

## THE ROLE OF TEACHERS IN INCREASING DIGITAL LITERACY AMONG STUDENTS

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### Abstract

The rapid development of digital technology is not accompanied by adequate digital literacy, including among students. Whereas interaction with digital technology that is increasingly intensive at this time requires good digital literacy. This problem is very necessary to be addressed immediately, teachers who have the responsibility to prepare students to bring the country to a better direction. On that basis, this study aims to analyze the role of teachers in improving students' digital literacy. The literature review is used in this research as a method, data collection is carried out including reviewing scientific articles and content on web pages, then data analysis is carried out by making a summary of the articles that have been reviewed with content analysis techniques. The results showed that teachers have a number of roles that are very influential in improving students' digital literacy. These roles include: 1) utilizing ICT in learning activities; 2) providing knowledge about digital safety, either directly during learning, or through special training; 3) providing feedback to students when they experience difficulties in using technology; and 4) developing students' critical thinking and problem-solving skills.

**Keywords :** Digital literacy, Role of teachers, Students, Digital technology.

### Abstrak

Perkembangan teknologi digital yang begitu pesat pada saat ini tidak diiringi dengan literasi digital yang memadai, termasuk di kalangan para siswa. Padahal interaksi dengan teknologi digital yang semakin intensif pada saat ini sangat membutuhkan literasi digital yang baik. Permasalahan ini sangat perlu untuk segera diatasi, guru yang memiliki tanggung jawab untuk menyiapkan siswa dalam membawa negara ke arah yang lebih baik. Atas dasar itu, maka penelitian ini bertujuan untuk menganalisis peranan guru dalam meningkatkan literasi digital siswa. Kajian pustaka digunakan dalam penelitian ini sebagai metode, pengumpulan data dilakukan meliputi *review* artikel ilmiah dan konten pada laman web, kemudian dilakukan analisis data dengan membuat ringkasan dari artikel yang telah di-*review* dengan teknik *content analysis*. Hasil penelitian menunjukkan bahwa guru memiliki sejumlah peran yang sangat berpengaruh dalam meningkatkan literasi digital siswa. Peranan guru tersebut meliputi; 1) memanfaatkan TIK dalam kegiatan pembelajaran; 2) memberikan pengetahuan mengenai keamanan digital, baik secara langsung ketika pembelajaran, atau melalui pelatihan khusus; 3) memberikan umpan balik kepada para siswa ketika mengalami kesulitan dalam menggunakan teknologi; dan 4) mengembangkan kemampuan berpikir kritis dan pemecahan masalah siswa.

**Keywords :** Literasi digital, Peran guru, Siswa, Teknologi digital.

### Introduction

The ability to use digital technology to find, evaluate, create, and communicate information effectively is a form of digital literacy. The rapid development of digital technology at this time makes the existence of digital literacy very important (Fauziah, 2021; Irhamdhika, 2022). This is coupled with the fact that digital technology has played a large role in various sectors of human life on a daily basis (Ngafifi, 2014). However, there are still many people who do not have adequate digital literacy skills (Firmansyah & Saepuloh, 2022; Susilo et al., 2020). According to data published in 2023 by the Ministry of Communication and Information together with the Katadata Insight Centre, in 2022, Indonesia's digital literacy nationally received a score of 3.54 using a scale of 1-5. The score is at a medium level.

The indicators used in this measurement are digital skills, digital ethics, digital safety, and digital culture (Annur, 2023).

Students are one of the groups that still do not have adequate digital literacy (Oktavia & Hardinata, 2021; Pratama et al., 2019), and it is very important to improve their digital literacy skills. This is due to the need for students to use digital technology to learn, communicate and gather various types of information (Arikarani & Amirudin, 2021; Domingo & Garganté, 2016). However, the great demand for students to be able to utilise digital technology for learning is not accompanied by adequate digital literacy skills. Teachers therefore have a major role to play in helping to improve literacy skills among students. Teachers are responsible for preparing students who are able to bring the country to a better direction (Ainia, 2020; Sujana, 2019), which is the reason why teachers must have a role in improving students' digital literacy.

Various forms of efforts can be made by teachers in improving students' digital literacy skills, including providing hands-on training on how to use digital technology properly (Asari et al., 2019), developing students' critical thinking skills to be able to tabayyun when finding information when in the online world (Julianda et al., 2018), and encouraging responsible and ethical use of digital technology (Herman, 2020). In addition to these things, motivation from teachers can also help students be encouraged to improve digital literacy independently (Hanik, 2020).

Digital literacy cannot only be interpreted as the ability to write and read using computers. It can also be interpreted as basic skills in the use and production of digital media, processing and utilising information, creating and sharing information in a social network, and various other computing capabilities (Tour, 2015).

The engagement of knowledge around how to use technological tools to obtain information, solve problems and complex tasks is part of digital literacy (Falloon, 2020). In addition, digital literacy also relates to acting safely and responsibly when surfing online.

One is said to have good digital literacy if one has the ability to complete tasks effectively in a digital ecosystem, which includes the capability to read and interpret media, replicate data and images through digital manipulation, and investigate and apply knowledge gained from the digital ecosystem.

Research conducted by Muflihin & Makhsun (2020) on Islamic Religious Education teachers in Semarang City found a number of teacher roles in improving students' digital literacy. The study, which used the in-depth interview method, revealed that PAI teachers have a role in guiding students to continue using technology in the corridors of religion. The efforts of PAI teachers can be carried out at a number of levels to be effective.

Then research conducted by Yusuf, et al (2019) was conducted to see the role of teachers in improving students' digital literacy through the application of the project citizen learning model. This research is an experimental type that uses a one group pretest-posttest design approach. The results show that the use of the project citizen learning model can improve students' digital literacy during the learning process.

Furthermore, there is research conducted by Ningsih, et al (2021) which examines the urgency of digital literacy competencies in learning during the COVID-19 pandemic. In the research conducted using the literature study method, the role of a number of parties in improving students' digital literacy competencies was also mentioned, including teachers. Teachers have a role, one of which is as a provider of reliable information for students who are in elementary school.

Research conducted by Muflihin & Makhsun (2020) made PAI teachers in Semarang City as research subjects and used in-depth interview methods. Meanwhile, this study makes all teachers in various locations as research subjects, and uses the literature review method.

Then the research conducted by Yusuf, et al (2019) the role of the teacher is seen in the use of strategies, in this case in the form of applying the project citizen learning model, and using experimental research. Meanwhile, this research is not limited to the specified strategy, and this research uses qualitative research.

Finally, the research by Ningsih, et al (2021) did not focus on the role of teachers in improving students' digital competencies or abilities, and was limited to the COVID-19 pandemic era. In this study, the discussion is more focused on the role of teachers in improving students' digital literacy competencies and the research is not limited to the pandemic era, but within the last 10 years (2013-2023).

Based on the background of the problems encountered and the literature review conducted, it is necessary to investigate the role of teachers in improving students' digital literacy skills. On that basis, this study aims to analyse the role of teachers in improving digital literacy skills among students.

### **Research Method**

This type of research is qualitative research using the literature review method. Literature review is an activity of reviewing, reviewing, and analysing a manuscript or scientific record that is written in printed or non-printed form, which is related to a topic or problem that you want to study (Karuru, 2013).

Data collection in this research activity was carried out through reviewing scientific articles in journals and published through proceedings activities, as well as content on reputable web pages. The inclusion criteria were digital literacy and the role of teachers in improving digital literacy among students. Data was collected using various search engines, including Google Search, Google Scholar, Science Direct and ERIC using keywords that met the inclusion criteria. In order to maintain the alignment of articles, scientific articles and web page content published within the last 10 years (2013-2023) were selected. The relevance of scientific articles is also seen from the abstracts listed. As a result, 35 references were collected consisting of 34 scientific articles and 1 content from the web page shown in the following diagram.

After the data was collected, the next activity was data analysis using content analysis technique, which is a technique used in analyzing the content of a manuscript or other literature sources that have been collected. This technique is done by recognizing themes, categories or patterns that appear in the manuscript. After that, a summary of the analyzed manuscripts was made. The summary contains matters related to the questions and objectives of the research activity.

### **Results**

After conducting the research, a number of articles were found regarding the role of teachers in improving digital literacy among students. In the articles analyzed, four roles of teachers were generally seen to help improve digital literacy among students. These four roles include: 1) utilising ICT in learning activities; 2) providing knowledge about digital safety, either directly during learning or through special training; 3) providing feedback to students when they experience difficulties in using technology; and 4) developing students' critical thinking and problem-solving skills. For more details, the data from the analysis of articles related to the four roles of teachers found in improving digital literacy among students are presented in the form of a table. Each table contains information such as the author's name and year of publication, the method used, and the findings.

In **Table 1** below, several scientific articles are presented that state the fact that the role that teachers can take in improving students' digital literacy is to utilise ICT (Information and Communication Technology) when conducting learning activities.

**Table 1. Table of Article Analysis Results**

No.	Writer & Year of Publication	Method	Research Findings
1	Hikmawati, dkk (2021)	Community service	Teachers collaborate with students in improving students' digital literacy through the implementation of online learning that fully utilises ICT.
2	Astini (2019)	-	Teachers can utilise ICT in learning activities, for example augmented reality (AR) based learning.
3	Abdullah, dkk (2021)	Community service-implementation of learning media	To improve students' digital literacy, teachers can implement ICT in learning activities by utilising Socratic-based learning media.

**Table 2** explains the second role of teachers in improving digital literacy among students is to provide knowledge about digital security, in order to avoid various problems in the digital world, such as cyberbullying.

**Table 2. Table of Article Analysis Results**

No.	Writer & Year of Publication	Method	Research Findings
1	Mukhlisina & Danawati (2023)	Descriptive Qualitative	Teachers play a role in providing an understanding of the digital world in terms of cybersecurity, online bullying and privacy issues.
2	Niyu & Purba (2021)	Conduct webinar activities, with a lecture system, and questions and answers	Increasing the role of teachers in addressing the problem of low digital safety of children in Indonesia through the development of e-safety teaching materials, to support students' safety in interacting in the digital ecosystem.
3	Al Shamsi (2019)	Qualitative method	The United Arab Emirates Ministry of Education is conducting an introductory cybersecurity programme for students aged 8-10. Materials for the programme are provided in the form of modules over three months, and an educator is provided.

Furthermore, **Table 3** details the findings of scientific articles regarding the next role of the teacher, which is to provide feedback to students when they experience difficulties in using technology.

**Table 3. Table of Article Analysis Results**

No.	Writer & Year of Publication	Method	Research Findings
1	Rahmah, dkk (2021)	<i>Research &amp; Design</i>	Teachers can develop interactive media that allows for feedback opportunities to improve students' digital literacy.
2	Rachmawati, dkk (2021)	Qualitative-Description of observation results	In an effort to improve students' digital literacy, teachers can implement hybrid learning (a mixture of face-to-face and online). In this activity, teachers provide feedback so that the results can be achieved in accordance with the objectives.

Finally, **Table 4** below details the articles related to the fourth teacher role in efforts to improve students' digital literacy skills in the form of developing students' critical thinking and problem solving skills.

**Table 4. Table of Article Analysis Results**

No.	Writer & Year of Publication	Method	Research Findings
1	Nurmahmudah, dkk (2021)	Community service	Digital literacy skills are strongly influenced by students' problem solving and critical thinking skills. To develop both of these abilities, learning that uses computational thinking methods can be applied.
2	Handayani (2020)	Qualitative-library research	The development of students' critical thinking and problem-solving skills can influence their digital literacy knowledge. The opposite is also true, where the application of STEM-based digital literacy can improve students' critical thinking and problem-solving skills.

## Discussion

Teachers have a big role in helping to improve students' digital literacy. Various efforts can be made by teachers. Utilising ICT (Information and Communication Technology) in learning activities is the first role that teachers have in improving digital literacy among students (Abdullah et al., 2021; Astini, 2019; Hikmawati et al., 2021). Teachers in learning activities can create ICT-based learning media, such as in the form of interactive media in the form of learning games, learning videos, and learning applications; and use digital platforms to carry out learning. In addition, teachers can encourage students when making assignments by adding knowledge of exploring the internet, making presentation slides, creating and writing on blogs. Then teachers can also add knowledge on how to use digital technology well and wisely in the learning process (Blau et al., 2016). With this, students will be more familiar with ICT when learning, and have an effect on increasing students' digital literacy.

Furthermore, teachers can provide knowledge about digital security to students. Providing knowledge about digital security to students will make students more concerned about security when in the digital world. Knowledge about digital security will protect students from various threats online, such as fraud, cyberbullying, personal data leaks, and various other types of online crime (Al Shamsi, 2019; Mukhlisina & Danawati, 2023; Niyu & Purba, 2021). Providing knowledge can be done directly in learning activities, or through training activities.

Teachers should also provide constructive feedback and support to students when using digital technology. Support in the form of feedback provided by teachers can be done when students are faced with a number of problems or difficulties in using digital technology (Rachmawati et al., 2022; Rahmah et al., 2021).

Teachers can also develop students' critical thinking and problem-solving skills to improve students' digital literacy (Handayani, 2020; Nurmahmudah et al., 2020). Through the development of critical thinking skills, students do not easily fall into the trap of fraud and are exposed to various kinds of false information when doing activities in cyberspace. In addition, through the development of problem-solving skills, students can solve various problems encountered when using digital technology or when surfing in the digital world. These two abilities can be developed by teachers through the application of certain learning methods, for example using computational thinking methods, and STEM-based learning.

The teacher becomes a facilitator who facilitates discussion activities between students about digital technology and everything related to it.

Definitely, in order for all these roles to produce something positive, teachers must also be literate about the development of digital technology which continues to change and develop (Syahputra, 2018; Tohara, 2021). Teachers who have a good awareness of the development of digital technology and are able to understand it, can better assist students in using digital technology for learning. In addition, this can also help prepare each individual student to compete in the world of work which is currently closely connected to digital technology.

The expertise or field of study taught by the teacher can be utilised in this effort. For example, PAI teachers can provide guidance so that students use technology without exceeding the limits set by religion. In doing so, teachers can make a number of efforts, including: 1) Provide students with a proper understanding of the importance of personal data protection; 2) Emphasising the importance of paying attention to manners and ethics when surfing in cyberspace; 3) providing knowledge about reliable sources of information and reminding students not to be influenced by fake news; 4) Prioritising for something that has benefits; 5) Maintaining harmony when mingling in cyberspace (Muflihini & Makhsun, 2020).

The role of teachers is very necessary and important to be improved in helping to improve students' digital literacy skills. Based on a number of teacher roles in improving students' digital literacy above, it is clear that students can have good skills and knowledge of using digital technology with help from teachers.

This study has a limited sample of reference sources used. Therefore, this study recommends further research to examine relevant topics and more complex research methods related to digital literacy among students.

## Conclusion

Teachers have a big role in helping to improve students' understanding and digital literacy skills. This includes: 1) utilising ICT in learning activities; 2) providing digital safety knowledge, either directly during lessons or through special training; 3) providing feedback to students when they experience difficulties in using technology; and 4) developing students' critical thinking and problem-solving skills. Teachers should take part in improving students' digital literacy given the many roles they can play.

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