Jurnal Pendidikan Indonesia
Volume 12, Number 3, 2023 pp. 451-460
P-ISSN: 2303-288X E-ISSN: 2541-7207
Open Access: https://doi.org/10.23887/jpiundiksha.v12i3.61213

The Effect of Teacher Scaffolding and Peer-Scaffolding on Reading Comprehension and Vocabulary Ability

Herdiana[1*], Sirojul Munir[2]

[1,2] Department of Indonesian Language Education, Universitas Galuh, Indonesia

ARTICLE INFO

Article history:
Received May 05, 2023
Revised May 08, 2023
Accepted July 13, 2023
Available online September 25, 2023

Kata Kunci:
Scaffolding *Guru,* Scaffolding *Teman, Kemampuan Membaca Pemahaman,*

Keywords:
Teacher Scaffolding, Friends Scaffolding, Reading Comprehension Ability

ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh scaffolding guru dan teman sebaya terhadap pemahaman membaca dan penguasaan kosakata siswa berdasarkan perspektif sosiokultural. Metode penelitian eksperimen semu digunakan dalam penelitian ini dan melibatkan 300 siswa SMA. Peserta dibagi menjadi kelompok eksperimen (kelompok yang menerima perancah guru dan perancah rekan) dan kelompok kontrol yang menerima intervensi tradisional. Pretest dilakukan untuk mengetahui kemampuan kosa kata awal dan keterampilan membaca pemahaman mereka dan diakhiri dengan posttest. Analisis statistik deskriptif dan analisis ANOVA satu arah digunakan untuk menganalisis data penelitian. Temuan penelitian menunjukkan bahwa kelompok eksperimen yang menerima intervensi perancah guru dan perancah teman sebaya mengalami peningkatan yang lebih signifikan dalam pemahaman membaca dan keterampilan kosa kata daripada kelompok kontrol. Kelompok eksperimen dengan intervensi peer scaffolding menunjukkan peningkatan kemampuan yang lebih baik dibandingkan dengan kelompok eksperimen yang mendapat intervensi dari scaffolding guru. Penelitian ini berimplikasi bahwa perancah teman sebaya dapat digunakan dalam menunjang efektivitas pengajaran membaca.

ABSTRACT

This study aims to analyze the effect of teacher and peer scaffolding on students' reading comprehension and vocabulary mastery based on a sociocultural perspective. The quasi-experimental research method was used in this study and involved 300 high school students. Participants were divided into an experimental group (the group that received the teacher scaffold and the peer scaffold) and a control group that received the traditional intervention. The pretest was conducted to find out their initial vocabulary skills and reading comprehension skills and ended with a posttest. Descriptive statistical analysis and one-way ANOVA analysis were used to analyze the research data. The findings of the study indicated that the experimental group that received the intervention of the teacher scaffold and the peer scaffold experienced more significant improvements in reading comprehension and vocabulary skills than the control group. The experimental group with the peer scaffolding intervention showed better ability improvement compared to the experimental group that received the teacher scaffolding intervention. This study has implications that peer scaffolding can be used to support the effectiveness of teaching reading.

1. INTRODUCTION

Currently, the reading ability of students in Indonesia is still low. This is reinforced by various data such as PISA and others. In the field, students' low reading comprehension skills are caused by inadequate use of strategies, knowledge or student schemes, and a positive attitude towards reading has not been instilled. Students can overcome these problems by being given the right training. This is also reinforced by other theories that readers will have difficulty understanding the contents of the reading if they are not given effective reading instructions (MacLeod & van der Veen, 2020; Mahan, 2022). The most effective way that teachers can do to improve students' reading comprehension skills is to provide reading strategies that can help students become independent readers. The majority of students in learning to read prefer to ask the teacher if something is not understood. If they don't ask, they will lose motivation to read. Of course this is not good if done continuously, a strategy is needed that can encourage students to access their own

*Corresponding author
E-mail addresses: r.herdiana@unigal.ac.id (Herdiana)

understanding through the text they read (Myers, 1991; Susantini et al., 2021). Several strategies that can be chosen as access to make students become independent readers are interesting issues, types of text that are appropriate to student development, setting reading goals at the beginning, and encouraging students to read through scaffolding (D. Hadianto et al., 2021a; Wagner et al., 2021). In previous research it was found that a group of students who were guided through scaffolding were able to improve their ability to write essays, especially in formulating ideas, organizing ideas, and modifying ideas (Daris Hadianto et al., 2022; S. Zhao et al., 2022). From this study it can be concluded that scaffolding can improve students' writing skills. A teacher and student should look for techniques that can improve writing skills by understanding the parts of writing.

Learning instruction will be more effective if the teacher facilitates students with strategies that provide scaffolding that encourage students' understanding and vocabulary. Students really need instruction that is able to practice their reading comprehension and vocabulary skills through systematic and motivating strategies. Several previous studies confirmed that one of the effective alternatives in improving reading comprehension skills and increasing students' vocabulary mastery is scaffolding. The scaffolds and zones of proximal development interact during the learning process based on sociocultural theory (Rezat et al., 2022; Soto et al., 2019). This interaction is called dialogue based on developmental theory considerations. The researchers previously conducted a study of the dialogue that occurs in the zone of proximal development through scaffolds. From the results of previous research confirms that scaffolding is a tool so that dynamic learning processes and interactions in the zone of proximal development require skilled individuals and learning students (Y. shan Chen & Lin, 2021). Instructional scaffolding will be more effective if used by teachers in the learning process. Based on sociocultural theory, the learning process is an interaction that requires teachers to accommodate students in small groups so that optimal interaction occurs. Another theory also states that an effective strategy in the learning process is scaffolding with an environment that encourages students to become independent learners (McNamara et al., 2020; Rokhmah Wati et al., 2017). Scaffolding should also provide learning activities that encourage students to work together. Students who want to improve their reading comprehension skills must be given the opportunity to be involved in a meaningful learning process both independently and in groups (Mahan, 2022; Mojarrabi Tabrizi et al., 2019). Some of the difficulties students experience during the process of learning to read are understanding implied information, understanding complex vocabulary, and requiring a very long time.

Scaffolding is very necessary in the learning process. Learning will be more meaningful if it is carried out by optimizing participation and interaction that takes place in social, cultural and historical settings that are in accordance with sociocultural theory (Drewry et al., 2019; Koyuncu et al., 2023). The term scaffolding refers to the tools used by the teacher to assist students in doing their assignments so that they are more optimal. Scaffolding used by teachers or experts will help students solve problems and achieve goals that are beyond their ability. Scaffolding is believed to improve reading comprehension (Booth et al., 2017; Su et al., 2022). In addition, the process of activities that students go through through scaffolding can encourage students' knowledge beyond the text they read, so they are able to deepen their reading comprehension skills (MacLeod & van der Veen, 2020; Wagner et al., 2021). Previous research examined the role of scaffolding in language learning (MacLeod & van der Veen, 2020). From this study it was found that scaffolding can also be used to improve second language vocabulary mastery. Another study examines the role of symmetrical scaffolding on students' reading comprehension skills (Mojarrabi Tabrizi et al., 2019). This study confirms that symmetrical scaffolding can improve high-level reading comprehension skills. In addition, another study examining the impact of teaching scaffolding on listening skills was conducted on high school students (Maamuujav et al., 2019). The research findings show that scaffolding can improve the listening skills of early grade students. In addition, an increase in listening ability was found to have no relationship with gender and student academic achievement.

The scaffolding technique used during the learning process can optimally improve students' listening skills. Other research also confirms that symmetrical and asymmetrical scaffolding can improve the use of grammar. Asymmetric scaffolding is more effective in improving students' grammar mastery compared to symmetrical (D. Hadianto et al., 2021a, 2021b; A. Zhao et al., 2022). Scaffolding in the context of teacher and student scaffolding has rarely been used by previous researchers, so this research was conducted to test its effectiveness in improving the ability of two competencies at once, namely reading comprehension skills and vocabulary mastery skills (Mojarrabi Tabrizi et al., 2019; Rezat et al., 2022). This research is different from previous studies because this study tested two types of scaffolding for teachers and colleagues to improve two abilities at once, namely reading comprehension skills and vocabulary mastery skills. There is still little previous research that compares the types of scaffolding and is used to improve two abilities at once. The influence of instructor and peer scaffolding with various reading techniques such as skimming, scanning, and comprehensive reading on reading comprehension and vocabulary skills was investigated. So, the purpose of this study was to analyze the effect of teacher and

peer scaffolding on students' reading comprehension and vocabulary mastery based on a sociocultural perspective.

2. METHOD

This study used a quasi-experimental research method to examine the effect of teacher and peer scaffolding on students' reading comprehension and vocabulary mastery based on a sociocultural perspective (Gopalan et al., 2020; Thyer, 2012). This research involved 300 elementary school or lower grade students. The gender proportion of students involved in this study consisted of 55% female and 45% male. Students were selected from 5 schools located in the Bandung area, Indonesia. Students are in the age range of 16-18 years with SD = 16.5. The study participants were divided into two experimental groups (teacher and student scaffold groups) and one control group. Two experimental groups received teacher scaffolding interventions and peer scaffolding interventions. Students in the control group were not given the scaffolding intervention. This test consists of two parts. The first part consists of 50 closed multiple choice questions with 50 minutes of time and the second part consists of 50 essay questions after being given a reading text. The maximum score of this test is 100 and the minimum is 0 points. This test has been measured for its validation and reached a reliability level of 0.92.

The students' vocabulary mastery ability was tested using the researcher's own instrument. This test assesses students' vocabulary knowledge which is tested during the pretest and posttest. in this instrument, including how to maintain health, public trust in the government, and tax polemics. The assessment instrument consisted of 25 multiple choice questions and 10 open essay questions. The text used to test students' reading comprehension skills is adapted to student development. The result of testing the reliability of this instrument is 0.80 based on the Cronbach Alpha measurement formula. In addition, the validity of this instrument was tested by experts starting from the characteristics and distinguishing elements. From the results of the validity test this instrument is feasible to use in research.

The research procedure was carried out in several stages. First, a placement test was conducted to determine the level of students' initial reading comprehension and vocabulary mastery. This test uses a test adopted from the Oxford placement test. From a sample of 250 students, it was divided into three groups with the same number of each group. The first group was the experimental group which received the teaching scaffolding intervention with a total of 100 students. The second group was the experimental group which received student scaffolding intervention totaling 100 students. The third group is the control group which received the pretest and posttest but did not receive the intervention. The following describes each intervention in each group. The teacher scaffolding intervention with silent reading exercise instructions to understand reading was accepted by the first experimental group. The first group gets the attention of the teacher and helps him if there are students who don't understand or have difficulty understanding the reading text. The second group received the peer scaffolding intervention by dividing students into small groups. Data analysis used in this study was a one-way ANOVA test to investigate the effect of teacher scaffolding and peer scaffolding on vocabulary mastery and reading comprehension skills.

This study used a quasi-experimental research method to examine the effect of teacher and peer scaffolding on students' reading comprehension and vocabulary mastery based on a sociocultural perspective (Gopalan et al., 2020; Thyer, 2012). This research involved 300 elementary school or lower grade students. The gender proportion of students involved in this study consisted of 55% female and 45% male. Students were selected from 5 schools located in the Bandung area, Indonesia. Students are in the age range of 16-18 years with SD = 16.5. The study participants were divided into two experimental groups (teacher and student scaffold groups) and one control group. Two experimental groups received teacher scaffolding interventions and peer scaffolding interventions. Students in the control group were not given the scaffolding intervention. This test consists of two parts. The first part consists of 50 closed multiple choice questions with 50 minutes of time and the second part consists of 50 essay questions after being given a reading text. The maximum score of this test is 100 and the minimum is 0 points. This test has been measured for its validation and reached a reliability level of 0.92.

The students' vocabulary mastery ability was tested using the researcher's own instrument. This test assesses students' vocabulary knowledge which is tested during the pretest and posttest. in this instrument, including how to maintain health, public trust in the government, and tax polemics. The assessment instrument consisted of 25 multiple choice questions and 10 open essay questions. The text used to test students' reading comprehension skills is adapted to student development. The result of testing the reliability of this instrument is 0.80 based on the Cronbach Alpha measurement formula. In addition, the validity of this instrument was tested by experts starting from the characteristics and distinguishing elements. From the results of the validity test this instrument is feasible to use in research.

The research procedure was carried out in several stages. First, a placement test was conducted to determine the level of students' initial reading comprehension and vocabulary mastery. This test uses a test adopted from the Oxford placement test. From a sample of 250 students, it was divided into three groups with the same number of each group. The first group was the experimental group which received the teaching scaffolding intervention with a total of 100 students. The second group was the experimental group which received student scaffolding intervention totaling 100 students. The third group is the control group which received the pretest and posttest but did not receive the intervention. The following describes each intervention in each group. The teacher scaffolding intervention with silent reading exercise instructions to understand reading was accepted by the first experimental group. The first group gets the attention of the teacher and helps him if there are students who don't understand or have difficulty understanding the reading text. The second group received the peer scaffolding intervention by dividing students into small groups. Data analysis used in this study was a one-way ANOVA test to investigate the effect of teacher scaffolding and peer scaffolding on vocabulary mastery and reading comprehension skills.

3. RESULT AND DISCUSSION

Result

Effect of teacher and peer scaffolding on students' vocabulary mastery level

To answer the first problem formulation, the researcher carried out several steps. First, the researchers used the Kolmogorov–Smirnov normality test to examine the normality of the data first which is presented in Table 1.

Table 1. The Normality Test Results for the Pretst Score of Vocabulary Abilities

Groups	Statistic	df	Sig
Teacher-Scaffold	0.192	40	0.40
Peer-Scaffold	0.184	40	0.314*
Control	0.178	40	0.314*

Furthermore, from the test results as show in Table 1 the third data was found to be normally distributed with a P value > 0.05. sig. value the Kolmogorov–Smirnov results are greater than 0.05 so that the research data is normally distributed. Furthermore, data analysis was carried out using one-way ANOVA to see the average comparison in the three groups. Based on the results of data processing presented in Table 2.

Table 2. Results of One-Way ANOVA Analysis Vocabulary Ability Pretest Scores

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4.462	3	2.845	0.426	0.285
Within Groups	175.745	297	3.758		
Total	**179.864**	**300**			

Base on Table 2 there was no significant difference between the two experimental groups and the control group in vocabulary mastery with a value (p = 0.285 > 0.05) in the pretest phase or before being treated with the teacher scaffold and peer scaffold. The results of the Kolmogorov–Smirnov normality test on the posttest data are presented in Table 3.

Table 3. Results of Normality Test Scores of Posttest Vocabulary Abilities

Groups	Statistic	df	Sig
Kolmogorov-Smirnova			
Teacher-Scaffold	0.346	40	0.090
Peer-Scaffold	0.236	40	0.326*
Control	0.257	40	0.326*

From Table 3 show the posttest score data for students' vocabulary mastery abilities were normally distributed. Furthermore, to determine the significance of the scaffold intervention, a one-way ANOVA test was performed. The results of posttest data analysis of students' vocabulary skills is using one-way ANOVA. Processing of students' vocabulary ability scores after receiving the teacher's scaffold intervention and peer scaffolds and the control group is presented in Table 4.

Table 4. Results of One-Way ANOVA Test Vocabulary Ability Posttest Scores

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4.832	3	2.889	0.835	0.000
Within Groups	171.548	297	4.874		
Total	**175.142**	**300**			

Based on Table 4, a significant difference was found in students' vocabulary abilities between the experimental group that received the teacher scaffold and the friend scaffold and the control group. Based on these data, it can be concluded that the teacher scaffold and peer scaffold can improve students' vocabulary skills significantly. To know more about the effect of scaffolding on students' vocabulary skills, the Tukey HSD test was carried out which is presented in Table 5.

Table 5. Tukey HSD Comparison Test Results on Vocabulary Ability Posttest Scores

Groups	Groups	Mean Difference	Std. Error	*Sig*	95% Confidence Interval	
					Lower Bound	Upper Bound
Teacher-scaff	Peer-scaffold	−2.562*	0.312	0.051	0.458	4.265
	Control	2.973*	0.312	0.015	0.824	4.331
Peer-scaffold	Teacher-scaffold	2.548*	0.312	0.053	−4.215	−.483
	Control	4.426*	0.312	0.003	−2.335	2.934
Control	Teacher-scaffold	−2.936*	0.312	0.015	−4.315	−.825
	Peer-scaffold	−4.416*	0.312	0.003	−2.775	2.351

From Table 5 show the results of the Tukey HSD test it was found that the students' vocabulary mastery abilities in the experimental group with the instructor's scaffold intervention and the experimental group that received the peer scaffold intervention were superior to the control group that did not receive the scaffold. Based on this follow-up test, it was found that the peer scaffold was more effective than the teacher and control group scaffolds in increasing students' vocabulary mastery. However, the peer scaffold had a significant impact on students' vocabulary mastery compared to the control group.

Effect of teacher and peer scaffolds on reading comprehension ability

The research conducted several stages of data processing to answer the second research question. First, the researcher tested the normality of the distribution of the pretest score data on reading comprehension ability using the Kolmogorov-Smirnov test. Based on the results of the normality test, the data on the reading comprehension pretest scores were normally distributed (P > 0.05). Next, the researcher processed the reading comprehension ability pretest scores by using the one-way ANOVA test presented in Table 6.

Table 6. Results of One-Way ANOVA Test Pretest Reading Comprehension

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	3.547	2	2.724	0.520	0.452
Within Groups	170.245	297	3.836		
Total	**173.836**	**300**			

Based on Table 6 data, there was no significant difference between the groups with teacher scaffold intervention, peer scaffold, and the control group with a value of (.452 >0.05). The researcher also conducted data analysis on the posttest score of reading comprehension ability by conducting a one way ANOVA test presented in Table 7.

From Table 7 one way ANOVA testing on posttest scores, it was found that there was a significant difference in reading comprehension ability between the experimental group that received the teacher scaffolding intervention, the group experimental scaffold colleagues, and control group with value (p = 0.001 <0.05). The improving of reading comprehension ability in the experimental group occurred after receiving treatment. For further analysis on posttest scores, researchers conducted the Tukey HSD test to further find out which group was the most superior after receiving the intervention. Table 8 presents the results of the follow-up test using the HSD tukey.

Table 7. Results of One-Way ANOVA Test Scores of Posttest Reading Comprehension Skills

	Sum of Squares	*df*	Mean Square	*F*	*Sig*
Between Groups	3.732	3	2.638	0.624	0.001
Within Groups	160.425	297	4.352		
Total	**163.683**	**300**			

Table 8. Tukey HSD Test of Multiple Comparisons of Posttest Reading Comprehension Scores

Groups	Groups	Mean Difference	Std. Error	*Sig*	95% Confidence Interval	
					Lower Bound	Upper Bound
Teacher-scaff	Peer-scaffold	−2.845	0.342	0.040	0.426	3.879
	Control	2.726	0.342	0.015	0.735	4.336
Peer-scaffold	Teacher-scaffold	2.846	0.342	0.040	−3.889	−0.426
	Control	4.883	0.342	0.002	−2.462	1.946
Control	Teacher-scaffold	−2.718	0.342	0.013	−4.336	−0.714
	Peer-scaffold	−4.936	0.342	0.002	−2.892	2.453

From Table 8 the test results it was found that the peer scaffold was considered the most effective in improving reading comprehension skills than the teaching scaffold and traditional methods. In addition, the reading comprehension skills of the students who received the teaching scaffold were also better than those of the control group who did not receive the scaffold.

Discussion

The research finding to answer the first problem formulation is that the teacher's scaffold is more effective in increasing vocabulary mastery than peers' scaffold because students' vocabulary mastery increases when they receive explanations from the teacher regarding the meaning of vocabulary which is applied directly according to the context of the reading. The results indicate that learning instructions that integrate reading skills and vocabulary mastery skills are considered better than learning instructions that are partial and simple and only focus on one aspect or skill (Bezerra et al., 20s22; Sesma et al., 2009). Language learners often have difficulty understanding vocabulary that is included in the high-level category, so learning vocabulary that is appropriate to context is needed to help students understand the meaning of vocabulary. One of the learning alternatives to improve vocabulary mastery is through text scaffolding. This allows students to understand the meaning of the word according to the context of its use (Koyuncu et al., 2023; MacLeod & van der Veen, 2020). This research proves that effective vocabulary learning can be done through text scaffolding which can be used as well as to improve reading comprehension skills. This is in line with several previous studies which applied vocabulary learning through text scaffolding (Silvén, 1992; Soto et al., 2019). This study aims to compare the effectiveness of teacher and peer scaffolds in improving students' vocabulary and reading comprehension skills. The increase in vocabulary mastery ability from the most superior to the lowest was the teacher scaffolding experimental group, peer scaffolding, and the control group. The results of this study were confirmed by several previous studies (Bui & Fagan, 2013; Hiebert & Daniel, 2019).

The research findings are consistent with previous studies on the effect of vocabulary mastery on reading comprehension levels. Furthermore, the teacher's scaffold, friend's scaffold were also able to significantly improve reading comprehension skills (Bui & Fagan, 2013; Hiebert & Daniel, 2019). This can be seen from the significant comparison between the experimental and the control after receiving the treatment. The next finding in answering the second research question is that the peer scaffold is superior in improving reading comprehension skills compared to the teacher scaffold because the peer scaffold encourages students to become experts or master reading texts first before directing other friends (A. Saarinen, 2020; S. Y. Chen & Tseng, 2021). In addition, peer scaffolding also makes students more flexible to ask their friends if there is something they don't understand when understanding the text, in contrast to when the teaching scaffolding was implemented there were still many students who were not free to ask the teacher due to various factors (A. Saarinen, 2020; Smith & Curtis, 2020). The results of this study were reinforced by several previous research which strengthened that students' reading comprehension skills were more effectively carried out through peer learning. Scaffolding is used by educators for initial support in the learning process which will eventually be removed. This scaffolding strategy is used in learning to read so that students become independent learners and become problem solvers. Previous research

confirms that scaffolding can be effective in helping students become independent learners, it can also make students passive (Hayashi et al., 2018; Samiei & Ebadi, 2021).

Scaffolding and zones of proximal development can be effective in improving students' abilities if these scaffolds are able to encourage students' abilities and provide students with provisions to improve their own abilities. A good and effective scaffold based on Vygotsky's ZPD theory is a scaffold that is able to make students learn a lot through scaffolding (Bezerra et al., 2022; Martins & Capellini, 2021). Social interaction becomes a very important factor in the learning process when scaffolding is used. Students' mental functions will be trained when scaffolding is used so that students' internal mental functions will function when faced with real problems. The initial function in scaffolding is social and the process can optimize students' internal functions, so this process is called internalization (Majumdar et al., 2021; Urquhart, 2002). Scaffolding instruction in learning to read can effectively improve students' cognitive abilities. Through scaffolding, students' work in carrying out tasks in the learning process becomes more focused, structured, and effective in allocating time. This teacher and friend scaffold creates the right moment in organizing learning so that it is more optimal in improving students' reading comprehension and vocabulary mastery. Through structured learning with scaffolding, students will use more time to study and achieve goals more effectively. Teacher scaffold and friend scaffold proved to be effective in improving reading comprehension and vocabulary mastery (Bezerra et al., 2022; Tarchi, 2017). The traits and behaviors produced through scaffolding are able to facilitate the acquisition of reading comprehension skills and better vocabulary mastery.

Learning that integrates vocabulary into the original context is more effectual in improving vocabulary skills and reading comprehension skills. This has also been confirmed by several previous studies which prove that learning vocabulary will be more effective if it is done in an integrated manner (D. Hadianto et al., 2021b; Muijselaar et al., 2017; Myers, 1991). The scaffolding intervention used in this study provides an alternative learning model that presents the stages and steps of learning using scaffolding or also called the contingent teaching model. The contingent teaching model is not only used in school learning but is also widely used in teacher professional education. This study illustrates that low and high contingent support will be useful if it is in accordance with the characteristics of the learning material or the goals to be achieved. Peer scaffolding can be effective when applied to improving low-level language skills through training students to convey them to other students (Rezat et al., 2022; Song & Kim, 2021). Several previous findings are in accordance with this research which confirms that students feel more free and satisfied when involved in the learning process when given the opportunity to study with friends or work in groups (Maguet et al., 2021; Rezat et al., 2022). This model can be used if the goals or achievements do not involve too high-level abilities. In contrast to high-level language skills that require complex instructions. Referring to the results of this study, teaching models, methods or techniques that are social in nature and encourage students to work together in learning and teaching language are very effectively applied (Marshall & Myers, 2021; Villanueva, 2022). More expert friends who support the learning process will be more effective for students to improve abilities or learn new skills. Language learning makes it possible for students to be encouraged to become active knowledge builders in the learning process. Dialogical interaction in a sociocultural context facilitates teachers to switch from one regulation to another, that is, from dependency to becoming independent learners (Susantini et al., 2021; Tarchi, 2017). Through scaffolding helps students have the ability to understand reading independently. Teachers are advised to use scaffolding assisted with technological assistance so that the results achieved are more optimal.

This research implies that language learning must be carried out in an integrated manner to achieve several skills or goals at once because this integrated learning is better than partial learning. In addition, teaching models, methods or techniques that are social and encourage students to work together in learning and teaching language are very effectively applied. More expert friends who support the learning process will be more effective for students to improve abilities or learn new skills. The limitations of this study include the sample which is still limited and focused on the lower classes or elementary schools, the data findings have not been supported by representative qualitative data, the gender factor is not involved, and the research time is still short. Based on these limitations, the researcher recommends a number of things to perfect the research, including further research should be conducted in the upper middle class and a larger sample size, gender factors are also examined to examine whether there is a gender role, research that takes longer time so that the results obtained more optimal.

4. CONCLUSION

Teacher and peer scaffolding is effective in improving students' reading comprehension and vocabulary mastery. From the comparison of the effectiveness of the two scaffolds. The peer scaffold was found to be superior to the instructor scaffold in improving students' reading comprehension and

vocabulary mastery. Learning that integrates vocabulary into the context of discourse is better at improving vocabulary skills and reading comprehension skills.

5. REFERENCES

A. Saarinen, J. (2020). What can the concept of affective scaffolding do for us? *Philosophical Psychology*, *33*(6), 820–839. https://doi.org/10.1080/09515089.2020.1761542.

Bezerra, R. L. M., Alves, R. J. R., & Azoni, C. A. S. (2022). Creativity and its relationship with intelligence and reading skills in children: an exploratory study. *Psicologia: Reflexão e Crítica*, *35*(1). https://doi.org/10.1186/s41155-022-00221-3.

Booth, J. L., McGinn, K. M., Barbieri, C., Begolli, K. N., Chang, B., Miller-Cotto, D., Young, L. K., & Davenport, J. L. (2017). Evidence for Cognitive Science Principles that Impact Learning in Mathematics. In *Acquisition of Complex Arithmetic Skills and Higher-Order Mathematics Concepts*. Elsevier Inc. https://doi.org/10.1016/b978-0-12-805086-6.00013-8.

Bui, Y. N., & Fagan, Y. M. (2013). The Effects of an Integrated Reading Comprehension Strategy: A Culturally Responsive Teaching Approach for Fifth-Grade Students' Reading Comprehension. *Preventing School Failure: Alternative Education for Children and Youth*, *57*(2), 59–69. https://doi.org/10.1080/1045988x.2012.664581.

Chen, S. Y., & Tseng, Y. F. (2021). The impacts of scaffolding e-assessment English learning: a cognitive style perspective. *Computer Assisted Language Learning*, *34*(8), 1105–1127. https://doi.org/10.1080/09588221.2019.1661853.

Chen, Y. shan, & Lin, M. F. (2021). Effects of peer collaboration on EFL learners' comprehension of conversational implicatures. *System*, *97*, 102441. https://doi.org/10.1016/j.system.2020.102441.

Drewry, R., Cumming-Potvin, W., & Maor, D. (2019). New approaches to literacy problems: Multiliteracies and inclusive pedagogies. *Australian Journal of Teacher Education*, *44*(11), 61–78. https://doi.org/10.14221/ajte.2019v44.n11.4.

Gopalan, M., Rosinger, K., & Ahn, J. Bin. (2020). Use of Quasi-Experimental Research Designs in Education Research: Growth, Promise, and Challenges. *Review of Research in Education*, *44*(1), 218–243. https://doi.org/10.3102/0091732X20903302.

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021a). Does reading comprehension competence determine level of solving mathematical word problems competence? *Journal of Physics: Conference Series*, *1806*(1). https://doi.org/10.1088/1742-6596/1806/1/012049.

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021b). Enhancing scientific argumentation skill through partnership comprehensive literacy. *Journal of Physics: Conference Series*, *2098*(1). https://doi.org/10.1088/1742-6596/2098/1/012015.

Hadianto, Daris, S. Damaianti, V., Mulyati, Y., & Sastromiharjo, A. (2022). Effectiveness of Literacy Teaching Design Integrating Local Culture Discourse and Activities to Enhance Reading Skills. *Cogent Education*, *9*(1), 0–13. https://doi.org/10.1080/2331186X.2021.2016040.

Hayashi, Y., Seta, K., & Ikeda, M. (2018). Development of a support system for measurement and analysis of thinking processes based on a metacognitive interpretation framework: a case study of dissolution of belief conflict thinking processes. *Research and Practice in Technology Enhanced Learning*, *13*(1). https://doi.org/10.1186/s41039-018-0091-y.

Hiebert, E. H., & Daniel, M. (2019). Comprehension and rate during silent reading: Why do some students do poorly? *Reading and Writing*, *32*(7), 1795–1818. https://doi.org/10.1007/s11145-018-9917-7.

Koyuncu, S., Kumpulainen, K., & Kuusisto, A. (2023). Scaffolding children's participation during teacher–child interaction in second language classrooms. *Scandinavian Journal of Educational Research*, 1–15. https://doi.org/10.1080/00313831.2023.2183430.

Maamuujav, U., Krishnan, J., & Collins, P. (2019). The utility of infographics in L2 writing classes: A practical strategy to scaffold writing development. *TESOL Journal*, *September*. https://doi.org/10.1002/tesj.484.

MacLeod, M., & van der Veen, J. T. (2020). Scaffolding interdisciplinary project-based learning: a case study. *European Journal of Engineering Education*, *45*(3), 363–377. https://doi.org/10.1080/03043797.2019.1646210.

Maguet, M. L., Morrison, T. G., Wilcox, B., & Billen, M. T. (2021). Improving Children's Reading Comprehension by Teaching Inferences. *Reading Psychology*, *42*(3), 264–280. https://doi.org/10.1080/02702711.2021.1888351.

Mahan, K. R. (2022). The comprehending teacher: scaffolding in content and language integrated learning (CLIL). *Language Learning Journal*, *50*(1), 74–88. https://doi.org/10.1080/09571736.2019.1705879.

Majumdar, R., Bakilapadavu, G., Majumder, R., Chen, M. R. A., Flanagan, B., & Ogata, H. (2021). Learning analytics of humanities course: reader profiles in critical reading activity. *Research and Practice in Technology Enhanced Learning*, *16*(1). https://doi.org/10.1186/s41039-021-00164-w.

Marshall, B., & Myers, C. (2021). Does Embedding Restricted Interests of Students with Autism in Text Improve Reading Comprehension? *Developmental Neurorehabilitation*, *24*(5), 347–354. https://doi.org/10.1080/17518423.2021.1898486.

Martins, M. A., & Capellini, S. A. (2021). Identification of struggling readers or at risk of reading difficulties with one-minute fluency measures. *Psicologia: Reflexao e Critica*, *34*(1). https://doi.org/10.1186/s41155-021-00174-z.

McNamara, J., Sweetman, S., Connors, P., Lofgren, I., & Greene, G. (2020). Using Interactive Nutrition Modules to Increase Critical Thinking Skills in College Courses. *Journal of Nutrition Education and Behavior*, *52*(4), 343–350. https://doi.org/10.1016/j.jneb.2019.06.007.

Mojarrabi Tabrizi, H., Behnam, B., Saeidi, M., & Lu, X. (2019). The effect of soft vs. hard scaffolding on reading comprehension skill of EFL learners in different experimental conditions. *Cogent Education*, *6*(1). https://doi.org/10.1080/2331186X.2019.1631562.

Muijselaar, M. M. L., Swart, N. M., Steenbeek-Planting, E. G., Droop, M., Verhoeven, L., & de Jong, P. F. (2017). Developmental Relations Between Reading Comprehension and Reading Strategies. *Scientific Studies of Reading*, *21*(3), 194–209. https://doi.org/10.1080/10888438.2017.1278763.

Myers, S. S. (1991). Performance in Reading Comprehension—product or process? *Educational Review*, *43*(3), 257–272. https://doi.org/10.1080/0013191910430302.

Rezat, S., Malik, S., & Leifeld, M. (2022). Scaffolding Close Reading of Mathematical Text in Pre-service Primary Teacher Education at the Tertiary Level: Design and Evaluation. *International Journal of Science and Mathematics Education*, *20*, 215–236. https://doi.org/10.1007/s10763-022-10309-y.

Rokhmah Wati, D. A., Tukiran, T., & Ibrahim, M. (2017). Penerapan Magang Kognitif (Cognitive Apprenticeship) Untuk Mengajarkan Keterampilan Metakognitif Dan Hasil Belajar Kognitif Siswa. *JPPS (Jurnal Penelitian Pendidikan Sains)*, *2*(2), 212. https://doi.org/10.26740/jpps.v2n2.p212-217.

Samiei, F., & Ebadi, S. (2021). Exploring EFL learners' inferential reading comprehension skills through a flipped classroom. *Research and Practice in Technology Enhanced Learning*, *16*(1). https://doi.org/10.1186/s41039-021-00157-9.

Sesma, H. W., Mahone, E. M., Levine, T., Eason, S. H., & Cutting, L. E. (2009). The contribution of executive skills to reading comprehension. *Child Neuropsychology*, *15*(3), 232–246. https://doi.org/10.1080/09297040802220029.

Silvén, M. (1992). The Role of Metacognition in Reading Instruction. *Scandinavian Journal of Educational Research*, *36*(3), 211–221. https://doi.org/10.1080/0031383920360304.

Smith, C., & Curtis, L. J. (2020). Scaffolding learners' self-regulation in workplace learning: design of a pedagogical pattern for placements. *Journal of Vocational Education and Training*, *72*(3), 396–414. https://doi.org/10.1080/13636820.2019.1612936.

Song, D., & Kim, D. (2021). Effects of self-regulation scaffolding on online participation and learning outcomes. *Journal of Research on Technology in Education*, *53*(3), 249–263. https://doi.org/10.1080/15391523.2020.1767525.

Soto, C., Gutiérrez de Blume, A. P., Jacovina, M., McNamara, D., Benson, N., Riffo, B., & Kruk, R. (2019). Reading comprehension and metacognition: The importance of inferential skills. *Cogent Education*, *6*(1). https://doi.org/10.1080/2331186X.2019.1565067.

Su, Y. S., Shao, M., & Zhao, L. (2022). Effect of Mind Mapping on Creative Thinking of Children in Scratch Visual Programming Education. *Journal of Educational Computing Research*, *60*(4), 906–929. https://doi.org/10.1177/07356331211053383.

Susantini, E., Puspitawati, R. P., Raharjo, & Suaidah, H. L. (2021). E-book of metacognitive learning strategies: design and implementation to activate student's self-regulation. *Research and Practice in Technology Enhanced Learning*, *16*(1). https://doi.org/10.1186/s41039-021-00161-z.

Tarchi, C. (2017). Comprehending Expository Texts: The Role of Cognitive and Motivational Factors. *Reading Psychology*, *38*(2), 154–181. https://doi.org/10.1080/02702711.2016.1245229.

Thyer, B. A. (2012). *Quasi-Experimental Research Design*. Oxford University Press, Inc.

Urquhart, I. (2002). Beyond the literal: Deferential or inferential reading? *English in Education*, *36*(2), 18–30. https://doi.org/10.1111/j.1754-8845.2002.tb00758.x.

Villanueva, J. M. (2022). Language profile, metacognitive reading strategies, and reading comprehension performance among college students. *Cogent Education*, *9*(1). https://doi.org/10.1080/2331186X.2022.2061683.

Wagner, R. K., Beal, B., Zirps, F. A., & Spencer, M. (2021). A model-based meta-analytic examination of

specific reading comprehension deficit: how prevalent is it and does the simple view of reading account for it? *Annals of Dyslexia*, *71*(2), 260–281. https://doi.org/10.1007/s11881-021-00232-2.

Zhao, A., Guo, Y., & Dinnesen, M. S. (2022). The direct and indirect effects of language and cognitive skills on Chinese reading comprehension. *Reading and Writing*, *35*(3), 539–564. https://doi.org/10.1007/s11145-021-10192-z.

Zhao, S., Hafeez, M., & Faisal, C. M. N. (2022). Does ICT diffusion lead to energy efficiency and environmental sustainability in emerging Asian economies? *Environmental Science and Pollution Research*, *29*(8), 12198–12207. https://doi.org/10.1016/j.tele.2021.101755.