

THE INCORPORATION OF DIGITAL LITERACY IN EFL LEARNING MATERIALS ON JUNIOR HIGH SCHOOL

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Abstract: In the 21st century, digital literacy is deemed crucial for sustaining social life, especially in the realm of education. This importance extends to the study of English as a Foreign Language (EFL), as it is thought that students' acquisition of the language is enhanced in an environment where there is a high level of digital literacy. Despite its importance, research on the integration of digital literacy into EFL learning materials is scant. This study addresses this gap by investigating the presence of digital literacy in EFL learning materials in one junior high school in Jakarta. Utilizing a qualitative approach with content analysis, the researcher examined 33 learning materials from three English teachers, drawing on seven digital literacy components. The findings reveal a comprehensive incorporation of digital literacy components in all analyzed English learning materials. Functional skills emerged prominently, followed by critical thinking and problem-solving skills. These elements are common since creating educational materials mostly involves the use of digital resources. Overall, the study underscores the integral role of digital literacy in EFL education and highlights opportunities for enhancing students' skills in evaluating digital information and addressing challenges associated with digital technology.

Keywords: *digital literacy; English learning materials; junior high school.*

INTRODUCTION

Foundational skills which are crucial for effective participation in social and economic life encompass literacy, numeracy, and problem-solving (OECD, 2012). Literacy, defined by Howells (2018), enables effective communication, comprehension, and engagement with the world, contributing to human communication through oral or written language systems. Carr-Hill et al. (2008) further characterize literacy as the ability to enhance one's activities and community development through reading, writing, and calculation. In the evolving landscape, literacy has expanded to include information literacy and digital literacy (Stordy, 2015).

In the 21st century, digital literacy becomes essential for social sustainability due to the global prevalence of technologies and rapid development of Information and Communication Technology (ICT) (Egeli & Sağdıç, 2021). Digital literacy is a new form of literacy which includes various specific skills such as creativity, innovation, and entrepreneurship, that individual must possess in order to fully and actively

participate in social, cultural, economic, civic, and intellectual life (Hague & Payton, 2010).

Digital literacy consists of several skills, knowledge, and attitudes which is, in this study, grouped into seven components: functional skills, media and information literacy, critical thinking and problem-solving skills, collaboration and communication, ethics, creativity, and e-safety (Hague & Payton, 2010; Council of Europe, 2019; Pedrew, 2017).

Functional skills in digital literacy encompass the ability to operate, utilize, and optimize digital technologies in both user and technical aspects for specific tasks (Hague & Payton, 2010). Media and information literacy, a critical aspect, involves accessing, evaluating, filtering, and understanding digital information from various sources, requiring foundational skills like critical thinking and problem-solving (Council of Europe, 2019; Hague & Payton, 2010). Collaboration and communication skills are integral, focusing on students' capacity to connect, interact, and collaborate with others digitally and communicatively in group settings (Hague & Payton, 2010; Council of Europe,

2019). The ethical dimension encompasses cultural and social understanding, fostering students' awareness and attitudes in conducting digital activities to prevent the misuse of digital technologies (Pedrew, 2017). Creativity involves encouraging students to produce innovative digital content as an outcome of integrating digital literacy into the learning process (Hague & Payton, 2010). E-safety emphasizes fostering students' awareness of their health, data, and well-being in the use of digital technologies (Hague & Payton, 2010; Rinekso, et al. 2021).

Indonesia exhibits massive internet usage, but the digital skills of its population are at an intermediate level (APJII, 2022; World Economic Forum, 2020). Generation-Z, born in the 1990s through the 2010s, may be immersed in technology, but their actual digital literacy skills are often mediocre-to-low (Porat et al., 2018). Implementing digital literacy in education, especially in English as a Foreign Language (EFL) classrooms, is crucial for enhancing students' skills (Agustina et al., 2022; Pratolo & Solikhati, 2021). Furthermore, a lack of facilities given by the school limits the use of learning media technology in the classroom (Solihat, D., Fadhly, F. Z., & Wihadi, M., 2023).

Various techniques, such as interactive games (Rakimahwati & Ardi, 2019) and tools like Quizizz (Munawir & Hasbi, 2021), have been investigated to improve students' proficiency in digital literacy. Using mobile technology and digital storytelling, students may access material, test hypotheses, depict ideas, and get feedback—all of which enhances their skill development (Churchill, 2020). Integration of digital literacy in EFL learning materials is seen as a practical approach (Kemendikbud, 2017; Agusprayuningtyas et al., 2022). Social media integration such as WhatsApp and YouTube are also beneficial for students since it can easily be accessed by both teachers and students (Kusuma, I.P.I., 2022).

While there has been research on digital literacy benefits in EFL learning, limited attention has been given to the inclusion of digital literacy in learning materials, particularly for students in junior high school (Iskandar et al., 2022). The current study aims to fill this gap, recognizing the importance of investigating to what extent digital

literacy is incorporated in the English learning materials for junior high school students, specifically for students at grade 7, 8, and 9 on one junior high school in Jakarta.

METHOD

The study investigated the incorporation of digital literacy in English learning materials for junior high school students. Notably, the school's unique approach, allowing students to use mobile phones as learning tools in class, sparked the researcher's interest in exploring how digital literacy is incorporated in the absence of traditional technology sources such as smartphones, with only computers and projectors permitted (Pratolo & Solikhati, 2021). To fulfill the study's objectives, a qualitative research approach was employed, characterized by in-depth exploration and a focus on gaining a detailed understanding of the problems at hand through data collection from a limited number of individuals (Yin, 2016; Cresswell, 2012).

The methodology utilized content analysis, specifically focusing on EFL learning materials. Content analysis involves interpreting recorded or printed materials to gain insights into certain behaviors (Ary et al., 2010). According to Cresswell (2012), documents, including textbooks, public records, diaries, and reports, are valuable sources for qualitative studies. In this context, the analysis aimed to uncover the ways in which digital literacy is embedded in the English learning materials, shedding light on the school's approach to leveraging available technology resources for educational purposes.

The data sources of this study were 33 learning materials used by English teachers for grade 7, 8, and 9 in one junior high school. Those learning materials were developed by the teachers, where they collected materials from many sources. The type of learning materials was varied, namely PowerPoint slides, Modules, Worksheets, Quizizz, Videos, Audio, and Google Forms. To investigate the incorporation of digital literacy in learning materials, the data were analyzed by using indicators that contain digital literacy components from several resources (Hague & Payton, 2010; Council of Europe, 2019; Pedrew, 2017).

Table 1. The components and indicators

Component	Indicators
Functional skills(Hague & Payton, 2010)	1. Operating digital technology in the learning process.

	<ol style="list-style-type: none"> 2. Accessing digital technology in the learning process. 3. Selecting which digital technology is suitable for a certain type of task.
Media and Information Literacy (Council of Europe, 2019)	<ol style="list-style-type: none"> 1. Accessing digital information from reliable digital sources 2. Accessing digital information in a form of multimodal text (images, videos, texts, audios) from digital sources 3. Filtering digital information for certain type of task 4. Evaluating digital information from digital resources
Critical Thinking and Problem- Solving Skills (Hague & Payton, 2010)	<ol style="list-style-type: none"> 1. Explaining digital information in a form of multimodal text (images, videos, audios, texts) 2. Analyzing digital information in a form of multimodal text (images, videos, audios, texts) 3. Discussing digital information in a form of multimodal text (images, videos, audios, texts) 4. Solving problems when using digital technology in learning process
Collaboration and Communication (Hague & Payton, 2010; Council of Europe, 2019)	<ol style="list-style-type: none"> 1. Incorporating Groupwork activity 2. Incorporating presentation activity using digital technology 3. Incorporating discussion activity includes sharing ideas and opinion from each student in learning process
Ethics (Pedrew, 2017)	<ol style="list-style-type: none"> 1. Understanding the diversity in class 2. Incorporating legality awareness 3. Incorporating plagiarism awareness 4. Incorporating ethics awareness
Creativity (Hague & Payton, 2010)	<ol style="list-style-type: none"> 1. Creating digital content using various digital media
E-Safety (Hague & Payton, 2010; Rineksa, et al. 2021)	<ol style="list-style-type: none"> 1. Incorporating health and well-being awareness in using digital technology 2. Incorporating personal data protection in using digital technology 3. Incorporating cyberbullying awareness

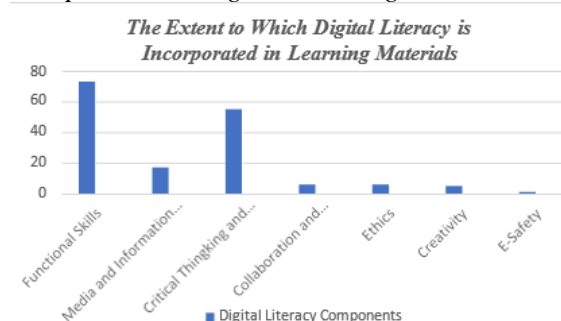
Data collection for this study involves selecting a school that allowed mobile phones for learning and obtaining consent through an office letter. Permissions were sought from teachers to use their English learning materials, which then be collected and organized by format (printed or digital). The data analysis procedure comprises breaking down digital literacy definitions into components, compiling them into indicators, and comparing them with the contents of English learning materials. The process involves ticking checkboxes to identify the incorporation of digital literacy indicators in the materials.

RESULTS AND DISCUSSION

The study's findings, which concern how much digital literacy is included in junior high school English learning materials shows that the functional skills component has the highest number of occurrences with 73 items, followed by critical thinking and problem-solving skills component with 55 items, media and information literacy with 17 items, collaboration and communication with 6 items, ethics with 6 items, creativity with 5 items, and E-Safety which is only found 1 item (see Table 2). The detailed

result for each component is presented as follows. Digital literacy components were found mostly in PowerPoint with 55 items (34%), followed by Worksheet with 36 items (22%), Quizizz with 28 items (17%), Google Form with 20 items (12%), Video with 17 items (10%), Cambridge Module with 6 items (4%), and Audio with 2 items (1%).

Table 2. *The Distribution of Digital Literacy Components in English Learning Materials*

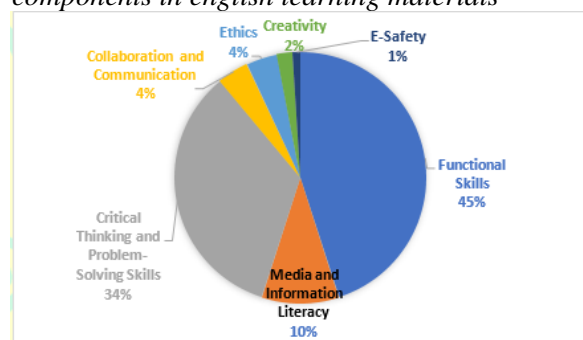


Based on the three English teachers, the researcher got 33 learning materials. Those learning materials were analyzed using 7 digital literacy components which consist of 22 indicators compiled from several sources:

functional skills, media and information literacy, critical thinking and problem-solving skills, collaboration and communication, ethics, creativity, and e-safety (Hague & Payton, 2010; Council of Europe, 2019; Pedrew, 2017).

The most prominent component identified is functional skills, observed in 73 items within the learning materials. This high prevalence emphasizes the demand for students to effectively use ICT tools for learning, especially in digital resources such as PowerPoint, Google Form, Quizizz, Video, and Audio. Functional skills, crucial for optimizing digital technologies in both user and technical aspects, are predominantly integrated into the content of the materials, aligning with the idea that exposing students to digital technology tasks fosters digital literacy skills (Hague & Payton, 2010).

Table 3. *The Percentage of digital literacy components in english learning materials*



Functional skills

Table 4. *The number of learning materials that incorporated functional skills*

No		Frequency	Percentage
1	Operating technology in learning process	33	45%
2	Accessing media in learning process	32	44%
3	Selecting which media is suitable for certain type of task	8	11%
Total		73	100%

The indicators above are used to define functional skills in learning materials. The first indicator, which is “Operating technology in learning process,” appears in every learning material (32 out of 33 fulfilled). Here are some of evidence that show the fulfilment of the first indicator:

“If you use Windows 8, click the ‘Windows’ at the bottom left-hand corner of your screen” (PP1).

“Make a video of your speaking presentation. The presentation is about how to make your favourite food. The duration of the video is between 3 to 5 minutes” (PP2).

“Create your own video of speaking practice based on the topic you choose” (WS3).

“Type your answer and save it in the form of document file.” (WS4)

“Rearrange the jumbled picture based on the video you watch at the English lesson 6 section” (WS6)

The second indicator, which is “Accessing media in learning process,” appears in 30 learning materials out of 33 fulfilled. Below are some of evidence that show the fulfilment of the second indicator:

“Now let’s watch a video” (PP4).

“Listen to the monolog and check your answer” (PP5).

“After you watch the video in the English lesson 2 section, do the exercise below!” (V3).

“Listen to the conversation and do the exercises to improve your listening skills” (A1)

“Watch the video at this link:” <https://youtu.be/ms4BENrmvTY> (V2)

The third indicator is “Selecting which media is suitable for certain type of task.” This indicator appears in 8 learning materials out of 33 fulfilled. Here is the evidence which some of them are the same as the second and indicator’s evidence:

“Upload your video to YouTube or Google Drive” (PP2).

“Use the application of voice recording in your smartphone or laptop. Upload the voice file you have recorded in the instruction section of this classroom (V1).

“Upload your answer in the Google Classroom, at the English assignment section” (V3).

“Submit your work in the form of document/PDF file and upload it to Google Classroom provided” (WS1)

Media and information literacy

The indicators of incorporation of media and information literacy in learning materials that fulfil them are as below:

Table 5. *The number of learning materials that incorporated media and information literacy indicators*

No.	Indicators	Frequency	Percentage
1	Searching information from reliable digital sources	2	12%
2	Searching information in a form of multimodal text (images, videos, texts, audios) from digital sources	2	12%
3	Filtering digital information for certain type of task	0	0%
4	Evaluating information from digital resources	13	76%
Total		17	100%

Evaluating information from digital resources,” is the most prominent to be found in learning materials. It appears 13 out of 33 fulfilled. Here is the evidence:

“Observe the videos carefully. Pay attention to expressions” (PP7)

Searching information from reliable digital sources.” This indicator found only 2 from 33 learning materials. The following is the evidence:

“Find 3 kinds of labels; medicine, food, and drink from any sources.” (WS2)

“Find 2 pictures of your favourite famous people” (WS5)

Critical thinking and problem-solving skills

The indicators of Critical Thinking and Problem-Solving Skills in each learning materials, along with the learning materials that fulfil them, are as follows:

Table 6. *The number of learning materials that incorporated critical thinking and problem-solving skills*

No.	Indicators	Frequency	Percentage
1	Explaining information in a form of multimodal text	10	18%
2	Analyzing information in a form of multimodal text	31	56%
3	Discussing information in a form of multimodal text	2	4%
4	Solving problems in learning process	12	22%
Total		55	100%

Explaining information in a form of multimodal text are found 10 from 33 learning materials. The evidence is as follows:

Find 3 kinds of labels: medicine, food, and drink from any sources. Put all information on the label into tables.” (WS2)

Create your own video of speaking practice, based on the topic you choose, and upload it to your account of YouTube or Google Drive” (WS3)

Analysing information in a form of multimodal text are found 31 from 33 learning materials. The following is the evidence:

“You hear a man talking about baby sea-lions on the radio. What should you do if you see one?” (CM1)

“After you watch the video in the English lesson 2 section, do the exercise below: - Write down 3 sentences with their responds that you get from the video. - Make 5 sentences using there is/there are with your own words!” (V3)

Discussing information in the form of multimodal text, of 33 learning materials, it appears only 2. Here is the evidence:

In pairs, study the animals below and then answer the questions: - Do you know the animals above? - Do you know that those animals are endangered? - Do you know anything about those animals? - Do you know what makes them endangered? (PP3)

Solving problems in learning process. It appears 12 out of 33 fulfilled. The evidence is as follows:

“What should we do if we want to consume the product?” (PP6)

“What will happen if we don’t press the handle?” (PP1)

“You hear a man talking about baby sea-lions on the radio. What should you do if you see one?” (CM1).

“Why do the orangutans need to be rehabilitated?” (Q1)

Collaboration and communication

Table 6. *The number of learning materials that incorporated collaboration and communication*

No	Indicators	Frequency	Percentage
1	Incorporating group work activity	2	33%
2	Incorporating presentation activity	2	33%
3	Incorporating discussion activity	2	33%
Total		6	99%

Incorporating group work activity appears only 2 from 33 learning materials.

In pairs, study the animals below and then answer the questions: -Do you know the animals above? -Do you know that those animals are endangered? -Do you know anything about those animals? -Do you know what makes them endangered? (PP3)

Each group chooses one member as the player. All players come to the front of the room and look carefully around the room.

Incorporating presentation activity appears only one out of 33 learning materials

“Make a video of your speaking presentation. The presentation is about how to make your favourite food. The duration of the video is between 3 to 5 minutes” (PP2).

Ethics

Table 7. *The number of learning materials that incorporated ethics*

No	Indicators	Frequency	Percentage
1	Understanding the diversity in class	0	0%
2	Incorporating legality awareness	4	66%
3	Incorporating plagiarism awareness	1	17%
4	Incorporating ethic awareness	1	17%
Total		6	100%

Incorporating legality awareness”, found 4 from 33 learning materials. The evidence is as follows:

“www.grammarsaurus.co.uk” (This source found in PP8; the teacher mentioned this source in his PowerPoint learning materials)

“This recording was brought to you by The British Council, to find out, visit www.britishcouncil.org-learningenglishteens.” (A1)

“Relevant websites: <http://www.english4us.com>

<http://www.telenex.hku.hk>” (PP4)

Incorporating plagiarism awareness and Incorporating ethics awareness, each of those two indicators were found only one from 33 learning materials. The evidence are as follows:

“It is NOT ALLOWED to copy and paste other people’s work from any resources (WS1).

“Behave well during the class, NOT saying any rude or impolite words.” (PP7)

Creativity

Table 8. *The number of learning materials that incorporated creativity*

No	Indicators	Frequency	Percentage
1	Creating digital content using various digital media	5	15%

This component only consists of one indicator which is “Creating digital content using various digital media”. All the evidence is as follows:

“Make a video of your speaking presentation. The presentation is about how to make your favourite food. The duration of the video is between 3 to 5 minutes” (PP2).

“Give 2 expressions of asking for and giving opinion with your own words (in a form of sound/voice file, or mp3).” (V2)

“Find 3 kinds of labels: medicine, food, and drink from any sources. Put all information on the label into tables”. (WS2)

“Create your own video of speaking practice based on the topic you choose and upload it to your account of YouTube or Google Drive” (WS3).

“Type your answer and save it in the form of document file. You will use Microsoft Word or any similar software (WS4).

E-safety

The fulfillment of E-Safety in each learning materials, along with the number of learning materials that fulfill them, are as follows:

Table 9. *The number of learning materials that incorporated E-safety*

No	Indicators	Frequency	Percentage
1	Incorporating health and well-being awareness in using technology	0	0%

2	Incorporating personal data protection in using technology	1	100%
3	Incorporating cyberbullying awareness	0	0%
Total		1	100%

Based on those indicators, it appears only one indicator which is about “Incorporating personal data protection in using technology”. The only evidence is as follows:

“College passwords must be changed monthly – assignments on screen. Any problems, see Reception.” (CM1)

The goal of digital literacy is to apply a set of abilities, know-how, attitudes, and comprehension when utilizing digital tools to learn languages. In this study, digital literacy is divided into seven components which consist of 22 indicators compiled from many sources (Hague & Payton, 2010; Council of Europe, 2019; Pedrew, 2017). For English learning materials, there are 33 learning materials that are analysed which is vary: PowerPoint, printed Cambridge module, video, audio, Google Form, Quizizz, and Worksheet. The integration of digital literacy in English language learning resources is divided into two parts: content and assignment (assignment/activities).

From the seven digital literacy components, functional skills component is the most prominent that is found in the learning materials with 73 items occurred. The high appearance of the functional skills shows that the learning materials being analysed demands students to have the ability to use ICT tools or any software effectively for learning. The functional skills are identified in all the three indicators in the learning materials: (1) operating digital technology in the learning process, (2) accessing media in the learning process, and (3) selecting which media is suitable for certain type of task. This might occur because the majority of the learning resources are available as digital files e.g., PowerPoint, Google Form, Quizizz, Video, and Audio, which needs to operate technology and to access media in learning process, only one type of learning material that is printed i.e., Cambridge module. Therefore, it gives the students the opportunity to know how to operate digital technology in a proper way for learning. The majority of the functional skills component is included in the course materials' content. Hague & Payton (2010) stated that exposing students with some materials that need to be done

with digital technology is important in fostering students' digital literacy skills.

The second component that appeared the most in the learning materials are critical thinking and problem-solving skills component. This component is identified in all the four indicators in the learning materials: (1) explaining information in a form of multimodal text, (2) analysing information in a form of multimodal text, (3) discussing information in a form of multimodal text, and (4) solving problems in learning process. This occurred because critical thinking is necessary to help pupils enhance their digital literacy, to evaluate digital information, and to choose which media that can be used to support their ideas (Hague & Payton, 2010; Council of Europe, 2019). Problem-solving skills are also necessary in digital literacy because covers several abilities that enable students to identify problems faced when searching with digital technology (Hague & Payton, 2010).

A study conducted by Agusprayuningtyas et al. (2022) analysed the inclusion of digital literacy in senior high school English language learning materials. The study discovered that the integration of digital literacy is still not at its best. Of 36 learning materials, only 16 learning materials that incorporated digital literacy. This because they don't often use the internet as a resource for learning. However, the findings of this research show a different result. The results demonstrate that all elements of digital literacy are included in English language learning resources. Because most of the learning materials are in the form of digital resources. It implies that the teachers themselves are engaged with technological integration in educational resources. As mentioned by Mayuni, et al. (2022), teachers' comprehension of technology, pedagogy, and subject matter should be the main focus of teacher professional development. Hague & Payton (2010) also stated that teachers should be familiar with the technology used to help students solve problems while using digital technology in learning process.

The results show that the majority of the learning materials' integration of digital literacy occurs in the assignment section. It shows that the role of teachers in developing students' digital literacy skills is necessary. Students need guidance to achieve their goals in learning (Hague & Payton, 2010). Therefore, teachers should engage the content of the learning

materials with the proper assignment to maximize students' learning process.

CONCLUSION

This study reveals the comprehensive incorporation of digital literacy in 33 English learning materials at junior high school with functional skills being the most prominent component (73 items), followed by critical thinking and problem-solving skills (55 items), reflecting the prevalent use of digital resources. While the study indicates sufficient incorporation for junior high school students, it identifies E-safety as the least integrated component. The researcher suggests strategies to enhance E-safety, such as incorporating content that raises awareness and utilizing videos to sensitize students to cyberbullying, promoting a holistic approach that prioritizes students' digital manners and overall well-being.

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