

ORIGINAL RESEARCH

USING THINKING ROUTINES TO IMPROVE THE READING AND WRITING SKILLS OF ELEMENTARY STUDENTS

Mala Rejeki Manurung*¹ | Siti Masitoh² | Fajar Arianto¹

¹Educational Technology Programme,
Universitas Negeri Surabaya, Surabaya,
Indonesia

²Dept. of Mathematics, Universitas Negeri
Surabaya, Surabaya, Indonesia

Correspondence

*Mala Rejeki Manurung, Educational
Technology Programme, Universitas Negeri
Surabaya, Surabaya, Indonesia. Email:
mala.rejeki@mhs.unesa.ac.id

Present Address

Jalan Lidah Wetan, Lidah Wetan, Kec.
Lakarsantri, Surabaya 60213, Indonesia

Abstract

Developing thinking skills in teaching and learning, including English lessons, is prominent. Reading and writing are the ability that requires synthesis and higher-order thinking skills. Thinking routines as part of thinking culture is one strategy to develop thinking skills. This study investigated the importance of thinking routines in improving sixth-grade elementary school students reading and writing skills. The quasi-experimental research was conducted with 64 students divided into a control group (N=32) and an experimental group (N=32). The topic of reading and writing was appropriate for the sixth-grade students' developmental stage. Reading and writing tests were used as data collection tools. The experts validated the reading topic and the tests. The data is analyzed statistically using the Mann-Whitney U Test. The results reveal two significant findings. The first finding was that thinking routines did not significantly improve sixth-grade students' reading skills. On the other hand, thinking routines improved writing skills significantly. The evidence from this study suggests using thinking routines in English teaching as a base to support and structure students thinking with various perspectives. In addition, thinking routines also support students in writing opinions based on the information given.

KEYWORDS:

Elementary School, Mann-Whitney U Test, Reading-Writing Skill, Quasi-Experimental Research, Teaching English, Thinking Routines

1 | INTRODUCTION

English plays an essential role in the maintenance of global communication. English would accommodate the needs of the community in facing globalization, along with Indonesian and regional languages. All four skills in English are challenging for second-language learners. Listening and reading skills are receptive when learners listen and read something in the language and extract the meaning. Speaking and writing are productive skills because they produce language through speaking and writing^[1, 2].

Reading and writing are complex language skills. There are several levels of reading comprehension derived from Barrett's taxonomy: Literal comprehension – able to understand the text; Inferential understanding – able to understand the implications of the text; Evaluative understanding - able to understand what is happening around and outside the text; Appreciative comprehension – able to understand the quality of reading. The reading used in this study is a non-fiction text. Non-fiction text comprehension should be taught accurately to comprehend well. Non-fiction text requires the readers to form questions before reading; understand how to find information as soon as possible; differentiate between facts, opinions, and persuasion; and identify the writers' position. If non-fiction texts have been understood at the literal level, students need to bring their understanding to the topic^[3].

In Indonesia, English writing activities in elementary schools often only focus on the writing aspect, where students find it difficult, especially in terms of spelling. This difficulty reduces students' self-confidence and knowledge; both need to be owned as a step to becoming a writer. In addition, the imbalance between the writing process and the emphasis on the result (product) of writing compared to the writing process is also an obstacle for students to be able to write^[3].

In writing, there is a belief that teachers involve only students' acquisition of vocabulary and grammar. However, Elfiyanto and Fukazawa^[4] reported that writing was less important than reading, speaking, and listening from the Indonesian English teacher's perspectives. Grammar also became the teaching focus, and it was assumed that the goal of learning English was just for test and exam preparation. Since writing is one of the complex language skills, it is important to teach it.

Reading and writing are the ability that requires synthesis and higher-order thinking skills^[3, 5, 6]. Thinking skills are crucial to students' futures and the societies in which they live. Given the essential nature of thinking skills, teachers – including teachers of second languages – must promote explicit learning of thinking skills^[7]. Students must activate their thinking skills to become active learners, including in English lessons^[1]. Influenced by cognitivism, thinking skills have proved that plays a pivotal role in preparing for an exam and other forms of assessment^[7].

One way to develop thinking skills is by using Thinking Routines. Thinking routines allow students to investigate concepts, exercise their cognitive processes, and reflect on their reasoning^[8]. Thinking routines are a component of visible thinking developed by Harvard University researchers in conjunction with school teachers worldwide^[9]. Teachers participated in the research to assist students in thinking and to visualize their thoughts, and the instructor utilized routines to facilitate student thought^[10]. Since Thinking routines are based on constructivism, it places students at the center and intends for students to acquire cognitive process abilities^[11].

There are three ways to see thinking routines: as tools for fostering thinking, as structures to support and structure students' thinking, and as behavioral patterns. Thinking routines can be implemented regularly in the classroom to alter students' understanding of learning and establish a culture of thinking^[8].

There are three types of thinking patterns. There are routines for introducing and exploring ideas, routines for synthesizing and organizing ideas, and routines for gaining a deeper understanding of concepts. This study used the category to gain a deeper understanding of concepts. The names of the routines included "What makes you say that?" "Take Note," "Claim-Support-Question," "Tug of War," and many more^[8]. In this study, two techniques for probing deeper concepts were employed. These phrases were "What Makes You Say That?" and "Take Note." Some research utilized the routine "What Makes You Say That" routine to identify opinions supported by facts or evidence^[12]. In addition, the routine was selected since it supported students in discussing their interpretations, understanding alternatives, and adopting varied points of view^[13].

Most studies about Thinking Routines have only been carried out in a few areas, such as in the scope of early childhood and higher education. Some studies focused on how Thinking Routines enhance thinking skills, including critical thinking skills in elementary school^[14]. However, there needs to be more discussion about the impact of thinking routines on reading and writing skills.

The primary objective of this study was to determine whether thinking routines significantly affect sixth-grade students' reading and writing skills. The findings should make an important contribution to English teaching in elementary school, specifically in reading and writing, while promoting thinking skills.

2 | PREVIOUS RESEARCHES

Preliminary work on one of the thinking routines was undertaken for students from grades three to eleven. The findings demonstrated that students' thinking concepts increased with age and that their thinking extended due to classroom culture. These findings concluded that thinking routines stimulated students' thinking skills and helped them picture their thinking^[15].

A recent study by Gholam^[16] reported that in higher education, thinking routines supported students in using teamwork, communication skills, and higher-order thinking, enhancing student engagement in every learning process. The students might gain knowledge from one another, and the routines could be integrated into many lessons. Several students reported that they analyzed, synthesized, evaluated, reflected, and broadened their thinking^[16].

A study on the implementation of thinking routines conducted in elementary schools was taken by Dajani^[17]. It was conducted on Palestinian elementary school students in the fourth and fifth grades. The findings confirm that students were more motivated to study, connect concepts, and go deeper for excellent knowledge of presented issues. Therefore, thinking routines can be viewed as a pedagogical strategy to increase student involvement and foster a culture of critical and creative thought^[17].

Salmon et al.^[13] found that students aged 3-6 could open their minds through stories the teacher read. This thinking routine also provides a wide area to share their thoughts by asking for students' perspectives. Since thinking routines focus more on students' reasoning and not only on the relevance of concepts according to the reading, it is assumed that thinking routines will significantly affect reading.

Recent research provides evidence that the use of thinking routines in inclusive classes makes students show a better response in reading comprehension^[12]. This finding has also been explored in prior studies by Phonekeo and Macalister^[18]. Those thinking routines created a thinking culture and significantly improved the reading comprehension of students in reading comprehension courses. Students had positive perceptions of reading in English lessons, and the culture of thinking helped them answer the why and how questions^[18].

In addition, there were routines used to improve academic writing skills. The results of the study were influential in developing reasoning. In the pre-test, the students wrote their statements simply by giving personal opinions. In the end, the final test results showed that students wrote statements using supporting evidence. In addition, students' academic writing skills also showed an increment in results^[19].

A previous study of thinking routines was used in speaking skills using questionnaires and open-ended questions. The questionnaire dan open-ended questions showed that the thinking routine increased the coherence in oral communication^[20]. Like speaking, writing is a productive language; therefore, the thinking routine is expected to increase elementary students' reading and writing skills.

This study addresses several further questions on how thinking routines improve sixth-grade elementary school students reading and writing skills. The central questions in this will be: 1. Do thinking routines significantly affect the reading skill of sixth-grade elementary school students? 2. Do thinking routines make a significant difference in the writing skill of sixth-grade elementary school students?

3 | MATERIAL AND METHOD

3.1 | General Background

This study used a quasi-experimental methodology to compare the experimental and control groups^[21]. As an intervention, the experimental group applied the thinking routines. A pre-test will be administered to both groups, an intervention to the experimental group, and a post-test to compare the two groups^[21].

3.2 | Sample, Participants, and Group

This study's subjects were 64 sixth-grade children from two different elementary schools. This study consists of two variables, the independent variable is thinking routines, and the dependent variables are writing and reading skills.

3.3 | Data Collecting Equipment

Two schools were selected for the control and experimental groups. The criteria are selected based on the same references and assessment procedures. The sixth-grade students were chosen because they have a sufficient English vocabulary compared to the other elementary school grades. In addition, they had reached the final phase of concrete operations and the formal phase of operation. They can discuss a topic with more rational, idealistic thinking and begin to think abstractly^[22].

To introduce the routine, the teacher showed a video. Teachers began each routine by questioning, listening, and recording the students' thoughts. Due to the COVID-19 pandemic, learning tools like Padlet were utilized to record the students' thinking. The digital tool can address the challenges of the transition to remote learning^[23].

The topic of the material was chosen from the school's textbooks. The materials were developed and based on the standard of English as a foreign language. This alignment was done to ensure that the topic was appropriate for the sixth-grade students' developmental stage and level of difficulty. Expert validations were used to see whether the resources were aligned with sixth-grade teaching and learning. After that, the chosen topic was the world's most intriguing artifacts. This issue was related to some interesting unwell-known spots in several countries, assuming sixth-grade students may comprehend it.

The objective of selecting this topic was to arouse the students' curiosity so that they formulate questions and explain why they formed their questions. Similarly, Hooper and Todd^[19] found that chosen texts containing ambiguous things will open opportunities to use thinking skills. The researcher created preparatory materials for lessons, including detailed lesson plans, so that no details were missed during the teaching process. Texts, thinking routines introduction videos, and learning software such as Padlet and Microsoft forms were developed by the researcher and utilized by teachers to support online learning.

The observation was used to obtain data to see how thinking routines were applied in the learning process. Data was collected from researchers, teachers, and students. In addition to the observation sheet, a test was administered to assess critical thinking. Four classrooms were given this test as a pre-and post-test to determine the results of the intervention. The test will serve as a guide for validating hypotheses and drawing conclusions.

Statistical analysis was performed using SPSS 25.0 package application. An Independent Samples Test was undertaken on the pre-test to determine that the control and experimental groups were equivalent. In addition, descriptive analyses of the pre-and post-test scores, including mean, standard deviation, minimum and maximum, were utilized in the data analysis. Then, analyses of the distribution of normality pre-and post-test scores were conducted.

Kolmogorov-Smirnov analyses were performed to examine the distribution of normality. According to the importance of the results, the data did not exhibit normal distribution (Fraenkel, 2012). After performing the test for normalcy, the data analysis would be modified to account for the normality result. Significant levels were set at the 5% level. The experimental group's pre-and post-test data exhibited normal distribution; thus, a paired t-test was used to determine whether there was a significant difference between them. The pre-and post-test scores for the control group did not exhibit a normal distribution; hence Wilcoxon analysis was done.

Furthermore, the analysis continued with the post-test scores to check the normality distribution. The result demonstrated that the post-test results did not have a normal distribution. Therefore, nonparametric analyses were conducted. The Mann-Whitney U test was conducted to see if the data obtained from two independent samples revealed a statistically significant difference between them.

4 | RESULTS AND DISCUSSION

Table 1 shows an overview of the statistics of the reading test for both experimental and control groups. The mean score for reading post-test in the experimental group was 88.646, while the mean for the pre-test was 73.1250. The mean in the experimental group was higher than in the control group.

Table 2 shows an overview of the statistics of the writing test in both experimental and control groups. The mean score for writing pre-test increased from 68.1641 to 87.3047 for the post-test in the experimental group. The mean for the post-test in the experimental group was higher than the mean in the control group.

TABLE 1 Descriptive statistics on Scores obtained from the reading test.

Group		N	Minimum	Maximum	Mean	Standard Deviation
Experimental	Pre-test	32	26.67	100.00	73.1250	21.31699
	Post-test	32	66.67	100.00	88.6462	10.32997
Control	Pre-test	32	40.00	100.00	77.2917	15.32065
	Post-test	32	40.00	100.00	83.3334	17.18487

TABLE 2 Descriptive statistics on scores obtained from the writing test.

Group		N	Minimum	Maximum	Mean	ρ
Experimental	Pre-test	32	43.75	100.00	68.1641	15.82408
	Post-test	32	68.75	100.00	87.3047	10.10085
Control	Pre-test	32	25.00	93.75	68.9453	20.60601
	Post-test	32	25.00	93.75	79.4922	16.74302

TABLE 3 Statistic test results for pre- and post-reading test.

Test	Groups	Statistics	Sig. (2-tailed)
Paired Samples	Experimental	-4.558	0.000
Wilcoxon Signed Ranks	Control	-2.626	0.000

As Table 3 shows, there is a significant difference between the pre and post of reading tests ($z=-4.558$, $p < 0.05$) both in the experimental and control groups ($z=-2.626$ $p < 0.05$).

TABLE 4 Statistic test results for pre and post-writing test.

Test	Groups	Statistics	Sig. (2-tailed)
Paired Samples	Experimental	-9.202	0.000
Wilcoxon Signed Ranks	Control	-3.279	0.001

It is apparent from table 4 that there is a significant difference between the pre- and post-writing test ($z=-9.202$, $p < 0.05$) for the experimental and control groups test ($z=-3.279$, $p < 0.05$).

TABLE 5 Statistical test result for the difference.

Skills	Mann-Whitney	Wilcoxon	Z	P
Reading	450.000	978000	-0.851	0.395
Writing	352.500	880.500	-2.188	0.029

Table 5 is quite revealing in several ways. First, it shows the statistical test result for the difference after applying thinking routines. The result shows significant differences at the $p=0.05$ level. The Mann-Whitney U test revealed no significant differences in reading ability between the experimental and control groups ($z=-.851$, $p < 0.05$). Interestingly, as table 5 shows, there is a significant difference ($p=0.029$) between the experimental and control groups.

In contrast to earlier findings^[12, 13, 18], thinking routines do not increase students' reading ability. It is difficult to explain this result, but it might be related to the characteristics of elementary school students. Topics must be chosen carefully so that elementary students can form an understanding rather than get meaning through reading^[24]. If students read things that interest them, they will be more motivated to read^[12].

In this study, the material chosen was something other than what students knew before to foster students' curiosity about interesting places in some countries. It is expected that students should form questions about something that is not yet known and

whether they can answer based on the information they know, especially those not related to students' experiences and culture. Students learn the meaning of certain events related to culture and interpret them in a way that is appropriate to their culture^[25].

Another possible explanation is that scaffolding needs to be done according to the Zone of Proximal Development (ZPD). The teacher should provide support tailored to student performance for assignments or material that students have not known yet^[22]. In this case, the teacher provided the scaffolding as a pre-reading activity to introduce and facilitate material that students do not yet know, with guiding questions related to the material. However, the type of scaffolding provided needs to be adjusted more deeply for students.

Another cognitive factor that influences this finding is students' understanding. The two questions in the reading test that have the lowest scores of all students using the TR strategy are questions at the level of understanding (inferential) based on Bloom's taxonomy^[26] regarding the intent the author wants to convey (why) in the form of completing sentences with understanding themselves. Without the help of choices, such as in multiple-choice, some students experience difficulties because they have to interpret the writer's intent and the reason they write it.

Another possible explanation for this might be the selection of thinking routines that fall under the category of exploring more profound ideas used in this study, namely the Take a Note Routine and What Makes You Say That. In understanding this reading, combining it with routines in synthesizing and managing ideas is necessary because, in this category, students identify a lot and make connections between prior knowledge and the material to be studied^[8].

Identifying these relationships is essential to develop so that students can achieve inferential understanding in answering the question of what the author wants to convey or why. This understanding is in line with Kelly (2017), stating that stimulating students' understanding of reading by creating an environment or classroom atmosphere where students are involved and confident in expressing their opinions and thoughts is as important as completing reading material. To sum up, no significant difference between sixth-grade students who apply thinking routines to reading learning outcomes is caused by several contributing factors, such as students' cognitive factors and the selection of thinking routines.

Another revealing finding of this study is about writing. The writing score produces z statistics of -2.188 with a probability of -0.029. The probability is < level of significance ($\alpha=5\%$). Thus, there is a significant difference in writing scores in the experimental and the control groups. The average writing score in the experimental class is 87.3047, compared to the average writing score in the control class, 79.4922.

In this study, students demonstrate the ability to write by using vocabulary related to the topic, grammar, and appropriate punctuation and conjunctions to make their writing coherent. The present finding seems consistent with other research, which found that thinking routines increase coherence in communication in terms of vocabulary and readiness to communicate in the desired language (Arévalo Balboa & Briesmaster, 2018). Moreover, the students wrote their opinion and questions related to the text based on the information given in this study. Therefore, this finding agrees with findings from Hooper and Todd^[19], which showed university students wrote statements using supporting evidence.

Brien^[3] stated that elementary students should write in a familiar genre. In this study, the students wrote in the form of letters to their friends about the unfamiliar places that they read. The students were familiar with writing a letter which consists of the vocabulary they have learned. They also explained the unfamiliar places using their sentences based on the information.

These primary findings are consistent with research showing that thinking routines improve writing. Results provide a basis for using thinking routines in elementary school.

5 | CONCLUSION

The main goal of the current study was to determine the effect of thinking routines on the reading and writing skills of sixth-grade elementary students. The results of this investigation show two major findings. The first significant finding was that the thinking routines did not improve the reading skill of sixth-grade elementary students. The second significant finding was that the thinking routines significantly improved sixth-grade elementary students' writing skills.

This research has several practical applications. First, it is essential to provide students with a reading text with an issue or a problem that can be seen from multiple perspectives. The text will lead students to provide some ideas or solutions. Reading the text and the steps of thinking routines will be a base to structure students' thinking. Another implication of this study is that creating a respectful learning atmosphere among students is vital. Every opinion and thinking are appreciated so students can visualize their thinking using the thinking routines well. Therefore, students write their opinion based on the information given.

There are two limitations that may have influenced the results obtained. The first limitation is research time. The current study was limited by time; therefore, only limited thinking routines could be applied. The students would have ample time to think, reflect, and give responses based on the chosen routine. The study would reveal how thinking routines become thinking culture if given a longer time.

The second limitation lies on the fact that the study used only two routines from the same category. This routines were used to dig deeper into ideas. It is essential to see how the thinking routines become culture if using more routine categories such as introducing and exploring ideas when opening the topic and adding, synthesizing, and managing ideas for the closure of the topic.

It is recommended that further research should be undertaken in the following areas. First, teachers need to set appropriate time to explore the reading material and allow sufficient time for students to think and reflect on the material. This adequate time will make students more actively involved and notice the impact or application of the material read. The teacher needs to expose the problem to students and instruct students to respond gradually. This stage eliminates requirements that make students focus on a single solution or answer. This stage will motivate students to find solutions in various ways, challenge ideas, and foster persistence in problems.

Second, it would be preferable to include a variety of categories of thinking routines, not only focusing on routines for delving further into ideas. Utilize routines for presenting and exploring ideas when introducing the topic and add routines for synthesizing and organizing ideas when concluding. Therefore, students are encouraged to build a bigger thinking space.

Third, the teacher should introduce students to the problem and train them to answer progressively. This phase begins by removing requirements that force students to concentrate on a particular solution or answer. This strategy will encourage students to investigate several solutions, challenge their ideas, and continue solving challenges.

Fourth, additional research can be conducted over an extended time to see how the thinking routines become a culture and should be incorporated into the other lessons with discussions. If students combine thinking routines through class discussions, they will be more motivated to become active thinkers.

Fifth, further experimental investigations are needed to estimate the effect of thinking routines on the lessons conducted in students' first language. The result is expected to give a broader perspective on students' reasoning. Removing the limitation of vocabulary will allow the students to express their opinions.

Finally, if the study employs a larger sample size, the findings employ a larger sample size of elementary students, the findings will reflect a broader pattern of thinking.

CREDIT

Mala Rejeki Manurung: Conceptualization, Methodology, Writing - original draft preparation, writing - review and editing.
Siti Masitoh: Writing- review and editing, Supervision. **Fajar Arianto:** Writing- review and editing, Supervision.

References

1. Brown HD. Teaching by Principles: An Interactive Approach to Language Pedagogy 3rd Edition.Pdf. 3rd ed. Boston, US: Allyn & Bacon; 2007. <https://www.amazon.com/Teaching-Principles-Interactive-Approach-Language/dp/0136127118>.
2. Harmer J. Book Review : The Practice of English Language Teaching. RELC Journal 2001;32(1):135–136.

3. Brien J. *Teaching primary English*. Thousand Oaks, California, US: SAGE Publication Ltd.; 2012. <https://uk.sagepub.com/en-gb/eur/teaching-primary-english/book235251>.
4. Elfiyanto S, Fukazawa S. A Comparative Study of the Teaching English Writing in Senior High Schools in Indonesia and Japan. *VELES Voices of English Language Education Society* 2022;6(1):144–159.
5. Duesbery L, Justice P. Effects of an Elementary Language Arts Unit on Critical Thinking, Reading, and Writing. *Journal of Education and Practice* 2015;6(1):148–155. <http://iiste.org/Journals/index.php/JEP>.
6. Pitenoee MR, Modaberi A, Ardestani EM. The effect of cognitive and metacognitive writing strategies on content of the Iranian intermediate EFL learners' writing. *Journal of Language Teaching and Research* 2017;8(3):594–600.
7. Jacobs GM, Helke T, Renandya WA. Explicit Inclusion of Thinking Skills in the Learning of Second Languages. *LEARN Journal: Language Education and Acquisition Research Network* 2018;11(1):15–25.
8. Ritchhart R, Church M, Morrison K. *Making thinking visible: How to promote engagement, understanding, and independence for all learners*. 1st ed. Hoboken, NJ, US: John Wiley & Sons; 2011.
9. Dass LC, Hay T, Harun ZH. Project Zero: A Framework for Innovative Pedagogy in the Teaching of English in Malaysia? *Malaysian Journal of ELT Research* 2021 6;18(1):17–35. <https://www.mendeley.com/catalogue/58950e05-f3a9-3879-8fe9-4b4dc82fad7e/>.
10. Arends RI. *Learning to Teach*. 9th ed. New York City, US: McGraw-Hill Education; 2012.
11. Kilbane CR, Milman NB. *Teaching Models: Designing instruction for Models 21st century Learners*. Boston, MA, US: Pearson Education, Inc.; 2014.
12. Senokossoff GW, Fine JC. Supporting Teachers of Inclusive Classrooms: Using Visible Thinking (VT) and Writing with Adolescents to Develop Reading Comprehension. *Journal of Reading Education* 2013;38(2):39–45.
13. Salmon AK, Gangotena MV, Melliou K. Becoming Globally Competent Citizens: A Learning Journey of Two Classrooms in an Interconnected World. *Early Childhood Education Journal* 2018;46(3):301–312.
14. Manurung MR, Masitoh S, Arianto F. How Thinking Routines Enhance Critical Thinking of Elementary Students. *IJORER: International Journal of Recent Educational Research* 2022;3(6):640–650.
15. Ritchhart R, Turner T, Hadar L. Uncovering students' thinking about thinking using concept maps. *Metacognition and Learning* 2009;4(2):145–159.
16. Gholam A. Student Engagement through Visual Thinking Routines. *Athens Journal of Education* 2018;5(2):161–172.
17. Dajani MMY. Using Thinking Routines as a Pedagogy for Teaching English as a Second Language in Palestine. *Journal of Educational Research and Practice* 2016;6(1):1–18.
18. Phonekeo S, Macalister J. Reading Performance and Perceptions of Lao EFL Pre-Service Teachers Following a Culture of Thinking Implementation. *Reading in a Foreign Language* 2021;33(1):55–77. <https://eric.ed.gov/?id=EJ1296434>.
19. Hooper T, Todd H. Improving academic writing through thinking routines. *Kwansei Gakuin University Humanities Review* 2016;20:47–63.
20. Balboa FA, Briesmaster M. “Claim – support – question” routine to foster coherence within interactive oral communication among EFL students. *Profile: Issues in Teachers' Professional Development* 2018;20(2):143–160.
21. Cresswell JW. *Educational research: Planning, conducting and evaluating quantitative research*. 4th ed. Boston, MA, US: Pearson; 2012.
22. Vygotsky LS. *Educational psychology*. 1st ed. Oxfordshire, UK: Taylor and Francis; 2020. <https://www.taylorfrancis.com/books/mono/10.4324/9780429273070/educational-psychology-vygotsky>.

23. Abu YB, Kribushi R. Can Electronic Board Increase the Motivation of Students to Study Mathematics? *Contemporary Educational Technology* 2022;14(3):1–13.
24. Wilson K. Critical reading, critical thinking: Delicate scaffolding in English for Academic Purposes (EAP). *Thinking Skills and Creativity* 2016;22:256–265.
25. Ormrod J, Anderman EM, Anderman LH. *Educational psychology: Developing learners*. 10th ed. Boston, MA, US: Pearson; 2006.
26. Weih T. Teaching Reading Comprehension to Students in Grades 4-6. *Online Submission* 2018;(November):1–11.

How to cite this article: Manurung M., Masitoh S., Arianto F. (2022), Using Thinking Routines To Improve The Reading And Writing Skills Of Elementary Students, *IPTEK The Journal of Technology and Science*, 33(3):153-161.