



The Incorporation of Digital Literacy in EFL Learning Materials for Senior High School Students

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Abstract

Digital literacy is an important ability to have to succeed in today's era where almost everything is surrounded by digital technologies, tools, services, and so on. This study aims to investigate to what extent digital literacy is incorporated in EFL learning materials for senior high school students, and to describe how digital literacy is incorporated in EFL learning materials. This qualitative study uses content analyses in analyzing the 36 learning materials that have been collected from 4 different public senior high schools in the East Jakarta area from 4 different teachers. This present study found that digital literacy is not yet maximally incorporated into the learning materials. Out of 36 English learning materials, only 16 English learning materials seem to be incorporated with digital literacy indicators, while some others didn't even incorporate digital literacy at all. Digital literacy in learning materials is incorporated in many ways; instruction (43 occurrences), task (31 occurrences), text (8 occurrences), and last is the provision of links (3 occurrences).

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INTRODUCTION

Digital technologies have progressed faster than any other breakthrough in history, reaching over half of the world's population in just two decades and transforming societies (United Nations, 2020). In the era we live in today, digital technologies have become an integral component of our lives and are used for daily tasks such as web surfing, messaging, playing games, and other similar activities. However, though everyone has become reliant on developing technologies without even realizing it, it does not always mean that everyone has become digitally literate. According to Tampubulon (2017), many Indonesians are still digitally illiterate. Even though today's students are digital natives, this does not imply that they are well-versed in the use of digital technologies because most of them only use digital technology to communicate or share information. Spires and Bartlett (2012) argued that some students are still ignorant about the use of technology, which causes most of

them to disregard the ethics of social media. The students need to develop digital literacy in school not only to improve their knowledge of how to use digital technologies correctly but also to win the global challenges to prosper in the globalization period, where technology is continuously evolving.

As what it means to be digitally literate evolves over time and between contexts, digital literacies are fundamentally a collection of academic and professional practices underpinned by a variety of evolving technologies (JISC, 2018). Beyond basic IT abilities, digital literacy includes a vast range of digital behaviors, activities, and identities. Digital literacy refers to not only a set of abilities that enable a person to properly use software or applications to perform basic online information browsing (Buckingham, 2015) but also a variety of abilities, including critical thinking, creativity, information construction and evaluation, and effective use of digital media (Al-Qallaf & Al-Mutairi, 2016). Perdeu (2017) added that digital literacy includes the ability in using diverse digital technologies, decide which digital tools are best for specific tasks, and decide how to share the information appropriately. Digital transformation and the internet strongly affect students' integration of technologies and their acquisition of more skills supporting their education and preparation for the workplace (Techataweewan & Prasertsin, 2017). It can be consequently stated that digital literacy is the competencies that prepare a person to live, learn, and work in a digital world which encourages them to take an active role in their educational, social, cultural, and cognitive lives.

The importance of having sufficient digital literacy is needed especially for teenagers or students in senior high school. Kominfo RI (2018) stated that in 2017 teenagers aged 13-18 years old are the dominant internet users, 75,50% of whom use the internet in their daily life basis. However, though teenagers are already good enough at using digital technologies it does not change the fact they are still not aware of things that are in digital spaces, for instance, teenagers are less aware of online safety. Also, teenagers' emotions and logical thinking are still not stable enough; thus, they tend to take the information that those social media or digital resources provide (Fuqoha, Ananda, & Nabila, 2019) which later makes them consumed by hoaxes. Hence, as previously mentioned it is very important to help students, especially those in senior high schools, improve their digital literacy since they should already know how to decide which one is right or not in a digital world.

Improving digital literacy is one of the priorities that have been planned by the government to accelerate digital transformation in Indonesia (Sekretariat Kabinet Republik Indonesia, 2020, as cited in Azzahra & Felippa, 2021). Karpati (2011) stated that digital literacy must be defined and cultivated in connection to general educational objectives, according to both educational theorists and practitioners: if ICT use is a basic ability, it must be included in all areas of school instruction. Well-developed digital literacy then affects their ICT proficiency, information and data literacy, digital communication, collaboration and participation, creativity and innovation, safety, and problem-solving.

As classroom instructions, digital literacy can be incorporated into learning materials and activities in many ways; it can be by asking students to present their assignments by using digital tools or services such as Ms. Apps, and Youtube (Western Sydney University, 2017). Murtafi'ah & Putro (2019) incorporated text types of learning with digital-related activities for senior high school. In teaching news items, teachers can use learning materials that talk about anticipating hoaxes or fake news that occurs in the digital world. Then, when teaching procedure texts, the teacher can



provide text that consists of tips about online safety. Doing such things helps students improve their digital literacy.

Since learning materials are the supporting resources that every student needs in the learning process (Ocak, Ozcalisan, & Kuru, 2010), they become an important aspect of the learning process to help, support, and encourage students in acquiring information, competencies, and skills (Asrizal, Amran, Ananda, Festiyed, & Khairani, 2018). Learning resources can come in any type of resource used to aid teachers or instructors in teaching and learning activities (Mudlofar, 2012). Damayanti, Fauzi, & Inayati (2018) divided materials into two broad groups: created and authentic materials. Created materials are materials that are purposefully made for education only, enabling them to meet the purpose of teaching and learning objectives. Created materials include course books, audio materials, and video materials. In contrast, authentic materials are not specifically made for education, but they have the potential to fill up educational purposes. Authentic materials include authentic texts, movies/films, radio broadcasting, television programs, graphs, tables, charts, and maps. The ideal learning materials are learning materials that can facilitate students to understand the subject equipped with various sophistication in the era of the industrial revolution 4.0 (Wakhidah, Sunismi, & Alifiani, 2020). Moreover, in today's era, the national education curriculum is expecting students to be able to find any materials from various sources available including the internet. (Kemp, 2019; D. Hanelahi, et.al., 2020, as cited in Purnamasari, Kartini, Distrik, & Doni, 2021).

There are some previous studies about digital literacy and learning materials in the classroom context. A study by Diana & Wirawati (2020) aiming at analyzing the need of developing textbooks for oral compression courses which are based on Islamic values and digital literacy shows that there is still a need for textbooks based on Islamic values and digital literacy orientation to facilitate students in learning either with educators or the students themselves. A study by Wakhidah, et.al. (2020) which produces learning materials that are based on digital literacy and 21st-century skills for mathematics subjects proved that the product or learning materials are valid and can be used by students. The findings show that learning materials by material expert validators, validation of design experts and learning media, and practitioners obtained an overall average of 4.3.

Therefore, to fill the gaps, the present study will focus on investigating the incorporation of digital literacy in English learning materials for senior high school students with two research questions which have been formulated; (1) To what extent is digital literacy incorporated in EFL learning materials for Senior High School students? (2) How is digital literacy incorporated into EFL learning materials for Senior High School students? This study is expected to provide information about the incorporation of digital literacy in English learning materials for senior high school students and give teachers or educators insights on creating digital-related learning materials.

RESEARCH METHOD

This study used a qualitative research approach as the research's findings are not using the statistical procedure, but in the form of words, images, and numbers instead (Denim, 2002). Furthermore, content analysis was carried out for this study as the research method to analyze the incorporation of digital literacy in EFL learning materials for senior high school. Ary, Jacobs, Sorensen, & Razavieh (2010) stated that content analysis or document analysis is the method that is



applied to written or visual materials to identify specified characteristics of the materials. In this present study, the total number of EFL learning materials analyzed was 36 learning materials for grades X, XI, and XII, consisting of 5 books, 8 PowerPoint slides, 4 handouts, 6 worksheets, 7 videos, 4 e-modules, and 2 web articles.

Table 1. The Description Table of EFL Learning Materials

No	School	LM Code	Grade	Types of Learning Materials
1.	School 1	LM 1	Not Specified	Coursebook
		LM 2	X	PowerPoint Slide
		LM 3	X	PowerPoint Slide
		LM 4	X/XI	PowerPoint Slide
		LM 5	X	Worksheet
		LM 6	Not Specified	Worksheet
		LM 7	Not Specified	Worksheet
		LM 8	Not Specified	Worksheet
		LM 9	Not Specified	Handout
2.	School 2	LM 10	XII	Course Book
		LM 11	XII	E Module
		LM 12	XII	E Module
		LM 13	XII	E Module
		LM 14	XII	E Module
		LM 15	XII	Handout
		LM 16	XII	Handout
		LM 17	XII	Handout
		LM 18	XII	Video
		LM 19	XII	Video
		LM 20	XII	Video
		LM 21	XII	Video
		LM 22	X	Video
3.	School 3	LM 23	Not Specified	Coursebook
		LM 24	Not Specified	Students' Workbook
		LM 25	Not Specified	Students' Book
		LM 26	XII	Worksheet
		LM 27	XII	Worksheet
		LM 28	X	PowerPoint Slide
		LM 29	XI	PowerPoint Slide
		LM 30	XII	PowerPoint Slide
		LM 31	XII	PowerPoint Slide
		LM 32	XII	PowerPoint Slide
4.	School 4	LM 33	XII	Web Article
		LM 34	XII	Web Article
		LM 35	XII	Video
		LM 36	XII	Video

The data were analyzed by using an indicator checklist of digital literacy formulated from several sources related to digital literacy. To answer the first research question, the results showed how many percent indicators had been incorporated in English learning materials and how many English learning materials had been incorporated with digital literacy. Meanwhile, for the second research question, the results were used to indicate the ways digital literacy was incorporated into English learning materials.



RESULTS AND DISCUSSION

A. The Extent to Which Digital Literacy is Incorporated in EFL Learning Materials for Senior High School Students

Out of 36 English learning materials, only 16 English learning materials seem to be incorporated with digital literacy indicators. Of the 16 learning materials, not every digital literacy indicator was incorporated, while some indicators didn't appear at all. The following table illustrates which indicators they are.

Table 2. The table of Each Learning material' Number incorporated in each Digital Literacy Indicators

	No	Indicators	Number of Learning Materials
ICT Proficiency	1	Incorporates to use of diverse digital technologies	3
	2	Incorporates understanding of which digital technologies to use for a certain task	None
Information and Data Literacy	3	Incorporates to access digital resources	8
	4	Incorporates to understand of digital resources	5
	5	Incorporates to identify digital resources	1
	6	Incorporates to analyze digital resources	3
	7	Incorporates to search for digital resources	5
	8	Incorporates to manage of digital resources	3
Digital Communication, Collaboration, Participation	9	Incorporates present content by using digital tools	None
	10	Incorporates to communicate effectively in the digital world	4
	11	Incorporates collaboration by using digital tools	None
	12	Incorporates participation in social and cultural life by using digital media and services	2
Creativity and Innovation	13	Incorporates to create digital creation (digital writing, digital imaging, digital audio & video, digital codes, web pages)	2
	14	Incorporate to re-elaborate existing content (American Association Library, 2013)	None
Safety	15	Incorporates understanding of risks and threats in a digital world	1
	16	Incorporates to protect from possible dangers in the digital environment (e.g., Cyberbullying)	1
	17	Incorporates to understand of protecting privacy and security	1
	18	Explains the impact of digital technologies	4
	19	Explains about safe, legal, and ethical use of digital resources (respect copyright, intellectual property, and the appropriate documentation of sources)	None
	20	Incorporates to act safely and respectfully in the digital world.	None
Problem Solving	21	Incorporates to solve problems by using digital tools or technologies	None
	22	Incorporates to solve technical problems	None

The table above shows the number of learning materials incorporated in each indicator. From twenty-two indicators, eight indicators are absent in every learning material. According to the analyses, the indicator that relates to the use of diverse digital technologies appeared in three English learning materials. Below is the evidence was taken from each learning material.



- *Improve your understanding of Singlish by **listening to audio clips**. The British Library Sound Archives and Youtube are excellent places to start your search for good examples. (p.245) (LM 1)*
- *On the **twenty-seventh slide**, the teacher gives an assignment for students to **record a video** of themselves and send it to Google Classroom. (LM 2)*
- ***Where to find it?** Social media OnlineTV, Radio, Film, Movie, Printed material, Magazine, Brochure, Newspaper, SMS, Online emailers, Outdoor/Public places..... (LM 3)*

The third indicator “Incorporates to access digital resources” is the indicator that appeared mostly among other indicators. The following is one of the samples taken from the English learning materials. The bold word is the word that exhibits an indicator.

*For more examples of formal scripted speeches **visit the following websites**:<http://www.historyplace.com/speeches/>
<https://www.nobelprize.org/index.html> or look at a copy of *The Penguin Book of Twentieth-Century Speeches*. More examples of informal speeches can be found at:
www.cnn.com/TRANSCRIPTS/index.html (p68) (LM 1)*

Next is the indicator that asks students to understand digital resources. This indicator is one of the indicators that frequently appeared in English learning materials. Here is some evidence that shows the fulfillment of the third indicator in English learning materials, some evidence is also the same as the second indicator's evidence:

- ***Read the whole of this story** to find out more about Peter Quint and the children. (It is available on various ‘free’ sites such as (www.gutenberg.org.) (p.154) (LM 1)*
- *1. In pairs, download a piece of news from this address:
<https://www.dailymail.co.uk/home/index.html>
2. Think individually, **read the news item carefully**. Then, respond to the following questions (p.81) (LM 10)*

The fifth indicator “incorporates to identify digital resources” is also the same as the fourth indicator; this indicator was only found in one learning material, LM 1. Here is the evidence:

***If you search online for ‘essay planners’ you will see a range of different templates and diagrams**. Not all of them will be suitable for this work, but you might find particular planners that suit your way of working and organizing material. (p.83) (LM 1)*

The sixth indicator which reads “incorporates to analyze digital resources” appeared in three learning materials. The evidence can be seen below; some of the evidence is also the same as the evidence for the second and third indicators:

***Find a video clip of Nelson Mandela giving this or another speech. How does his delivery affect the impact? Imagine you were a listener in the crowd while Mandela was speaking; what would your reaction have been?** (p.190) (LM 1)*

The seventh indicator “incorporates to search for digital resources” is the same as the third indicator who appears frequently. Five learning materials are incorporated with this indicator. Some of the evidence can be seen as follows:



- *Find an online interview with a popular film star, singer, or sports personality and analyze the language. Discuss whether the language has any elements of exclusion for those who are not part of the fan base. (p.200) (LM 1)*
- *Task 3: Do the project individually. Find another example of application letters on the Internet. Analyze whether you can find the parts of application letters that you have learned. Exchange with friends. (p.67) (LM 10)*

The eighth indicator which reads as “incorporates to manage for digital resources” was found in three learning materials. one of the pieces of evidence that are taken from one English learning material can be read below

Find out more about the research carried out by Howard Giles on language convergence. Go to education.cambridge.org to download a list of useful websites related to this topic. (p.192) (LM 1)

The tenth indicator “Incorporates to communicate effectively in digital world” is found to be incorporated in four learning materials. The evidence can be seen as follow:

- *On the eleventh page, there is an example of two people who communicate through email. (LM 24)*
- *On the seventh page, there is an example of two people communicating in digital media. (p.7) (LM 25)*

The twelfth indicator is “Incorporates participate in social and cultural life by using digital media and services”. This indicator only appears in two learning materials. Below is the evidence that shows the fulfillment of this indicator:

- *On the forty-fifth page, there is an article that talks about social networks that people use these days. (p.45) (LM 25)*
- *In this lesson, Anna helps Pete fix his car. When was the last time you helped a friend or family member? What were they doing when you helped? What were you doing to help them? Write to us by email or in the comments section. (LM 33)*

The thirteenth indicator which reads as “Incorporates to create digital creation (digital writing, digital imaging, digital audio & video, digital codes, web pages)” appears to be incorporated in two learning materials. Some evidence can be seen as follows:

- *Use the results of your research to write a reasoned blog for an education website on the role of text language in teenage lives. (LM 1)*
- *Write a blog entry (200 words) explaining what you think happened to the missing helicopter. (p.89) (LM 23)*

The fifteenth indicator “Incorporates to understand risks and threats in a digital world” only appears to be incorporated in one learning material or article that talks about how someone got scammed in the digital world. The sixteenth indicator which reads as “Incorporates to protect from possible dangers in a digital environment (e.g., Cyberbullying)” is also the same as the sixteenth indicator. This indicator only appears in one learning material

The seventeenth indicator reads as “Incorporates to understand in protecting privacy and security” Similar to the two previous indicators, the fifteenth & sixteenth indicators, the seventeenth indicator only appears in one learning material. The evidence is as follows:



The average computer user has between 5 and 15 username/password combinations to log in to email accounts, social networking sites, discussion boards, news and entertainment sites, online stores, online banking accounts, or other websites. For people who use email or other internet applications at work, the number of required username/password combinations may surpass 30.... (LM 26).

The last indicator which is the eighteenth indicator which reads as “explains the impact of digital technologies” is found to be incorporated in four learning materials. the following is the evidence that indicates the indicator

- *Investigate how **social media** are changing the language of your region. Ask older members of your family or community about the language they used when they were younger and how they think it has changed. (p.224) (LM 1)*
- *On this worksheet, there is a text the topic is "**Do Teenagers Need a Mobile Phone?**" (LM 6)*

This present study's findings are similar to a previous study by Purnamasari et.al. (2021) finding that digital literacy in the class is not achieved maximally yet. It is because students rarely used the internet as a learning resource. While the present study found that digital literacy is not sufficiently incorporated into English learning materials, and it can be seen by the number of indicators that the researcher has found.

B. Ways of Digital Literacy is Incorporated in EFL Learning Materials for Senior High School Students

Based on the findings, digital literacy indicators are incorporated in all types of learning materials such as books, PowerPoint slides, e-modules, worksheets, handouts, videos, and web articles. Since digital literacy indicators are incorporated in various types of learning materials, therefore, they are incorporated in various ways as well such as instruction, provision of links, text, and tasks. The total occurrences of the ways of digital literacy incorporated in English learning materials from the highest to the lowest; instruction (43 occurrences), task (31 occurrences), text (8 occurrences), and last is the provision of link (3 occurrences). Hence the following will show the results for each indicator.

The indicator is about **using diverse digital technologies** incorporated in two types of learning materials: coursebooks and PowerPoint slides. There are three occurrences in total that can be found, and it is through instructions that the learning materials give to students and through tasks that are assigned to students. Next is the indicator about **accessing digital resources**. Based on this study's findings, 8 English learning materials have been incorporated with this indicator. The learning material's types are varied as well as the ways how the indicator is incorporated. In total the occurrences of this indicator are 25 occurrences: 18 occurrences in instruction, 4 occurrences in the task, and 3 occurrences in the provision of the link.

Next, English learning materials incorporate digital literacy by **letting students understand digital resources on the internet**. This indicator is one of the indicators that appeared in English learning materials frequently. According to this finding, this indicator is one of the indicators that appeared in English learning materials frequently. In total there are five learning materials (two



books, two PowerPoint slides, and one e-module) and 12 occurrences; 7 occurrences in instruction and 5 occurrences in the task.

There is only one type of learning material that is incorporated with **the indicator which is about identifying sources on the internet**. Based on this study's analyses, a coursebook is the only learning material that has incorporated identifying digital resources and 2 occurrences can be found which are in the instructions. Then, the indicator that is about **analyzing sources on the internet** can be found in 3 learning materials (one 1-course book and 2 PowerPoint slides). The total amount of this indicator's occurrences is 6 with 3 occurrences in instructions and 3 occurrences in the task.

The indicator is about **searching for digital resources** that can be found in 7 learning materials of various types such as books, handouts, and videos. The total amount of this indicator's occurrences is 16; 10 occurrences in instructions and 6 occurrences in the task. Then indicator that is about **managing sources on the internet** was found to appear in three learning materials with two types; two books and one web article. In total 3 occurrences can be found for this indicator: 1 occurrence in instruction and 2 occurrences in the task.

Four EFL learning materials incorporated the eleventh indicator of **communicating effectively in the digital world**. This indicator is incorporated into learning materials by allowing students to socialize or text each other with their friends in the digital world. The type of those learning materials is books and worksheets. There are 4 occurrences of this indicator; 2 occurrences in the task and 2 occurrences in a text that the learning materials provide. The total amount of learning materials that incorporated the twelfth indicator or **participating in social and cultural life by using digital media and services** is only 2 learning materials. The learning materials are in the form of students' books and web articles. Through a task (1 occurrence) and a text/article that talks about social networks that people use these days (1 occurrence).

The total amount of English learning materials that are incorporated into **creating digital creation** is only 2 learning materials, the types of the learning materials are course books. There are three occurrences of these indicators that can be found in learning materials and all of it is provided through the task such as allowing students to participate in social and cultural life by using digital media and services. The fifteenth indicator or the indicator of **understanding risks and threats in the digital environment** is one of the least indicators that can be found in learning materials. This indicator only appeared in one learning material which is a student's book and the total occurrence of this indicator is only 1 occurrence. The way how this indicator is incorporated is through a text or article.

Next, the indicator that is about **protecting from possible dangers in the digital environment** (e.g., *cyberbullying*) only appeared in one learning material which is a coursebook. There is only 1 occurrence that can be found and the way how this indicator is incorporated into learning material is through content or text that explains the language in cyberspace. The indicator that is about **understanding to protect privacy and security** is one of the indicators that least appeared. The total amount of this indicator occurrence is only 1 and it can be found in the task. The total occurrence for this indicator that **explains the impact of digital technologies** is 6 occurrences: 3 occurrences in text and 3 occurrences in the task. The learning materials that presented this indicator are course books and worksheets.



From all the types of English learning materials; books (coursebook, students' book, and students' workbook), PowerPoint slides, e-modules, videos, handouts, worksheets, and web articles, the type of English learning material that is dominantly incorporated with digital literacy is a coursebook. It is because the coursebook has many pages and topics that are provided. After a coursebook, the next type of English learning material is a PowerPoint slide. It is because PowerPoint slide is a learning material that is created by the teachers themselves and thus they can suit the students' needs and skills for this era.

Regarding the findings of how digital literacy is incorporated in English learning materials, digital literacy indicators more dominantly appeared in instructions. Below is one of the examples that are found, it indicates the third indicator or incorporates to access digital resources. The word "**go-to**" asks students to access the provided link.

For further information about the use of specific devices used in speeches go to: <http://www.virtualsalt.com/rhetoric.html> (p.69)

After instruction, digital literacy indicators also appeared frequently in a task. For example, students are asked to search for another example on the internet to do their task. Below is the evidence that is found in English learning material, The sentence in bold explicitly stated that it indicates the seventh indicator or searching for sources on the internet

*Task 3: Do the project individually. **Find another example of application letters on the Internet.** Analyze whether you can find the parts of application letters that you have learned. Exchange with friends. (p.67)*

Followed in a task, digital literacy indicators are incorporated in some texts that the learning materials provide. For instance, learning material put a text that talks about cyber-bullying, the issue which usually happens in the digital world. Below evidence is the evidence that indicates the sixteenth indicator which is about protecting oneself and others from possible threats on the internet.

Language in cyberspace

*One of the problems associated with the internet is the issue of **cyber-bullying**, which is defined as a young person tormenting, threatening, harassing, or embarrassing another young person using the internet or other technologies, such as cell phones. This behavior is now possible because of the internet and the anonymity it provides through the bullies being able to block information.... (p 195)*

As for the provision of links, the learning material provides some links such as from YouTube or websites that can be accessed by students. No instruction showed it is only some links for students for further reading or watching.

The links/digital resources:

- <https://youtu.be/tvXUHY4z0As>
- <https://youtu.be/oxiJ02-hpZY>
- <https://youtu.be/TuCUgD3Si-M>
- <https://youtu.be/Eiaxcgn8DB4>

This study has shown that not all indicators are incorporated in learning materials and then the ways how digital literacy is incorporated in learning materials are varied such as through instructions, tasks, text, and provision of the link.

CONCLUSION AND RECOMMENDATION

Based on the findings, this study found that digital literacy is only incorporated in some English learning materials. However out of 36 learning materials, only 16 learning materials have incorporated digital literacy, and not all indicators also can be found in those 16 learning materials. As well it appears eight indicators occurred to be absent or can't be found in all English learning material. Digital literacy is incorporated in many ways such as through instructions, tasks, text that the learning material provides, and provision of links. According to the findings, digital literacy is incorporated largely into a coursebook. As for how digital literacy is incorporated, digital literacy is mostly incorporated through instructions. For instance, the learning material gives explicit instruction to students to open or access the provided link.

From the findings, digital literacy is not enough to be incorporated into English learning materials, thus the researcher recommends for future teachers or writers who want to create learning materials digital literacy should be taken into account because digital literacy is very important for today's era. There are several ways to incorporate digital literacy in learning materials, for instance in learning about report text the topic that can be talked about is digital literacy, and therefore, students will be aware of that issue. Since this present study's scope is limited only to several public senior high schools in the East Jakarta area. Hence, future studies that want to conduct in the same field can use from the different areas or schools and examine the learning materials from different levels for example learning materials for elementary or junior high school students.

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