IMPROVING READING AND WRITING LITERACY IN ENGLISH TEXT-BASED TECHNOLOGY

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Abstract

The research focused on the effects of using technology such as e-books and Google Docs on EFL students. It looked at how beginning readers approach reading e-books, examining the g speed of reading in particular, comprehension, and writing text. The information for this exemplary classroom action research was gathered through initial observations, reading tests, and student writings. The findings show that employing an online library, gadgets for reading and writing English text, and involving literacy competitions based on technology have positive benefits for socio-cognitive development and pedagogical-cognitive literacy.

Keywords: reading, writing, literacy, technology

INTRODUCTION

Literacy is a broad term that refers to a set of abilities and skills in reading, writing, speaking, calculating, and problem-solving that are necessary for everyday life. Reading and language skills are, as a result, intricately intertwined. Literacy also refers to a person's capacity to read, write, communicate, and compute. According to the National Institute for Literacy, academic competence, national context, institutions, and cultural values all influence a person's sense of literacy, according to UNESCO. In line with the literacy definition, some scholars have investigated various students' developing literacy in English texts, written and orally, in particular.

In the last few decades, information and literacy skills have developed into various skills, such as science, math, data, technology, and digital, whereas reading and writing are categorized as basic literacy (Artelt, C., et al., Frankel, K. K., 2016, Hemmerechts, K., Agirdag, O., and Kavadias, D., 2019). They all agreed that having fluent basic literacy skills is required as a 21st-century skill. Besides, having great literacy competencies indicates that a country has mutual readiness to change globally. As a result, every citizen should be able to demonstrate fluent literacy skills and competencies

(Van Staden, S., and Zimmerman, L. 2017, Graham, S., et al., 2018, Rowsell, J., 2018, Yan, J., and Cai, Y, 2021). In light of developing reading digital literacy, applying parental care to build auto student learning awareness (Chen, S. F. 2017), a study on practical vocabulary instruction to support reading literacy. For further understanding, advanced reading literacy also influences strategies, pre-cognitive and metacognitive (Wright, K.L., et al., 2016, Muijselaar, M. M., 2017).

In line with the relationship between literacy and technology (Alwan et al., 2007), they assert that it can help teachers provide online assessment and feedback for literacy development. Due to the development of modern technology, many students' books have changed to present digital books. And it is a crucial component of educational advance or to succeed, it is critical to enhancement literacy. The ability to read is a critical skill that allows young children to learn. According to various research, fluency is strongly linked to reading comprehension ability (Lin, P. H., et al., 2019).

Unfortunately, the students in the remote area, likely participants in the study, did not feel the fortune mentioned above. Their literacy is not sufficient and

they are still classified at a poor level (PIRL benchmark). It means that the improvement of literacy skills at school must be urgently conducted as soon as possible. The inability to read and write English is a study shortcoming at junior high school in Wasur Kampung, District of Merauke, Indonesia. On the other hand, the study applies technology-meditated to build students' overall understanding, writing, and reading literacy skills. These three things lead to students' character development and higher-order thinking skills. Simplicity, for building and knowing participants' literacy development. The study is designed to answer the following research questions: (1) What is the impact of technology-mediated on students' reading literacy? (2) What is the technology-mediated impact on students' writing English texts?

RESEARCH METHOD

About the students' achievement in reading and writing English texts, the data was collected with a classroom action research approach during the pandemic COVID-19. This work was conducted to do an action and to observe any students' changing characteristics due to presenting technology based on reading e-books and writing text by using Google Docs. context. As for beginner literacy level, the work involved 30 students from junior high school in a remote area, Kampung Wasur, District of Merauke, Province of Papua, Indonesia. There were 18 boys and 12 girls who were aged from twelve to fifteen years old. Noted, their demography came from poor socio-economic status, and in this case, they do not have additional students' books used for drilling at home. For further initial characteristics, most students did not have a personal computer or technological learning device, and that is why they were categorized as having low literacy in reading and writing English text.

RESEARCH INSTRUMENT

During gathering data, the work applies three types of instruments. For instance, initial test pre-action, doing the action, and test post-action. In light of this, students were given one printed text entitled "AT THE ZOO." The text given was taken from a student's handout, which was an area of their interest. Every student recorded the reading duration using a stopwatch provided by the researcher. Whereas, in pre-writing tests, students have to rewrite texts they have finished reading.

RESEARCH PROCEDURES

The teacher or researcher of the work gave action deliberately to help participants be literate in reading and writing the English text. Also, practices and activities in the classroom are expected to change students' literacy characteristics. To do so, the action was taken, as in the following: week 1: pre-action; all students reprinted text and measured the time consumed during reading, week 2-4: in actions; technology-based reading literacy used technology based on some e-books to help students to improve their reading literacy. Technology-based writing literacy used technology based on Google Docs to help students improve their writing literacy. And week 5 (post-action); Given a test to students, they refer to e-books chosen and then asked for them to rewrite them on Google Docs. All recorded and saved text is scored, evaluated, and provided feedback by the teacher or researcher. Students have to build three questions from e-the books chosen. And then, observational questions.

DATA ANALYSIS

To make literacy more meaningful and to significantly differentiate between initial and post-action classroom activities, the work was analyzed by using the reading speed category, which was adopted from Jackson, M. D., & McClelland, J. L., 1975, Rajchert, J. M., et al., 2014. The number of words read per minute is used to determine a student's reading speed (wpm). The following is a general classification for reading speed:

Level	Count of words (wpm)	Reading comprehension	Category
1	0 – 150	0 -50	Low
2	151 - 300	51 – 65	Moderate
3	301 – 500	66 -85	Good
4	501 – 750	86 -100	Excellent
5	Above 751		Unbelievable

(Source adapted from Jackson, M. D., & McClelland, J. L., 1975, Rajchert, J. M., et al., 2014)

Regarding students' reading level, afterward, tasks are given to students to ensure their literacy improvement towards answering reading text questions. Additionally, reading literacy progress was measured by their comprehension of answering reading tests correctly, as Nation, P. (2009) suggested. For this case, student reading comprehension was interpreted as, "0-50 points as poor", 2) 51 – 65 points as average", 3) "66 – 85 points as good", and 4) 86 – 100 as excellent". Whereas, writing improves literacy categorized based on writing performance components to optimize written performance. Making a rubric is a simple technique to assess student writing. A rubric is a grading tool that teachers use to evaluate both student performance and student products or projects.

RESULT

In light of research questions (1) and (2), researchers note students' reading and writing literacy improvement which reached upon reading a few e-books and then rewriting them on Google Docs. Their performances changed after they got some more actions during learning cycles. The reading literacy progress revealed whether there has been a gain in reading speed and reading comprehension scores over time. Writing literacy, on the other hand, is measured by growing scores. The following tables summarize each result in detail:
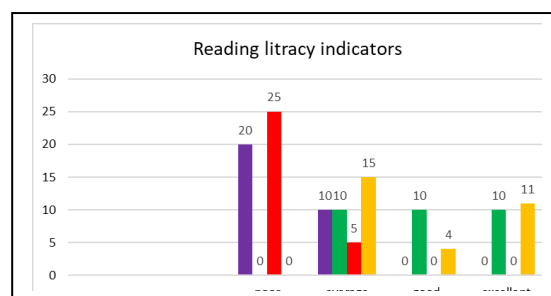

Chart 1. Reading literacy indicators

Chart 1 above illustrates that students' reading literacy indicates both reading comprehension (RC) and speed reading (SR). Indeed, their initial capability consisted of 20 students (67%) classified as poor level, and as for the average level, there were 10 students (23%). Afterward, students showed good progress after getting involved in some more activities and performances using e-books. Their reading comprehension (RC) was at a good level as 10 students (13%), average as 10 students (13%, and they had an excellent level as 10 students (23%). It means using e-books to increase their literacy would be better than printed books. Besides, students' changing performances were emphasized by 15 students (50an %) at average level, 4 students (13%) at good level, and 11 students (27%) at an excellent level. Those numbers in chart 1 imply that there is a significantly increased use of technology in the reading class as a whole. Also, supplying information for

research questions (RQ1). Reading literacy improvement was described in table 1 and below:

Table 1. Reading Statistics of samples test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE-TEST	47.10	30	6.687	1.221
	POST-TEST	76.77	30	4.636	.846

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRE-TEST – POST-TEST	-29.667	9.721	1.775	-33.297	-26.037	-16.715	29	.000

As seen in Table 1 above, there were students' scores improved between initial and post-use of advanced technology during the class performance. As Nation, P. (2009) assert readers' skills can be developed in two ways, intertwined technology in reading text and naturally repeating whole texts. Meanwhile, table 3 illustrates that there is a significant correlation of 0.05 (.000) between enhancing technology and reading literacy. In light of the research question, the information in table 4 below illustrates the impact technology e-books and Google Docs have on student writing literacy improvement.

Table 2. Reading Statistics of samples test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	50.69	29	4.001	.743
	posttest	83.59	29	6.587	1.223

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - posttest	-32.897	8.222	1.527	-36.024	-29.769	-21.547	28	.000

The increasing mean scores in table 2 show changing students' performance in writing activities well. The Google Docs features provide teachers' direct feedback, so that increased by 32.897 points from pre-test to post-test. Besides, it has the potential to develop students' critical thinking to produce better-written texts while being proofread by their peers. It was crucially used for developing paragraphs
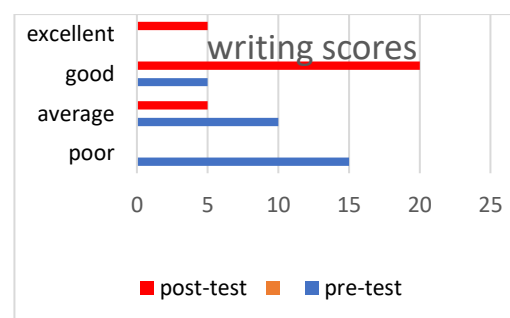

Chart 2. Writing scores after using technology

DISCUSSION

Regarding the results in table (1), (2) & charts (1), (2), illustrated reading and writing literacy set in the good category. It implied presenting technology for students who were more attracted to reading and writing with digital devices rather than conventionally printed-based textbooks. For the last few decades, some enormous scholars have proven that learning-based digital technology attracts and draws students' attention (Otterborn, A., et al., 2019, Falloon, G., 2020, Lenkaitis, C. A., 2020, Shatri, Z. G., 2020, Nikou, S., & Aavakare, M., 2020), However, there has been very little research into the use of e-books to help students become more literate in reading and Google

In line with some activities and effective practices to increase writing performance, students have already done in this work not just write simple letters, words, or phrases, but more. Google Docs is easy to use and is familiar to students at junior high school, which is close to digital devices. For this reason, the use of this application is very effective in empowering students' cognitive performance in producing higher quality writing. Because at the same time, students can provide opportunities for some classmates and teachers to give constructive suggestions so that the text they write is by good writing standards. Thus, online editing features were essential to boost the brain's ability to produce new information and retrieve long-term memory. Cognitive science and linguistic theory have both aided in the development of empirical studies into the writing process and composition teaching. There is substantial discussion among composition theories about whether it is appropriate to merge these two schools of thought into a single composition theory. Their empirical research foundation and links to process theory and self-efficacy building. In line with this, while students were applying the features revision, the students themselves felt more confident with the previous text, so they could be active in the features. Strobl, C., et al., 2019, Alobaid, A. (2021). Kim, S. L., & Kim, D. (2021). Mitchell, K. M., et al., 2021.

By literacy development, integrating e-books and Google Docs simultaneously strongly influenced the pedagogical writing process. In the case of Strobl, C., et al., 2019 have declared that using digital technology can help students both micro-level and macro-level the in academic writing process. Students at the junior high school are given empowerment various technologies refer to interests and capabilities. Great available online e-books were had significantly influenced way of student reading speed. The work notes count of words that student can be read almost 300 per minute. Besides, the availability of reading references regarding students' interests. Reach advance in reading and writing and vice versa. Teachers in the classroom should consider adapting writing and reading instructional, assessment devices, providing simple feedback, and even stimuli a reward (Paul, J., & Criado, A. R., 2020, Tonks, S. M., et al., 2021).

Regarding reading and writing literacy-based technology, teachers should beware of students' pedagogy and technological content knowledge (Lachner, A.,2021). To achieve this, different kinds of strategy and competencies are needed by the teacher, such as students' writing and reading levels, student cognitive and pedagogy development, availability of own utilities, Li, L., 2020), as well as the learning environment (Müller, F. A., and T. Wulf, 2021; Müller, C., and Mildenberger, T.2021). They suggest that accommodating class activities in a flexible learning environment is a worthwhile requirement for successful learning performance. The work implies e-books and Google Docs are effective tools for students who are familiar with visual learning styles (Kim, T. Y., & Kim, Y. K., 2014), (Butarbutar 2019), (Butarbutar et

al., 2020) (Butarbutar et al., 2021a) (Butarbutar, 2021b) and (Leba et al., 2021).

CONCLUSION

In sum, the presence of technology in the world of literacy has played an unpredictable role, digital devices in particular. The development of basic literacy-based technology simply notes three sub-labels. For instance, (1) socio-cognitive development, indicates online editing has also opened up the possibility of collaboration and adding the Google emails of 50 people to the Google Docs document permissions. Besides, its features can manage sharing and privacy. This will be very useful when dealing with teachers, lecturers, principals, and stakeholders. They can comment directly on the document. The position of the comment can also be right on the desired word. (2) pedagogical-cognitive literacy, which incorporates the psycholinguistic process, memory, and prior knowledge. Reading ability, having the better reading ability and writing ability at the same time, and (3) linguistic competence are all directly influenced. All Google Docs feature the potential to teach the linguistic process and literacy development. Implications for pedagogical language education such as: (1) Reading motivation, it is the foundation of literacy, therefore urge young students to engage in it frequently and thoroughly. This should include reading newspapers, novels, comic books, periodicals, films, reference materials, and websites, among other genres. (2) discuss the book as a group; actively discussing what has been read encourages students to make connections and think deeply about the ideas contained in the text. Follow up reading or viewing the text with a discussion of what makes the learner think and feel. (3) Engage in literacy-enhancing games and activities. (4) Use the library; immersing early students in a big volume of text motivates them. Last but not least, the works were examined quantitatively, so an online survey and supporting deep interviews are recommended for future works. Also, the large number of participants with various literacy characteristics requires considerable further investigation.

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