



Investigating the effect of chain writing method on students' writing skills in a junior secondary school

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ABSTRACT

This research aims to examine the effect of chain writing method on students' writing skills in a junior high school situated in Banyumas, Central Java Province, Indonesia. This study was designed with quasi-experimental research since the research sample was determined employing random sampling technique. The population of this research was 256 students of the eighth grade in the junior secondary school. Data were garnered used pre-test and post-test after giving a treatment. The data were analyzed using normality test, homogeneity test, and hypothesis test. Based on the hypothesis test, the significance level was < 0.05 . In this research the Sig. 2-tailed was 0.000. The Sig. 2 tailed 0.000 < 0.05 . Study results demonstrate that there was a significant effect of the chain writing method application on the students' writing skills. The statistical attainment indicated that H_0 was rejected, and H_a was accepted. This study concludes with pedagogical implications for how chain writing can be applied as an innovative teaching method for teaching writing, particularly for secondary school students.

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Introduction

In Indonesia, writing is included in the skill category that is difficult for children to understand (Muxayyo, 2023). Moreover, education in Indonesia is still far from superior, it is not as prioritized as in other countries (Mayasari & Masrurroh, 2024). There is a big challenge in Indonesia regarding the high-quality of education (Karim, 2021). In fact, during their studies, they can channel their writing skill more widely both on and off campus (Amalia et al., 2023). Meanwhile, during school, students are more limited in channeling each of the skill they have because of limited time. When they become students, they will spend time in the classroom because their time is structured.

However, when they are at college, they can choose to spend time on or off campus because the time is flexible. Usually on campus, there are also students' activity units like as writing studios, for those who like writing, they can take part in this activity according to their wishes. Not only in the world of education, but writing skill are also important in the world of work because can improve communication internally and externally and can increase a person's credibility at work (Gamal et al., 2022). Some students find writing practice is a boring activity, and many students also have difficulties in writing skill (Sari & Erawati, 2020). Most students do not know where to start writing, this is due to their lack of motivation in learning to write. Among the four skills that must be learned, writing skill is in a fairly difficult category because apart from learning to write, students also have to learn other skills (Al-Qasham et al., 2021).

Teaching writing as a productive skill requires teachers to direct students to express their opinions in written form and requires other components like using the right words, correct sentences, and perfect spelling (Kim, 2019). In teaching writing, teachers need various methods or strategies to be used to motivate students to be active and feel relaxed while attending class (Wahab & Astri, 2022). The writing method used should not be monotonous; if it is monotonous, students will easily get bored when learning. Teachers must ask students how to write well, and they also must come across a proper method that is suitable for students' needs. Teachers must tell students how to write well and teachers must also find methods that suitable students need.

In writing, students need to think carefully to organize their ideas, choose the best topic sentence, and give a good reason, and convincing evidence to get the readers' trust (Ma'rufah et al., 2021). However, this can be easy if students know the steps in writing and try to understand. The steps involved in the writing process are learning, practicing as often as possible, and trying to write well and appropriately (Vanderheide & Newell, 2013). If the learning process is carried out well by teachers and students, the learning objectives will be achieved. In the academic world, writing has become a daily activity because from the beginning of school, writing has been introduced (Muxayyo, 2023). The habit of writing should be inherent in a person from an early age because every level of education will never be separated from writing (Sari, 2018).

In writing skill, a culture of reading and critical thinking must be formed because the idea that will be expressed in writing can be taken from these two things (Wahidiyati, 2020). If students learn to write seriously, their skills can be used in school, at employment, and in their personal lives both academic and non-academic. Even though writing is a difficult skill, it will not reduce enthusiasm for learning, if students and teachers collaborate to create effective and enjoyable learning (Kim, 2019). Writing can make someone a better reader and stronger thinker because writing requires the writer's ideas and evidence they provide in the writing, as an explanation of whether the evidence supports or fails to support the ideas provided by the writer (Coe et al., 1983). Writing is important because writing can convey opinions that are in their minds and memories (Al-Qasham et al., 2021).

Many learning methods can be used in learning writing; however, there are some advantages and disadvantages in each method. It is necessary for anyone who is concerned with teaching English to find out the easier technique of the method, which can improve students' motivation for improving their writing. The teachers need to be smart enough to choose a method of teaching that is suitable for the situations and the needs of the students

(Sartika, 2014). In Indonesia, there are still many schools that rely on traditional teaching methods like as teaching English only using books and whiteboards (Mayasari & Masrurroh, 2024). Students who are taught through books and whiteboards often do not pay attention to the learning process because students feel bored and find it less fun (Gamal et al., 2022).

In line with this, learning should not depend on books because the teaching process is not just about completing book presentations, but helping students achieve competency (Brown & Hood, 1989). Thus, apart from preparing material, teachers must also apply appropriate learning methods. One method used to improve writing skill is chain writing method, chain writing method is a method applied by teachers to solve students' problems in mastering language lessons, especially in writing activities (Sotivoldievich et al., 2024). Chain writing method is carried out in groups that will provide special opportunities for students to be active in writing (Purwanto, 2022). The chain writing method is more effective in learning because students will be more motivated if they study in groups rather than individually (Sari, 2018).

The chain writing method is to write stories written by students in groups, each student makes one or two sentences, and then the sentences are combined into stories (Amalia et al., 2023). It is expected to give benefits and advantages for students because of their activeness in determining ideas, letting students share and develop their ideas into sentences, and building students' interesting communication (Wu et al., 2022). The process of using the chain writing method in learning to write English texts can run well if students actively participate in learning. Using this method requires students to be active in learning because the students' role here is as the center. In this method, students have to work together to create a story, therefore, learning success depends on students in each group (Montanero & Madeira, 2019).

The reason students are used as centers is so that their role is not passive so that the learning is not boring (Sari, 2018). In this method students and teachers collaborate, the teacher's role here is more directed at guiding students, besides that students do it themselves. When this method is applied, the class atmosphere will be noisy because students will often ask questions to the teacher or other friends. To anticipate this, teachers must be clever in controlling students so that they do not make noise themselves. When using this method, the learning process takes precedence over the results because this method aims to measure how much influence the chain writing method has on students' writing skill (Hand et al., 2021).

Chain writing is creating an instructional chain of a teacher writing instruction allow us to select, in a principal way, the moment of instruction that are linked together to maximize students learning to write (Vanderheide & Newell, 2013). The research aims to "instructional chaining" as an analytic method for capturing and describing key instructional episodes enacted by expert writing teachers to foster the recontextualization over time of the social practices of argumentative writing through process-oriented instructional approaches. In addition, Sundari and Sari (2023) also conducted research about chain writing and the results show that the students have to work together to learn because the students will make the story together. The research aims to improve students writing skill using the chain writing method.

The targeted junior high school is a suitable school for this research after preliminary observations were made. After conducting preliminary observation with the teacher, the researchers obtained information that writing skills of the eighth-grade students were still in the initial stage. The learning in the classroom was still monotonous because it was teacher-centered, where the teacher explained and the students just listened. This made the learning process and atmosphere boring; therefore, a new method is needed so that students are more motivated in writing (Gamal et al., 2022). Based on this phenomenon, the researchers are interested in experimenting using the chain writing method which aims to measure the effect of the teaching method on the students' writing skills.

Method

Research design and sample

This research uses quantitative method to describe the significant effect of chain writing method on students' writing skill. The quantitative method aims to investigate a theory that exists and data looked for in an attempt to support or reject it (Pakpahan, 2021). This research is experimental, this experiment can help teachers solve learning problems in the classroom, especially in writing skill (Hand et al, 2020). Quantitative methods are closely related to systematic numbers and measurements in measuring phenomena and their relationship. To determine the effect of treatment on certain subjects in a controlled manner, experimental research was conducted. Experimental research is intended to determine whether or not there are results after treatment of a subject. This research uses quasi-experimental because the samples used in the experimental and control groups were taken randomly from a certain population. This research examines the effectiveness of the chain writing method on students' writing skill of the eighth-grade junior high school students.

Data collection

Data collection techniques were carried out by the pre-test and the post-test. The pre-test was given in the experimental class and the control class before treatment. The pre-test in the experimental class was carried out on April 22nd, 2024. The pre-test in the control class was carried out on April 18th, 2024. The treatment in the experimental class was carried out on April 23th, 29th, 30th, and May 20th, 2024 using the chain writing method. The teaching in the control class was carried out on April 22nd, 25th, and 29th, 2024 and May 2nd, 2024 without using the chain writing method. The post-test in the experimental class was carried out on May 21st, 2024. The post-test in the control class was carried out on May 20th, 2024.

The descriptive analysis of the processed data is used to describe with several calculation test as follows: the first data analysis was used the normality test, the results of the normality test were obtained in the experimental class and the control class as follows: For the experimental class, the Sig. pre-test data was analyzed used Kolmogorov Smirnov was 0.020. The Sig. pre-test data was analyzed used Shapiro Wilk was 0.042. The Sig. post-test was analyzed used Kolmogorov Smirnov was 0.200. The Sig. post-test data was analyzed used Shapiro Wilk was 0.404. For the control class, the Sig. pre-test data was analyzed used Kolmogorov Smirnov was 0.000. The Sig. pre-test data was analyzed used Shapiro Wilk was 0.000.

The Sig. post-test data was analyzed used Kolmogorov Smirnov was 0.001. The Sig. post-test data was analyzed used Shapiro Wilk was 0.000. Based on the data above, the pre-test score and the post-test score in the experimental class > 0.05 . It can be concluded, that the pre-test and the post-test data was normally distributed in the experimental class because all the Sig. value more than 0.05 (Uktolseja & Gaspersz, 2019). While, the pre-test score and the post-test score in the control class < 0.05 . It can be concluded, that the pre-test and the post-test data was not normally distributed in the control class because all the Sig. value less than 0.05 (Wei et al., 2022).

The second data analysis was used the homogeneity test, the results of the homogeneity of variance were obtained in the experimental class and the control class as follows: based on the mean column, the Sig. was 0.284. Based on median column, the Sig. was 0.205. Based on median and with adjusted df column, the Sig. was 0.206. Based on trimmed mean column, the Sig. was 0.214. Based on the data above, this shows that the post-test score was > 0.05 . It can be concluded, that the post-test data have the same homogeneous variance for the experimental class and the control class because all the Sig. value more than 0.05 (Ling et al., 2023). The third data analysis was used the hypothesis test, there were two hypothesis tests namely the independent sample t-test and the paired sample t-test.

Results and discussion

The results of the independent sample t-test of the post-test data were obtained in the experimental class and the control class as follows: the value F was 1.168. The Sig. was 0.284, the Sig. $0.284 > 0.05$, means the variance between the experimental class and the control class was homogeneous or the same. The t_{count} was 0.752, the df value was 62, and the Sig. (2-tailed) was 0.002. The Sig. (2-tailed) $0.002 < 0.05$. The mean difference was 1.719 and the standard error difference was 2.285. The difference was between -2.849 and 6.287 (95% confidence interval of lower and upper difference). Based on the data above, it can be concluded that H_0 is rejected and H_a is accepted. Based on this statement, this shows that there were difference Sig. 2 tailed between the results of the post-test data in the experimental class and the control class (Wang et al., 2023).

The paired sample t-test of the pre-test and the post-test data in the experimental class was to know the difference in the students writing skill using the chain writing method. The results of the paired sample statistics are presented in Table 1 as follows:

Table 1

Results of the Paired Sample Statistics in the Experimental Class

		Mean	N	Std. deviation	Std. error mean
Pair 1	Pre-test experimental class	77.66	32	14.646	2.589
	Post-test experimental class	85.00	32	10.925	1.931

Informed by Table 1, the results of the paired sample statistics were obtained in the experimental class as follows: the mean score of the pre-test was 77.66. The mean score of

the post-test was 85.00 and the data of the students was 32. The standard deviation of the pre-test was 14.646 and the standard deviation of the post-test was 10.925. The standard error mean of the pre-test was 2.589 and the standard error mean of the post-test was 1.931. Based on the data above, it can be concluded that the post-test data was higher than the pre-test data.

The results of the paired sample test were obtained in the experimental class as follows: the mean score -7.344. The standard deviation was 9.244 and the standard error mean was 1.634. The difference was between -10.667 and -4.011 (95% Confidence Interval of Lower and Upper Difference). The t was -4.494 with df was 31 and the Sig. (2-tailed) was 0.000. The Sig. $0.000 < 0.05$, it can be concluded that H_0 is rejected and H_a is accepted. Based on this statement, this shows that there were difference Sig. 2 tailed between the results of the pre-test data and the post-test data in the experimental class.

The results of the paired sample test were obtained in the control class as follows: the mean score was -4.063 and the standard deviation was 19.195. The standard error mean was 3.393 and the difference was between -10.983 and 2.858 (95% confidence interval of lower and upper difference). The t was -1.197 with df was 31 and the Sig. (2-tailed) was 0.000. The Sig. $0.000 < 0.05$, it can be concluded that H_0 is rejected and H_a is accepted. Based on this statement, this shows that there were difference Sig. 2 tailed between the results of the pre-test data and the post-test data in the control class (Sotivoldievich et al., 2024). Based on the data, this shows that there is a difference in the results of the mean score between the pre-test and the post-test in the experimental class.

According to the results of the hypothesis test, the independent sample t -test and the paired sample t -test. The experimental class score was higher than the control class. Based on this statement, it can be concluded that there is an effect of the chain writing method on students' writing skill of eighth grade students. The research data of this research about writing activity through the chain writing method is more effective. It showed a significant post-test score in the experimental class, which was the class that was given treatment using the chain writing method. As students nowadays, writing is very important to support education in the future because everything requires writing skill (Coe et al., 1983). It is related to the theory (Brown & Hood, 1989) that the chain writing method can be effective in achieving increased learning goals, especially in writing skill. This method aims to make students enjoy the learning process in the class and provide opportunities for students to write on certain topics with their classmates (Purwanto, 2022).

This method is more fun because it is carried out in groups that involve students in various activities (Primasari et al., 2021). The reason why the researchers chose the chain writing method because this method aims to focus on the learning process, not the result. The process of using the chain writing method in learning to write texts can run well if students actively participate in learning. The chain writing method can also help students produce better writing; besides that, the chain writing method can be applied in every genre of text like as recount, narrative, descriptive, explanation, procedure, etc. (Vanderheide & Newell, 2013).

Using the chain writing method requires students to be active in learning because the students and teachers collaborate, the students' role here as the center, while the teacher's role here as the guide students. Teaching writing is an activity carried out by students with

teacher guidance in expressing ideas through language using appropriate vocabulary, grammar, and punctuation (Vanderheide & Newell, 2013). It can be sure, that when the learning method is put into practice, students will ask the teacher a lot of questions (Pakpahan, 2021). It is hoped, that the chain writing method can make students more enthusiastic about learning writing and provide innovation for educators to make learning more fun so that students are more interested in learning to write (Najia, 2023). This method was carried out in groups, when students feel confused, they can ask their group members and exchange opinions. During learning, the class is often noisy because each group consists of five students when they are discussing.

Even though the class is noisy the teacher must be able to handle the class so that the atmosphere remains conducive and the chain writing method can run effectively (Al-Qasham et al., 2021). In this research, it appears that students' writing skill have increased, and they can understand the material presented. In this research, students did not feel bored during learning because they were enthusiastic and active in finishing their group work (Sari, 2018). The chain writing method is an active learning method that aims to make students associate learning with a fun activity (Montanero & Madeira, 2019; Wei et al., 2022). Chain writing method is a social-based method that will give exceptional opportunities for students to actively write (Al-Qasham et al., 2021).

This research, also found that the chain writing method in writing skill made the students motivated in learning activities because during the treatment they were to implement this method. It is related based on the theory by Ningsih et al. (2021) that in the classroom, the teacher must be able to master the class and provide motivation for students. In this research, it was also found that the chain writing method in teaching writing can improve students' writing skill. It supported a significant difference in students' writing skill scores on the post-test in the experimental class. In other words, the chain writing method is effective for students to improve writing skill.

Conclusion

This research is an experimental research design, this research aims to measure the effectiveness of chain writing method on students writing skill of the eighth-grade students. Based on the research data in the experimental class and the control class, there are difference score between the students who used the chain writing method and the students who did not used the chain writing method. Although the scores for both classes increased, the scores for the experimental class were higher than the scores for the control class. The conclusion can be drawn based on the results of data analysis of two classes, namely the control class and the experimental class. Based on the results of the data analysis, it can be concluded that there is an effect of the chain writing method on students' writing skill.

The results of the hypothesis test, shows that there was difference score there between the experimental class and the control class. The results of the independent sample test of the post-test were obtained in the experimental class and the control class as follows, the value F was 1.168. The Sig. was 0.284, the Sig. $0.284 > 0.05$, means the variance between the experimental class and the control class was homogeneous or the same. The t_{count} was 0.752, the df value was 62, and the Sig. (2-tailed) was 0.002. The Sig. (2-tailed) $0.002 < 0.05$. The mean difference was 1.719 and the standard error difference was 2.285. The difference was

between -2.849 and 6.287 (95% confidence interval of lower and upper difference). Based on the data above, it can be concluded that H_0 is rejected and H_a is accepted.

Based on the research results, there was a significant difference between the mean score post-test results in the experimental class and the control class. The results of the paired sample test were obtained in the experimental class as follows; the mean score was -7.344. The standard deviation was 9.244 and the standard error mean was 1.634. The difference was between -10.667 and -4.011 (95% Confidence Interval of Lower and Upper Difference). The t was -4.494 with df was 31 and the Sig. (2-tailed) was 0.000. The Sig. 0.000 < 0.05, it can be concluded that H_0 is rejected and H_a is accepted. Based on the data above, this shows that there is a difference in the results of the mean score between the pre-test and the post-test in the experimental class. Based on this statement, it can be concluded that there is an effect of the chain writing method on students' writing skill of eighth grade students.

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References

- Brown, K., & Hood, S. (1989). *Writing matters writing skill and strategies for students of English*. Cambridge University Press.
- Coe, N., Rycroft, R., & Ernest, P. (1983). *Writing skill a problem-solving approach for upper-intermediate and more advanced students*. Cambridge University Press.
- Gamal, A. H., Aruan, R., & Novitri. (2018). The effect of chain story in writing narrative text on the second year students of SMA Negeri 5 Pekanbaru. *Jurnal Online Mahasiswa Fakultas Keguruan dan Ilmu Pendidikan Universitas Riau*, 5(1), 1–9. <https://jom.unri.ac.id/index.php/-JOMFKIP/article/view/16964>
- Hand, B., Chen, Y., & Suh, J. K. (2021). Does a knowledge generation approach to learning benefit students? A systematic review of research on the science writing heuristic approach. *Educational Psychology Review*, 33(8), 535–577. <https://doi.org/10.1007/s10648-020-09550-0>
- Karim, S. A. (2021). Mapping the problems of indonesia's education system: Lessons learned from Finland. *TELL (Teaching of English Language and Literature Journal)*, 9(2), 86–100. <https://doi.org/10.30651/tell.v9i2.9368>
- Kim, S. G. (2020). Structural relations of language and cognitive skills, and topic knowledge to written composition: A test of the direct and indirect effects model of writing. *British Journal of Educational Psychology*, 90(4), 910–932. <https://doi.org/10.1111/bjep.12330>
- Ling, Z., Fang, Y., Li, X., Huang, Z., Lee, M., Memisevic, R., & Su, H. (2023). Deductive verification of chain-of-thought reasoning. *37th Conference on Neural Information Processing Systems (NeurIPS 2023)* (pp. 1–27). <https://doi.org/10.48550/arXiv.2306.03872>
- Ma'rufah, D. W., Muflihah., & Awaliyah, U. (2021). Need analysis on the writing skill: What do the students really need for writing course? *Tarling: Journal of Language Education*, 5(1), 51–70. <https://doi.org/10.24090/tarling.v5i1.4984>

- Mayasari, E., & Masruroh, S. N. (2024). The effect of using the chain writing method in teaching writing of analytical exposition text to Indonesian EFL learners. *International Journal of Studies on Humanities Social Science and Education*, 1(1), 1–6. <https://doi.org/10.54783/z10kg308>
- Montanero, M., & Madeira, M. (2019). Collaborative chain writing: Effects on the narrative competence of primary school students. *Journal for the Study of Education and Development*, 42(4), 915–951. <https://doi.org/10.1080/02103702.2019.1650464>
- Muxayyo, R. (2023). Developing students writing skill in teaching English. *Gospodarka I Innowacje*, 32(1), 192–195. https://www.gospodarkainnowacje.pl/index.php/issue_view_32/article/view/1092
- Najia, R. (2023). *Student's view regarding the use of chain writing for collaborative learning in English classroom* [Undergraduate thesis, Universitas Islam Negeri Maulana Malik Ibrahim]. Universitas Islam Negeri Maulana Malik Ibrahim Repository. <http://etheses.uin-malang.ac.id/54629/>
- Pakpahan, Y. S. (2021). The effect of using chain story technique in writing descriptive text for the grade students of SMP Negeri 14 Medan. *The Explora*, 7(1), 32–37. <https://doi.org/10.51622/explora.v7i1.520>
- Primasari, Y., Puspita, H., & Sutanti, N. (2021). The chain writing method in learning writing for Information Technology faculty students: The effectiveness. *Jares: Journal of Academic Research and Sciences*, 6(2), 49–58. <https://doi.org/10.35457/jares.v6i2.1631>
- Purwanto, A. S. Z. (2022). The effect of using chain writing method to teach writing recount text: A quasi-experimental research at Class X MIPA of MAN 5 Jombang. *EFL Education Journal*, 10(2), 14–24. <https://doi.org/10.19184/eej.v10i2.41780>
- Sari, T. D. (2018). *The implementation of chain writing method to increase students' ability writing narrative text at MTs Al-Muttaqin Padang Tualang Langkat*. [Undergraduate thesis, Universitas Islam Negeri Sumatera Utara Medan]. Universitas Islam Negeri Sumatera Utara Medan Repository. <http://repository.uinsu.ac.id/4159/>
- Sartika, E. (2014). *The effectiveness of round table technique to improve students' speaking skill in the first-grade students of SMA N 3 Salatiga in the academic year of 2013/2014*. [Unpublished undergraduate thesis, Sekolah Tinggi Agama Islam Negeri Salatiga]. Sekolah Tinggi Agama Islam Negeri Salatiga.
- Sotivoldievich, M. Z., Saidmamatovich, A. K., Ugli, K. N. H., & Ugli, A. A. A. (2024). Using the the confusion logic chain method in assessing students' knowledge. *International Journal of European Research Output*, 3(5), 165–174.
- Uktolseja, L. J., & Gaspersz, S. (2019). Implementation of chain story techniques to improve English speaking ability at Imanuel YPK Vocational High School, Sorong City. *Journal of Education and Learning*, 13(4), 490–497. <https://doi.org/10.11591/edulearn.v13i4.13327>
- Vanderheide, J., & Newell, G. E. (2013). Instructional chain as a method for examining the teaching and learning of argumentative writing in classrooms. *Written Communication*, 30(3), 300–329. <https://doi.org/10.1177/0741088313491713>
- Wahab, I., & Astri, Z. (2022). Students' interest in using semantic mapping technique in learning English writing ability. *JISSR*, 2(1), 68–71. <https://www.ojs.ycit.or.id/index.php/JISSR/article/view/19>
- Wahidiyati, I. (2020). The effectiveness of teachers' corrective feedback in enhancing students' ability to recount text writing. *JOEEL (Journal of English Education and*

- Literature*), 1(1), 1–10. <https://journal.stkippamanetalino.ac.id/index.php/bahasa-inggris/article/download/-24/22>
- Wang, X., Wei, J., Schuurmans, D., Le, Q., Chi, E. H., Narang, S., Chowdhery, A., & Zhou, D. (2023). Self-consistency improves chain of thought reasoning in language models. *Proceedings of International Conference on Learning Representations (ICLER) 2023* (pp. 1–24). <https://doi.org/10.48550/arXiv.2203.11171>
- Wei, J., Schuurmans, D., Chi, E. H., Le, Q. V., & Zhou, D. (2022). Chain of thought prompting elicits reasoning in large language models. *Proceedings of the 36th International Conference on Neural Information Processing Systems* (pp. 24824–24837). ACM Digital Library. <https://dl.acm.org/doi/10.5555/3600270.3602070>
- Wu, T., Jiang, E., Donsbach, A., & Cai, C. J. (2022). Prompt chainer: Chaining large language model prompts through visual programming. *Proceedings of CHI Conference on Human Factors in Computing Systems Extended Abstracts* (pp. 1–10). <https://doi.org/10.1145/3491101.3519729>