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Doodle diaries for enhancing students' writing amidst technological era: A mixed methods study

Panggih Rahardi^{✉1}, Lilia Indriani²

^{1,2}Universitas Tidar, Indonesia

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Abstract

The use of technology can help students' current writing activities inside and outside the classroom. However, based on previous studies, there is still conflicting debate whether technology can help or hinder students in writing. As a result, some developed countries such as Australia and Sweden are de-emphasizing the excessive use of technology in academic settings and are turning back to printed books and texts to get students used to writing manually by hand. In this case, this study investigates deeply manual writing instruction using doodle diaries via paper and pencil in writing classes then how to correlates to their motivation. However, university students as participants in this study were not prohibited from using technology. Through mixed methods study, it was seen that some students were still looking for a technology assistant to help with their writing in their weekly doodle diary. Nevertheless, it was also shown that students have a positive view of this instruction and there is a significant improvement in their writing skills. On the other hand, this study also found that students' writing scores did not correlate significantly with their writing motivation. To obtain these findings, survey through questionnaires, interviews, and documentation along with inferential statistics and descriptive statistical techniques were employed. These findings also implicated that such manual writing instruction can still be employed in this technological era, but other aspect than writing motivation also need to be considered.

[✉]Correspondence Address:
Prodi Pendidikan Bahasa Inggris, FKIP, Universitas Tidar
Jl. Kapten Suparman No.39, Potrobangsari, Kec. Magelang
Utara, Kota Magelang, Jawa Tengah 56116
E-mail: panggih.rahardi@students.untidar.ac.id

INTRODUCTION

In its application in education, technology gives rise to benefits and drawbacks. In the classroom, it used to stimulate students' interest and create a stimulating environment (Pazilah, Hashim & Yunus, 2019). Hence, for language learners to succeed, teachers should encourage learners to identify activities through the use of technology (Genç İter, 2015). However, according to Schwarz and Zhu (2015), merely using technology in the classroom does not boost student engagement. Educators should also know incorporating technology into their lessons and curriculum "is not a magic wand" that will make the content easier for students to recall or comprehend (Gumport, 2015). In addition, technology is reducing the attention span of the younger generation and students no longer have the same direct connection to their teachers and curriculum as they did in the past (Rodriguez, 2022). He also said that the technology employed in classrooms distracts students from their studies and does not make a significant enough contribution to their achievement. However, Mueller and Oppenheimer (2014) contended that, in teaching writing, introducing technology on its own has a negative impact on writing and its substance. Students are growing overly reliant on technology, since it makes work easier (Razer, 2022). Since technology is providing people with information at their fingertips, they are not growing as thinkers.

As has been touched upon, the existence of technology seems to help students in the current era but also brings challenges, especially in teaching writing classes. The attitude of students who are too dependent on the use of technology to help their needs in academic matters raises concerns for developed countries. For example, there are two real examples of phenomena from developed nations who switched back to pen and paper instead of encouraging their students to use technology. First, due to concerns that students are using newly developed artificial intelligence software to produce essays, Australian universities have had to alter the way they administer exams and other assessments (Cassidy, 2023). Here is an illustration of how students misuse technology in the classroom. Second, many Swedish teachers have been emphasizing more printed books, quiet reading time, and handwriting practice since the country's students returned to school recently. They are also spending less time on tablets, autonomous online research, and keyboarding abilities (Pele, 2023). Pele stated that this shift back to more conventional teaching methods is a reaction to inquiries from experts and lawmakers regarding whether Sweden's highly digitalized educational system has resulted in a loss of fundamental skills. These examples are contrary to the fact that humans need to keep up with the rapid technological development.

The above phenomenon certainly does not occur for unreasonable reasons. This certainly has something to do with the negative effects of excessive use of technology by students. For instance, there is growing worry in education that students' use of cell phones interferes with their capacity to focus (Gazzaley & Rosen, 2016). This kind of negative effect could interfere with students' writing. Related to writing itself, students in the English study programme find writing to be one of the most challenging courses in teaching writing for higher education (Ismiati & Pebriantika, 2019). According to Thipatdee (2019), students usually made errors in spelling, punctuation, content ambiguity, and redundancy. Sakkir (2020) further emphasized that writing is a sophisticated talent that might be challenging to teach, since it calls for grammatical devices and conceptual and judgmental components. Writing is also a difficult activity since it demands themes, resources, and exercises that promote growth and development not just grammatically but theoretically and conceptually as well (Suryaman 2019). Based on these issues, this study wants to provide a solution by trying to apply students' manual writing instructions or handwriting using doodle diaries. A diary is often written by hand, chronologically organized, and not meant for publication. It is used to reflect everyday feelings, thoughts, and experiences (Mulyani & Muhtadi, 2019). As noted by Agustina and Harahap (2022), keeping a journal or diary can be a useful and factual teaching and learning tool for improving students' writing abilities. Diaries assist students in improving their writing correctness (Yulianti, 2014). Therefore, implementing this kind of handwriting activity is based on previous research findings that showed its positivity when it was compared with digital tools.

In this present study, the diary used for the manual writing instruction is a doodle diary, which differs slightly from the ordinary diary. A doodle diary is basically a diary where the students could insert any picture, drawing, stickers, or any elements that can convey their creativity and support their ideas when doing their writing in that diary. As a result, diary writing is one type of unstructured or free writing activity (Nengsi, 2022; Syaharuddin et al., 2021). Students may be inspired to freely explore and express their creative thoughts in their writing because of this free

writing exercise. Therefore, this manual writing instruction using doodle diaries was done every week and monitored carefully by the lecturers to build a sense of enjoyable writing for students. Therefore, the measurement of students' writing in this study is viewed from students' motivation to do their writing. It is further reinforced because, despite this topic receiving more theoretical and empirical attention from scholars during the new millennium (e.g., Camacho, Alves, & Boscolo, 2020; Ekholm, Zumbrunn, & DeBusk-Lane, 2018; Graham, 2018; Tate & Warschauer, 2018), less emphasis has been placed on the study of how motivational beliefs help or hinder writing and its development. This writing motivation is crucial because, if students in the class detest writing, their teacher may eventually stop emphasizing it (Graham, 2018b). In addition, students with weak writing abilities might be less inclined to write (Wright, Hodges, Dismuke, & Boedeker, 2020). Those are also the reasons this study also wants to investigate whether students' motivation in this study correlate to their writing learning outcomes.

Based on previous research, there are some conflicting theories about the use of digital tools and handwriting to help students develop their writing skills. While some believe that the use of digital tools in writing lowers performance (Mueller & Oppenheimer, 2014), others point to research showing higher performance (Agélli Genlott & Grönlund, 2016; Hultin & Westman, 2014). Muller and Oppenheimer (2014) also discovered that writing by hand helps students recall things better and that writing on computers can have a negative impact on students' performance. Particularly, the students who wrote on computers appeared to create rich texts with a broad spectrum of pointless degradation. Stated differently, certain students studied more effectively when they wrote by hand (Kongsgården & Krumsvik, 2016). According to Agélli Genlott and Grönlund (2016), employing digital writing tools can improve topic content comprehension and availability and equivalency. To improve students' writing abilities, research on the effects is necessary to offer guidance on how to combine training in handwriting and digital writing (Wollscheid, Sjaastad, Tømte, & Løver, 2016). Based on this, even though implementing manual writing instruction using doodle diaries, researchers in this study did not prohibit students from accessing technology, especially their mobile devices, to help them in writing their weekly diary assignments. This is due to the various applications that have been proposed for mobile devices in language learning (Sung, Chang, & Yang, 2015). Nonetheless, numerous pertinent meta-analyses have cast doubt on the assumptions of technology's involvement in language education (Gillispie, 2020), even though it is widely used in language acquisition (Golonka, Bowles, Frank, Richardson, & Freynik, 2014). It is why this study would also like to see how students' use of technology helps their learning, especially in learning to write.

In conclusion, this study will examine further how to apply manual writing instruction using doodle diaries to improve students' writing skills at higher education levels. By implementing instructions to write in a doodle diary using hand by still allowing them to use technology, the researchers can see whether some students write without technology or still use technology to suit their particular needs. This data could point to a deeper comprehension of the function that technology plays in language learning in contemporary society (Gillispie, 2020). Besides that, there are three main objectives in carrying out this research. First, to identify how students view the application of manual writing instruction using doodle diaries to improve their writing skills. Second, to see whether there is a difference in students' writing abilities before and after implementing manual writing instruction using doodle diaries. Third, to find out whether there is a significant correlation between students' writing motivation in manual writing using doodle diaries and students' writing learning outcomes. It is hoped that the results can contribute to showing how technology is applied by students to help them in writing, by showing statistical evidence and students' point of view.

METHODS

Research Design

In this present study, the researchers employed a mixed methods design to fulfil all the research objectives that had been initially constructed. Therefore, there are two types of data used in this study. The qualitative data are used to identify how students view the application of manual writing instruction using doodle diaries to improve their writing skills. The quantitative data is used to see overall students' perception of implementing manual writing instruction using doodle diaries in learning to write, whether positive or negative. Apart from that, further statistical analysis was also used to see the influence and correlation of this instruction to the students' writing outcomes.

Respondents

This study involved 140 English Department students from one of Indonesia's state universities in Central Java. Those individuals were chosen purposively, especially those students who had taken part in their paragraph writing classes and had implemented manual writing instructions using doodle diaries from the beginning of the semester until the data collection for this research was carried out in their mid-term test. However, there are only 131 out of 140 participants who fill out the questionnaire in this study due to the time constraints.

Instruments

Documentation, interviews, and questionnaires are used to collect the data. The closed-ended items in the questionnaire were adapted from Graham et al. (2023), and the responses were recorded on a Likert scale with strongly disagree, disagree, agree, and disagree point as the choices. Since these scales need students to indicate whether they agree or disagree with the provided item, an even-numbered Likert-type scale was used. Following the tenth meeting, the questionnaire was given out in a mixed-learning setting. Twenty-eight questions regarding how they perceive the use of doodle diaries for their writing classes are posed to the students. However, before answering those questionnaires, the students were initially asked to answer an open-ended question related to the use of technology in helping their writing process. This is done to get the overall data related to students' sense of dependency on technology in helping their doodle diary writing. After all the data are gathered, the results are calculated to answer each of the research questions that have been formulated.

Table 1. Questionnaire aspects (Graham et al., 2023)

Aspect	Item's Number
Curiosity	1,2,3,4
Involvement	5,6,7,8
Boredom	9,10,11,12
Emotional Regulation	13,14,15,16
Grades	17,18,19,20
Competition	21,22,23,24
Social Recognition	25,26,27,28

To score the results of each item from the questionnaire, the scales are given score as follows:

Table 2. Four Likert's scale scoring (Destrianti, Syafrizal, & Hati, 2018)

	Strongly Agree	Agree	Disagree	Strongly Disagree
Scoring	4	3	2	1
	Positive Perception		Negative Perception	

In addition, to support the results of the questionnaire above and examine more deeply how students perceive the implementation of manual instructions using doodle diaries in writing classes, semi-structured interviews were also conducted. The questions given are divided into two, namely those related to students who use technology to help them write their diaries and students who write their diaries without the help of technology. These questions include:

- How do you usually write your weekly doodle diaries project using technology? Explain the process briefly.
- How do you usually write your weekly doodle diaries project without technology? Explain the process briefly.

On the other hand, photovoice is also used to enhance and provide a real visual representation of the findings from the students' questionnaire and interview results. Lastly, documentation is used to collect the students' writing scores in paragraph writing class. The pre-test is conducted at the beginning of the semester and the post-test is conducted summatively after students' mid-term test. The students are asked to make and write a doodle diary using their pen and paper using certain topics provided by the lecturers.

Data analysis procedures

Inferential statistics and descriptive statistical techniques were employed in this study. The data is presented in tabular form using a frequency distribution as the descriptive statistical technique.

According to Sugiyono (2019), descriptive statistics are statistics that are used to examine data without the goal of drawing broad conclusions or generalizations. Instead, they describe or illustrate the data that has been obtained as it is. Consequently, to address the study's primary research goal, the data from the questionnaire are first evaluated by calculating all of the students' responses to each questionnaire's item. The researchers then applied the following calculation to get the percentage of all students who responded to the questionnaire:

$$\text{Index \%} = \sum x / Y \times 100\%$$

Descriptions:

$\sum x$ = Total number of respondents' answer scores
 Y = Highest Likert score x number of respondents

Next, the overall scores are categorized based on these categories:

Table 3. Student perspective categorization (Indriani, Ekaningrum, & Rahardi, 2023)

Range of Scores	Category
68-100	Positive
35-67	Neutral
0-34	Negative

After the questionnaire results are analyzed and interpreted, the second research objective will be answered through inferential statistical techniques using the paired sample t-test. This was done to see whether there was a difference in students' writing abilities before and after implementing manual writing instruction using doodle diaries. However, before carrying out the paired sample t-test, the analysis prerequisite tests are first carried out, namely the normality test using the help of the IBM SPSS version 25 program. However, if the normality test revealed that the data is not distributed normally, then the Wilcoxon Signed-Ranks test should be carried out as the alternative to analyze the paired data, whether there are differences or not. The research hypothesis at this stage is:

- Ho: There is no difference in students' writing learning outcomes after being taught using manual writing instruction using doodle diaries.
- Ha: There is a difference in students' writing learning outcomes after being taught using manual writing instruction using doodle diaries.

Finally, to find the answer to the third research objective, inferential statistics in the form of a correlation test was also carried out. For this stage of analysis, the IBM SPSS Statistics 25 software was also used to find the correlation of the two variables in this research through the Pearson Product-Moment Correlation Coefficient. Here, the researcher wants to know whether there is a correlation between manual writing instruction using technology and students' writing scores. However, the research hypothesis at this last stage is:

- Ho: There is no correlation between students' writing motivation on manual writing using doodle diaries and students' writing learning outcomes.
- Ha: There is a correlation between students' writing motivation on manual writing using doodle diaries and students' writing learning outcomes.

FINDINGS AND DISCUSSION

As has been touched upon, initially the researcher in this study asked the participants whether they utilize technology or not in doing their weekly doodle diary project. As manual writing instruction from the lecturer, the students are still allowed to use any kind of technology to suit their needs. By providing some kinds of technology that are usually used to assist students in writing, the researchers in this study found what technology is most used by the students. Apart from that, it was also visible that some students do not use technology in their writing process. However, the students are allowed to choose more than one option in this first question since it is very possible for them to use more than one technology and the researchers would like to see the real percentage of each of them. In this first step, the findings are presented in the table below (see Table 4).

Even though the instruction is manual writing or handwriting, the table above shows that most of the students in this study still need to use technology in their writing process. The most dominant technology used by the students is a grammar checker. Therefore, it is assumed that the students mostly need help in constructing their sentences by the rules. Apart from that, online dictionaries served as the second dominant technology used, since students need to find terms or definitions that they have been hardly able to identify. These two showed how students must

Commented [A1]: Added to match the moved Table 4 below.

manage a variety of issues when writing (Durga & Rao, 2018; Aghajani & Adloo, 2018; Williams & Beam, 2019). Vocabulary, grammar, and sentence construction are a few of those things. Therefore, writing involves more than just putting ideas into words; it also involves understanding grammar, vocabulary, punctuation, conjunctions, prepositions, and other concepts (Husni, Kurniaman, & Noviana, 2019; Putri, 2018). It is unsurprising that students frequently use a wide range of technologies to address these challenges. For instance, some of the other students also use the paraphrasing tool, plagiarism checker, and other technologies. However, this present study found that some students do not use any kind of technology in doing their weekly doodle diary project. They apply their handwriting purely with pen and paper only. The question that arises is, how is their process of writing without using technology and what makes it different from those who use technology in their diary writing process? To address this question, the researcher found the answer in the interview results below.

Table 4. Students' utilization of technology

No	Kinds of Technology	N (131)	Frequency
1	Paraphrasing Tool	16	12.2%
2	Plagiarism Checker	7	5.3%
3	Grammar Checker	99	75.6%
4	Online Dictionary	85	64.9%
5	Other Technology	9	7.2%
6	Without Technology	6	4.6%

Students who use technology in their writing process:

"When I write my diary, firstly I choose a topic or what I want to write in my diary then I start to write directly in my phone's notes. After that, I tried to revise my diary by myself first and then checked my draft on Grammarly to check my grammar. After the grammar checking and revising, the final step is to write my draft into the paper." (Student A)

"When I write my diary project, the first thing I do is write the draft on paper. After that, I typed it on the Quillbot to check the grammar errors and did the revising process by considering my writing style. I also use an online dictionary to help me find synonyms of words that I want to use in my diary." (Student B)

"When I'm completing my doodle diary project in my writing class, I usually use two applications to help me deal with my writing mistakes. The first application is Grammarly to check my grammar errors. The second, I usually use the paraphrasing tool to help me refresh my sentence and avoid plagiarism." (Student C)

Students who do not use technology in their writing process:

"I do not use any kinds of technology in my writing because I'm not used to using any kinds of technology in helping my writing. However, the way I improved my writing was by taking advantage of the lecturer's feedback for my writing every week. This clear feedback has helped me a lot." (Student D)

"Every time I write my doodle diaries, I feel like the idea that comes to my mind can be written so easily and I can write it directly to my paper using my pen and pencil. Hence, I think I might just have enough good self-confidence in my writing skills." (Student E)

"Usually, I write directly what I want to write in the paper for the doodle diary without considering any technological use. It is actually because I'm too lazy to open my mobile phone or laptop just to access technology to check my writing. I would prefer to write it on my own even though it is still not perfect and there are mistakes in my writing." (Student F)

From the six students above, the researchers conclude every individual has their way of utilizing certain technologies or not. For those students who use technology in this interview, all of them mostly use grammar checker tools such as Grammarly and Quillbot. This finding proves the questionnaire result above, where the grammar checker tool is the most dominant technology used by the students to help their writing. However, a student also stated that he also uses another

technology besides the grammar checker, he also used the paraphrasing tool. It showed that students can use one or more technology to suit their needs. In addition, whether they write their draft on their device first or on the paper first depends on their preference since they might consider their comfortability and efficiency.

On the other side, there are three out of six students, who do not use any kind of technology to help their writing, interviewed in this study. Similarly, the finding revealed that each of the students has a distinct perspective. For the first student (Student D), he/she does not use technology to help his/her writing, since this student relies heavily on the teacher's feedback. For the record, the lecturers in this study give feedback every week and for every student's doodle diary writing. As a result, the student's writing can advance gradually. This study supports the beneficial effects of feedback, despite the finding of Herliani, Linuih, and Dwijananti (2015) in Ismiati and Fitria (2021) that diary writing with no feedback might better increase students' learning motivation or behavior than improve writing skills. According to Yulianti's (2014) research, students' scores improved with each cycle and they avoided repeating the same errors in their subsequent writing thanks to constant writing and feedback. However, the next student (Student E) voiced a different thing. He/she prefers to write without technology since this student feels confident in his/her writing. It differs from the last student, who said that he/she does not use technology since he/she is lazy. As a result, this last participant is most likely to have a lot of scratch in his/her diary, which manifest that he/she also can acknowledge his/her mistakes while writing.

After the initial findings of this study revealed that most of the students in this study use technology in doing their handwriting on doodle diaries, this study also investigates how students' overall point of view on the application of this manual writing instruction. As has been touched upon, the perspective in this study is measured by students' motivation towards the manual writing instruction using a doodle diary. The following is the scoring of the questionnaire points that have been explained to determine whether manual writing instruction using a doodle diary is appropriate for use as a learning instruction to improve students' English writing.

Table 5. Questionnaire result scoring

No	Aspect	Score	Percentage	Category
1.	Curiosity	1624	77.48%	Positive
2.	Involvement	1531	73.04%	Positive
3.	Boredom	1367	65.21%	Neutral
4.	Emotional Regulation	1455	69.41%	Positive
5.	Grades	1616	77.09%	Positive
6.	Competition	1427	68.08%	Positive
7.	Social Recognition	1306	62.30%	Neutral
Total		10326	70.37%	Positive

The results of the calculations above show that doodle diaries can be utilized as a manual writing instruction tool to improve student's writing skills, as shown by the total score of 10326 students (70.37%). Overall, the data suggest students view the use of doodle diaries for manual writing instruction as a beneficial way to improve their writing skills. This result is consistent with research by Sadeq, Akbar, Taqi, & Shuqair (2015), who discovered that most of their participants loved writing diaries and thought their language and writing skills had improved. However, if seen from each aspect of the questionnaire, there are two of the highest scores and percentages, meaning that these two aspects have the most favorable opinion of the students. First, the curiosity aspect lies in 77.48% percentage. As the highest percentage in this questionnaire scoring, it suggests that students write mostly because they enjoy thinking about specific themes and writing about the significant issue they choose, as well as because they can learn and write about things that interest them (Graham et al., 2023). The students love to put their ideas using their doodle diaries since doodle diaries not only provide the students the opportunity to write freely, but they also can put anything related to their writing using the doodles. As for the next highest aspect score in this questionnaire, the grades aspect lies at 77.09% percentage. It is not surprising since students in Indonesia still consider grades as the minimum standard for their course passing. Therefore, they mostly write to get better grades and perform well at school. In addition, they also write because they realize it is important to how well they do at school (Graham et al., 2023). In summary, grades still have significant urges for the students to do their writing projects. However, to provide realm

evidence of how students' doing their diary writing project, the figures below are examples of students' weekly diary.

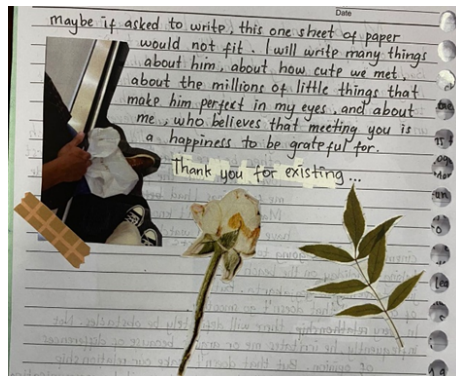


Figure 1. A student's diary example

The figure above is an example of student diary writing collected at the seventh meeting. In this instruction manual, the teacher does not really limit students from writing on whatever topic they want, as long as their writing is appropriate. Not only that, as explained previously, students can add any elements that represent the ideas they have created in their diaries. This is done so that students not only feel like they are doing ordinary handwriting, but their creativity is also bridged through their respective diaries. In Figure 1, this student wrote beautifully about his romance with someone who might be his girlfriend. Even though the writing is not sophisticated by presenting many comprehensive paragraphs and arguments, from this writing the author can freely express what the contents of their day are. This is what this study wants to look for, where students' love of writing can be formed through the idea that writing is enjoyable and not forced.

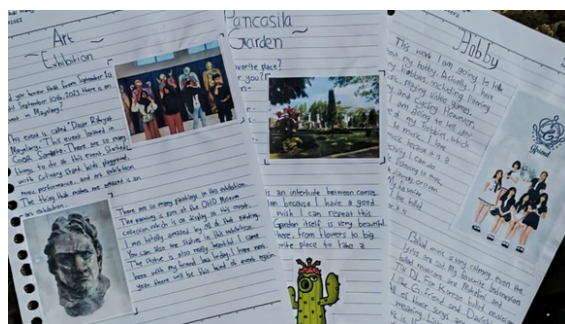


Figure 2. Students' diaries

Not only that, other students could also write ideas that were no less interesting. Because they are free to write whatever events or feelings they have every week, their writing is very diverse. Some of them can talk about personal problems, their experiences in the week the diary was made, talk about hot issues in the current era, and even other random things. Therefore, students also indirectly learn that every type of text they write follows existing writing conventions. For example, Figure 1, which romantically talks about the author's current feelings for his girlfriend, is certainly very different when another writer in Figure 2 talks about his experience of visiting an art exhibition or another student who formally describes a place in his city. So, not only do students learn to express their ideas through their writing, they are also indirectly forced to follow grammar, writing system, writing style, genre of writing on certain topics, and other important elements.

After the questionnaire findings, which showed that students have overall positive views towards implementing manual writing instruction using doodle diaries, the next step for answering the second research objective is carried out. The pretest score was gathered from students' writing performance on their very first page of doodle diaries, and the posttest score was gathered from their last page of their diary. To check whether the manual writing instruction using doodle diaries has influence on the student's writing score, the paired t-test will be carried out to test those data. However, to run the paired t-test, the researcher in this study needs to ascertain whether the paired data in this study is distributed normally. Using the normality test Kolmogorov-Smirnov, the SPSS output is shown in the table below.

Table 6. Normality test output

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRETEST	.113	140	.000	.966	140	.001
POSTTEST	.140	140	.000	.968	140	.002

a. Lilliefors Significance Correction

According to the Table 6 above, the Sig. value for both pretest and posttest was 0.000. Therefore, the Sig. value is less than 0.05 significance, meaning that the paired data in this study were not distributed normally. As a result, the paired sample t-test could not be proceeded further. As the alternatives, the researchers in this present study next conduct the Wilcoxon Signed Rank test to answer the hypothesis formulated.

Table 7. Wilcoxon Signed Ranks test output 1

Ranks		N	Mean Rank	Sum of Ranks
POSTTEST - PRETEST	Negative Ranks	22 ^a	30.30	666.50
	Positive Ranks	114 ^b	75.87	8649.50
	Ties	4 ^c		
	Total	140		

a. POSTTEST < PRETEST

b. POSTTEST > PRETEST

c. POSTTEST = PRETEST

Based on the first output of the Wilcoxon Signed-Ranks test above, not all the participants in this study had increased writing scores before and after being taught using manual writing instruction using doodle diaries. Specifically, 22 students had post-test scores lower than the pretest, 114 students had post-test scores higher than the pretest, and 4 students had the same scores. It is still assumed that this manual writing instruction has a positive impact on most of the student's writing skills. It is because most of the students have their writing scores increased since their pretest. To ensure this conclusion, Table 8 below confirms this finding.

Table 8. Wilcoxon Signed Ranks test output 2

Test Statistics ^a	
	POSTTEST - PRETEST
Z	-8.674 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

The output results of the Wilcoxon Signed-Ranks Test show that Asymp. Sig. (2-tailed) is worth 0,000. Since this Sig. (2-tailed) 0.000 is less than 0.05, it can be concluded that H_a is accepted. This means there is a difference in students' writing learning outcomes after being taught using manual writing instruction using doodle diaries. This finding is in line with those previous studies that found a similar thing, where diary writing treatment has a positive influence on students' writing achievement (Situmorang, Hutautuk, & Purba 2023; Nissa, Sabur, & Forsia 2021; Qarina & Susilawati 2018). However, to see how significant the influence of this manual writing instruction is

on the student's writing score, the figure below shows the mean comparison between students before and after being taught using manual writing instruction using doodle diaries.

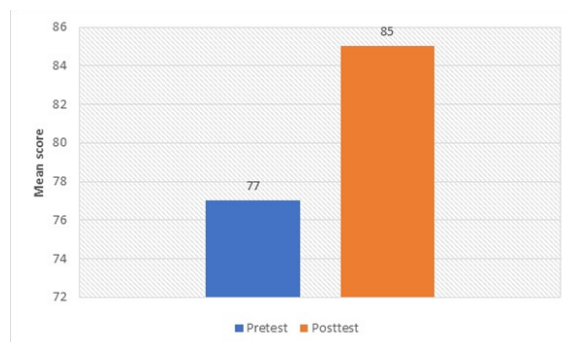


Figure 3. Pretest and posttest mean comparison

From the figure above, it can be seen that students' overall writing scores have increased since their pretest. The pretest that only showed the overall mean 77 increased clearly towards the mean score of 85. The students experienced their writing scores increase by 10.39% ever since the first week of their writing class, which they taught using manual writing instruction using doodle diaries from the beginning. In conclusion, the answer for the second research objective in this study lies in there is a difference between students' writing scores before and after being taught using manual writing instruction using diaries. In other words, the manual writing instruction using diaries does have an influence on students' writing score, which increased quite significantly, showed by 10.39% increase percentage.

Since the Wilcoxon Signed Rank test showed that there is a difference between students' writing scores in their pretest and posttest, the researcher in this study needs to ensure whether their scores, which increased quite significantly, correlate with their writing motivation. By converting the questionnaire result in this study, which was adapted from Graham (2023), the researchers tried to run Pearson Product Moment as a correlation test to see whether it correlates with the student's final writing score or not. By employing the test using SPSS, Table 9 below showed rather astonishing findings in this study.

Table 9. Correlation between students' writing motivation and their writing score

		Writing Motivation	Writing Score
Writing Motivation	Pearson Correlation	1	.035
	Sig. (2-tailed)		.693
	N	131	131
Writing Score	Pearson Correlation	.035	1
	Sig. (2-tailed)	.693	
	N	131	131

Based on the test output above, the Sig value. (2-tailed) of the two variables only shows 0.693, which means more than the 0.05 significance level. So, it can be concluded that H_0 is accepted or there is no correlation. However, if you look at the correlation coefficient, a value between -1 and 1 that signifies the relationship's intensity and direction. When the coefficient is close to 1 or -1, it indicates a strong positive or negative relationship, respectively, while a value near 0 suggests a weak or nonexistent relationship (Gogthay & Thatte, 2017). The results above only show 0.035, meaning that it lies on no correlation at all.

However, the researchers in this study also seek a deeper correlation between each aspect of the questionnaire, which has been categorized, towards students' final writing scores. By considering both of the Sig. (2-tailed) and correlation coefficient of each aspect, Table 10 below actually confirmed the result of the initial correlation test output above.

Table 10. Correlation between writing score and each aspect of the writing motivation

No	Aspect	Sig. (2-tailed)	Coefficient
1.	Curiosity	0.290	0.093
2.	Involvement	0.076	0.156
3.	Boredom	0.693	0.035
4.	Emotional Regulation	0.887	0.012
5.	Grades	0.386	-0.076
6.	Competition	0.835	-0.018
7.	Social Recognition	0.593	0.047

Based on Table 10, two conclusions can be drawn and they are related to each other. First, all aspects of the questionnaire have a Sig value. (2-tailed) above 0.05, so these aspects do not have a significant relationship with students' writing scores. In addition, almost all correlation coefficients produced by each aspect also only show a correlation of 0 to 0.1, which means there is almost no correlation at all between these aspects and students' writing scores (Gogthay & Thatte, 2017). However, only the involvement aspect showed a correlation with a coefficient of 0.156, which means this aspect still correlates with students' writing scores, even though it is only a weak correlation and not very significant. If it is viewed from the statements in this involvement aspect, students like to write in their doodle diaries because they like to create a character that they can identify with, it allows them to imagine everything well, and it helps to forget everything around them, and they can create and experience adventures in their minds (Graham, 2023). It is actually because, in doodle diaries, the students are indeed allowed to put anything related to their writing ideas into their doodle diaries, whether use photos, flowers, paint, and so on.

The answer to the last research question in this study still lies in accepted H_0 , where there is no correlation between students' writing motivation in doing their weekly doodle diaries project as a manual instruction from the lecturers and their writing scores. It is because the quantitative data shows a very low correlation and it is not significant. This result is consistent with those of Dollah, Schuddin, and Sakkir (2021), who discovered no relationship between students' writing achievement and motivation. Siska, Syahid, and Miftah (2021) provided more evidence for this theory by demonstrating that there was no relationship between writing motivation, writing anxiety, and writing proficiency. Therefore, the results also contradict those of previous research (Helmasena, Cucu, & Surpriyadi 2015; Aryanika, 2016), which indicated a substantial association between students' motivation and their writing skills. As a result, this present study assumed that there is another aspect that influences students' writing score.

CONCLUSION

As the major findings of this study, four conclusions can be mentioned. First, most of the students use technology to help their writing, and the grammar checker is the most used by the students. However, there were only a few students who did not use technology in their doodle diaries writing. These students have their respective reasons, one student relies heavily on teachers' feedback, the other has good self-confidence in writing, and the other number one related to his laziness in using writing technology. In the second conclusion, the overall students in this study viewed positively towards this manual writing instruction using doodle diaries. Therefore, these doodle diaries could be used as media for manual writing instruction to teach writing. The third conclusion is that this study found that manual writing instruction using doodle diaries does influence students' writing scores. It is evidenced by the Wilcoxon Signed Ranks test, which showed that there is a difference between students' pretest and posttest. It is also supported by the comparison of the mean between their writing scores before and after being taught using manual writing instruction using doodle diaries for several meetings, which shows a quite significant increase. The last conclusion brought by this study is that there is no correlation between students' writing motivation in this manual writing instruction using doodle diaries and their writing scores. Hence, the researchers in this study assumed that there is another aspect besides students' motivation that correlates and causes students' writing scores to increase. Therefore, it is suggested for future research to investigate further using a more nuanced method related to this research gap.

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