student's digital literacy. The study focuses on the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban during the academic year 2022-2023. This faculty comprises three study programs: Islamic Education Management, Early Childhood Islamic Education, and Elementary Islamic School Teacher Education. The research sample includes 16 lecturers in the *Tarbiyah* Faculty, selected through a purposive sampling technique. The variable measured in this study include instructor's efforts through online learning, with the observed aspects comprising: 1) the existence of lecturers in implementing online learning, 2) types of applications used for online learning, 3) objectives of using applications in online learning, and 4) student's responses and enthusiasm during online learning sessions. Data collection was conducted through the distribution of questionnaires using Google Forms that were distributed personally via WhatsApp messages.

Subsequently, the data were presented as diagrams and analyzed descriptively to depict the instructor's efforts in enhancing student's digital literacy through online learning. Then, the data display is carried out in a brief description, chart, models, typologies, or relationship between categories so that the overall data and its detailed parts can be mapped. Narrative text will be used to display this data. A data display will facilitate researchers in understanding what is happening and plan subsequent work based on the data presented. The

third step is drawing conclusions and verification. After the data is presented in the data display, conclusions and verification are carried out. The mapped data is then focused and systematically organized.

Results and Discussion

Lecturer's Efforts in Implementing Online Learning

Educators oriented toward the era of Industry 4.0 need to plan various creative and innovative technology-based learning techniques. One tangible form of technological advancement in education is online learning. Online learning is highly flexible and facilitates access, enabling learners to study anytime and anywhere according to their needs (Irfan et al., 2020). Therefore, integrating digital literacy and learning technologies such as E-learning and online learning becomes essential in creating a learning environment that is adaptive and relevant to the demands of the times.

Lecturers at the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban have utilized technology in the form of online learning. Based on the questionnaire results, it was found that all lecturers remained consistent in using online learning both during the pandemic and in the post-COVID-19 era. Some colleges and universities have launched online teaching (Cui et al., 2023). In response to the times' advancements, lecturers actively enhance students' digital literacy, enabling them to use technology wisely.

Lecturers quickly adapted to online learning and have a very high level of knowledge regarding its implementation. It is accepted that student assessment is an important factor in the benefits and value of online learning, and evaluating their attitudes is crucial in measuring success. Therefore, lecturers must implement online learning to enhance students' digital literacy. The results of a survey of lecturers at the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban regarding the use of online learning even in the post-COVID era found that 100 percent of lecturers utilized specific platforms or applications in online learning.

That indicates the consistent commitment of the *Tarbiyah* Faculty lecturers towards using internet technology for teaching, both during the pandemic and in the post-pandemic period. Higher education institutions have developed many products for online learning tools in this contemporary era (Fernández-Batanero et al., 2022; Salama & Hinton, 2023). Implementing online learning by the lecturers in this faculty signifies that university educators are maximizing their roles in technology-based learning processes.

The faculty members have chosen the blended learning model, enabling students to access learning materials, assignments, and other supporting resources online. As Nurfalah pointed out, in this era, technological literacy is often associated with blended learning models in education (Nurfalah, 2019). Blended learning integrates face-to-face instruction with internet resources as supplementary learning tools (Arif & Aziz, 2023; Kurniawan et al., 2023; Nurhidin, 2022; Rasheed et al., 2020).

According to Siti Fatimah, the dean of the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban, by leveraging technological literacy and blended learning, problem-based learning becomes more dynamic, relevant, and aligned with the advancements of the era. This approach prepares *Tarbiyah* Faculty students to face the challenges of the ever-evolving digital era. Online learning may not be suitable for all students. Some students may prefer traditional lectures because they find it easier to focus and learn in a classroom setting. Therefore, this faculty offers various learning methods to meet the needs of all students.

Types of Platforms/Applications Utilized by Lecturers for Online Learning

Lecturers can utilize numerous alternative applications for online learning, such as Google Classroom, Zoom Cloud Meetings, Google Meet, Moodle, Schoology, Edmodo, and others. Through these applications, lecturers want to improve the student learning environment, increase and enhance computer capacity for learning, and promote educational innovation in higher education (Cui et al., 2023). However, one of the challenges in implementing online learning in higher education is the lack of innovation among lecturers in preparing engaging online teaching activities, including material presentation, media usage, and appealing teaching strategies (Komsiyah, 2021).

In this context, video conferencing platforms such as Zoom, Skype, and WebEx are being widely utilized, along with Learning Management Systems (LMS) like Canvas, Edmodo, Schoology, Google Classroom, and similar platforms are among the online learning applications being used. Implementing technology in online education is associated with cost savings and efficiency. Improving the quality and effectiveness of online education requires a framework that must be applied in schools. Based on the survey results, lecturers in the Faculty of Education at IAI Al-Hikmah Tuban use various online learning platforms.

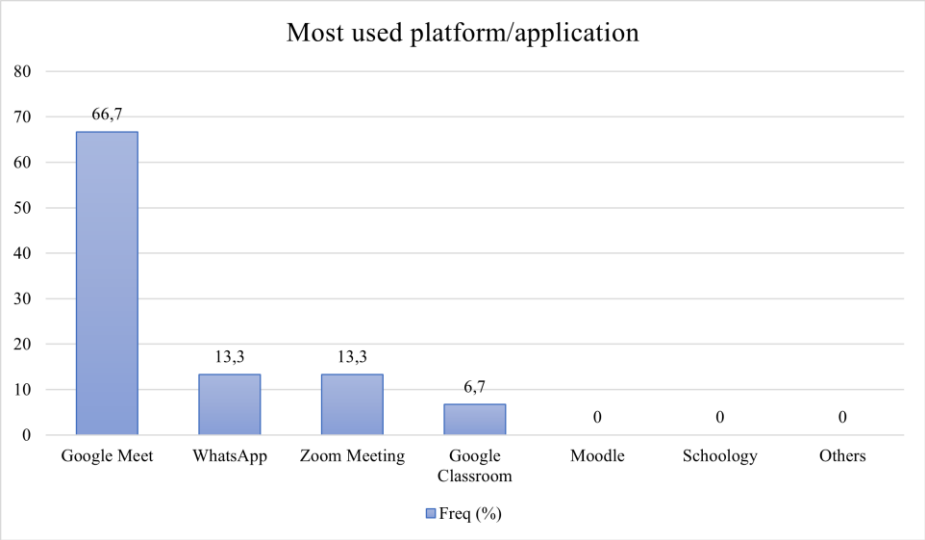

Figure 1. Most used platform/application in online learning

The questionnaire results indicate 4 commonly used applications by lecturers in the *Tarbiyah* Faculty for online learning: WhatsApp, Google Meet, Google Classroom, and Zoom Cloud Meetings. The above figure shows that the most frequently used application by lecturers in this faculty for online learning is Google Meet, accounting for 66,7%. Meanwhile, WhatsApp and Zoom Cloud meetings are used by 13.3% each, and Google Classroom is used by 6,7%.

The percentage of 66,7% indicates that the majority of lecturers in the faculty use Google Meet for Online Learning. According to Lokanath, Google Meet provides flexibility and ease for learners; it is not limited by location and can be accessed wherever the participants are. That makes Google Meet highly popular among students (Mishra et al., 2020). Lectures at this faculty have observed students enthusiastic about participating in Google Meet sessions.

Furthermore, 13.3% of the lecturers use WhatsApp for Online Learning. Besides its familiarity, WhatsApp has become one of the applications lecturers choose. Its utility has evolved for educational purposes. Groups between lecturers and students can be created to support online learning processes. WhatsApp can connect with various online resources, such as videos, images, and voice messages (Gon & Rawekar, 2017).

As for WhatsApp, 13,3% of the lecturers also use the *Zoom Cloud Meetings* application for online learning. With direct interaction between lecturers and students through *Zoom Cloud Meetings*, students find it easier to comprehend the course materials (Komsiyah, 2021), and their critical thinking abilities also appear (Sari et al., 2021).

According to research results by Fuady et al., Zoom is the most effortless application compared to *Google Meet* and *Google Classroom* (Fuady et al., 2021).

Another application lecturers use is *Google Classroom*, with the lowest percentage of 6,7%. That indicates that only one lecturer uses *Google Classroom*. However, many features are available for lecturers through *Google Classroom*, such as assignments and student communication tools (Ni, 2020). However, few lecturers are familiar with that application. Therefore, they only use WhatsApp for assignment purposes.

From the questionnaire results, it was revealed that unstable internet connections are the main challenge experienced by students during online learning. Despite this obstacle, all students can effectively operate lecturers' online learning applications for discussions, assignments, communication, and other purposes. It can be concluded that lecturers use various types of applications in online learning to support the learning process. The choice of applications will depend on multiple factors, such as the needs and preferences of lecturers, students, and the university.

Objectives of Implementing Online Learning

Previously, Online Learning and Distance Education were part of non-formal education. However, they gradually replace formal education (Mishra et al., 2020). Online learning offers students the flexibility to learn on their own time and from any location, accommodating those unable to attend physical classes (Cui et al., 2023). With these learning methods and settings, students can learn and interact with their lecturers from any area of their choice (Cui et al., 2023). This flexibility accommodates different learning styles and schedules and allows students to balance their educational commitments with personal and professional responsibilities. Additionally, integrating various online platforms and tools can enhance student engagement and collaboration, fostering a more dynamic and interactive learning environment. As a result, students will likely experience increased motivation and improved academic performance, contributing to a more effective and inclusive educational experience.

Based on the respondent's answers, most lecturers implement online learning as a replacement for offline lecturers. Schedule substitution occurs for various reasons, such as simultaneous campus events and lecturers being unable to attend in person. All students enthusiastically participate in online learning; however, the main challenge is the signal or internet connectivity. As Irfan mentioned, internet networks or signals often pose a weakness

in online learning (Irfan et al., 2020). The following are the survey results regarding the objectives of the lecturers at the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban in using online learning.

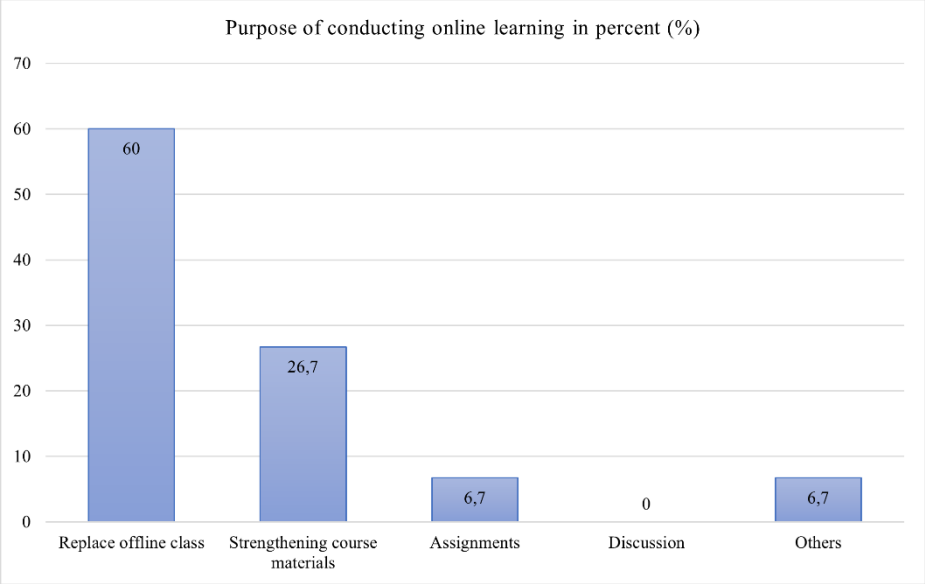

Figure 2. Purpose of conducting online learning

Based on the diagram above, it is known that 60% of the respondents utilize online learning to replace offline lecturers, 26,7% for strengthening course materials, 6,7% for assignments, and 6,7% responded with other options related to strengthening course materials and assignments. Among the factors contributing to the success of online learning is how lecturers conduct their teaching. The effectiveness of online learning is determined by the lecturer's active involvement during the sessions and good interaction and connection between lecturers and students (Nortvig et al., 2018). Students will continue to show enthusiasm if lecturers can effectively manage the class without face-to-face interaction. The questionnaire results indicate that students from the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban are enthusiastic about participating in Online Learning, with a positive response rate of 93%.

Student engagement in online learning is crucial. In line with this, Syabaruddin and Imamuddin have highly relevant perspectives. They argue that higher education institutions must actively respond to the shift toward the digital era. This challenge can be addressed by enhancing students' digital literacy skills and competencies (Syabaruddin & Imamudin, 2022). Digital literacy encompasses technical skills in using software and digital platforms

and includes critical thinking abilities, assessing the reliability of information, understanding digital ethics, and the capability to collaborate online.

Although the survey results show that 60% of lecturers in the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban implement online learning to replace missed face-to-face lecturers, these efforts deserve appreciation. Besides being a sense of responsibility, online learning enhances students' digital literacy. Online learning is a formal learning system aided by electronic resources where lecturers and students can learn both inside and outside the classroom, utilizing computer technology and the internet (Maatuk et al., 2022).

Online Learning as an Effort to Improve Student's Digital Literacy

Higher education institutions play a role in educating students about the wise use of technology. Empowering students with solid digital literacy knowledge and skills will prepare them to face challenges and opportunities in the continuously evolving digital world. Online learning also requires commitment and discipline, especially for vulnerable students who need interaction to strengthen their social skills (Cui et al., 2023).

One of the efforts to enhance digital literacy among students is implementing blended learning, where lecturers conduct classroom lectures and engage in internet-based or online learning. Students today have access to the internet, whether at low or high speeds, from home or internet cafes. To maximize the utilization of information technology, they need software skills to find information sources, handle their relevance and validity, process them efficiently, and assist in solving problems to overcome issues related to their academic improvement program.

As mentioned above, lecturers adopt online learning for assignments and reinforce course materials. Through online learning, students are expected to master the operation of learning management systems for learning in the digital era. According to the survey results, implementing online learning has led to a positive impact, namely, enhancing students' digital literacy.

Research findings indicate that 100% of lecturers in the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban conclude that online learning can serve as a means to enhance students' digital literacy. Digital literacy encompasses students' abilities to access and express information through digital tools (Yildiz, 2020). The use of online learning has gained significant traditions since the pandemic. It has become urgent for the digital community to enhance digital access in classroom interaction and online learning (Buchholz et al., 2020).

Due to their alignment with modern trends, online learning models have become popular in higher education (McGuinness & Fulton, 2019). That is also because higher education institutions are responsible for guiding students to succeed in the digital information era (Khan et al., 2022).

Therefore, online learning has proven to be one of the efforts that lecturers can undertake to enhance students' digital literacy in anticipation of the intelligent society era, facing the advancement of technology, also known as the society 5.0 era. Online learning can be a valuable tool for strengthening students' digital literacy. By utilizing online learning effectively, lecturers can assist students in developing the digital literacy skills they need to become savvy, responsible, and ethical internet users.

Conclusion

The rapid advancement of information technology demands academics in higher education, including lecturers in the *Tarbiyah* Faculty of IAI Al-Hikmah Tuban, to innovate in teaching. Online learning represents one of the efforts made by Tarbiyah Faculty lecturers to enhance student's digital literacy. In the post-COVID era, 100% of Tarbiyah Faculty lecturers have consistently utilized online learning. The majority, accounting for 66,7% of lecturers, use Google Meet for online learning, and 60% of lecturers implementing online learning aim to replace missed face-to-face lecturers. All lecturers agree that online learning can enhance students' digital literacy. It is because students learn to operate platforms or learning management systems to interact with lecturers without being constrained by time and place. Due to limitations in this research, it remains imperfect. Suggestions for future research include refining the analysis of the impact of online learning on students' digital literacy and potentially incorporating secondary data through surveys related to student's responses to the implementation of online learning.

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