



Heterogeneous-Pairing Method in an Asynchronous Writing Classroom: Its Effects on Students' Writing Skills

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Abstract. Extensive research has been carried out on proficiency pairing in recent years. However, those studies mostly focused on unpacking the benefits of the homogeneous pairing method, and the effectiveness of the heterogeneous pairing method in asynchronous settings has received little attention. This study explored the effectiveness of the heterogeneous pairing method in an asynchronous EFL writing classroom. This study employed a one-group pretest-posttest design that examined the writing performance of the same (individual) students on the pre-test and the post-test. Eighty-four Indonesian university students were involved in this study. The participants were assigned to compose three descriptive paragraph writings in dyads and then individually completed the pre-test and post-test via Google Docs. The data was analyzed using a paired sample t-test to see the differences in students' writing performance in pre-test and post-test. The results revealed that there was a significant difference in the quality of writing of students in the pre-test and post-test. Furthermore, it was witnessed that both high achievers and low achievers improved much better in the mean scores of writing post-test performance after working asynchronously with their heterogeneous pairs, implying that the heterogeneous pairing method benefited both low achievers and high achievers. Implications and limitations for further research are explored after the discussion of the data.

Keywords: Heterogeneous-pairing method, Proficiency pairing, Heterogeneous pairs, High achievers, Low achievers, Asynchronous learning.

1 Introduction

A considerable literature has grown around the theme of collaborative writing (C.W.) in the last two decades [1, 2, 3] C.W. could reduce learners' writing anxiety during the collaborative writing phases [4]), affect students' L2 acquisition [5], and fostered learners' reflective thinking as they learned their peers' thinking strategies and writing styles during the collaboration [6]. It afforded the learners learning opportunities for target language use when they actively participated and assisted each other in writing [7].

Existing studies on C.W. have further explored variables that might influence learning opportunities and learning outcomes of C.W., such as task type [8], group size [9], group member selection [10], and L2 proficiency pairing [11, 12]. Concerning those variables, some researchers discovered that proficiency pairing differently

affected the students' writing opportunities and outcomes [13, 14]. For example, a study revealed that H-H pairing produced more L.R.E.s resolved correctly, followed by H-L and L-L [15]. Another study also suggested that highly proficient students had the most to gain when they formed a collaborative relationship with similar high-proficiency partners [16]. Additionally, a more recent study [17] documented that students from homogeneous pairing (H-H and L-L) acquired a higher mean score in the post-test than those from heterogeneous pairing.

On the contrary, numerous studies [18, 19] have reported that the heterogeneous pairing method outweighed the homogeneous pairing method in enhancing learners' writing skills. For instance, a study pointed out that low-ability students could acquire new knowledge from their higher-ability partners as they worked collaboratively. In contrast, high-ability students had ample opportunities to reinforce their learning by recalling information they had shared with their lower-ability partners during collaboration [20]. The other study [21] employed a causal-comparative design to explore the impact of homogenous and heterogeneous pairing methods on students' writing skills. In their study, 40 undergraduate students in Indonesia were assigned to compose three descriptive essays with their homogenous and heterogenous pairs. The findings showed that students produced a higher quality of writing after experiencing collaboration in the heterogenous pairing method than those from the homogenous pairing method. However, further results remarked that low achievers gained better writing performance in the post-test after collaborating with higher proficiency partners, whereas high achievers did not achieve significant improvement after experiencing collaboration with lower proficiency partners. In other words, the heterogeneous pairing method greatly influenced the low achievers' writing skills, not the high achievers.

As indicated in the literature reviewed above, collaborative writing based on proficiency levels has resulted in contradictory findings of the impact of proficiency pairings on the number of L.R.E.s resolved correctly [15], students' overall writing quality [16], and more specifically of which level of achievers benefited most from heterogeneous pairing method [21]. Prior studies have emphasized the benefits of homogeneous pairing, whereas other studies [17-19] focused on causal-comparative design (homogeneous vs. heterogeneous pairing). Scant research has been conducted solely on the heterogeneous pairing method's effect. Therefore, this study sought to elaborate on whether heterogeneous pairing contributed significantly to the writing quality improvement of a particular level of achiever (e.g., low achievers or high achievers) or whether the pairing method equally affected and benefited both high achievers and low achievers.

In an attempt to advance research on proficiency pairing, this current study was employed in an asynchronous writing classroom by utilizing Google Docs. The rationale was that most previous studies [13-21] were conducted in a face-to-face classroom setting, and little was known about how mixed-proficiency students collaborated in asynchronous learning settings. Scrutinizing mixed-proficiency students' performance in such a learning setting was helpful, particularly in the pandemic era where learning and teaching process has mainly shifted to virtual-based learning. Another reason was that there has been a growing development of computer-supported collaborative learning (CSCL) recently, for example, Google Docs that

could be utilized in an asynchronous class to enhance learners' writing ability and organizational skills [22]. Additionally, several studies pointed out that as a web-based collaboration tool in asynchronous settings, Google Docs provided flexibility to complete the task and learning opportunities when the students saw how their pairs wrote, edited, or revised the writing.

To conclude, this study's interest was rooted in theoretical and pedagogical considerations. Theoretically, this study would provide new insight into whether the heterogeneous pairing method could be extended to asynchronous learning mode (using Google Docs), not just in traditional face-to-face classroom instruction. Next, from a pedagogical perspective, this study might come up with empirical-based evidence on two aspects: (a) the effectiveness of the heterogeneous pairing method in an asynchronous writing classroom, particularly in uncovering, (b) the impact of heterogeneous pairing on high achievers and low achievers' writing skills. The findings in this regard were beneficial for writing teachers, particularly in F.L. settings, to establish pedagogical adjustments on C.W. activity for maximizing learning opportunities and outcomes for mixed-proficiency achievers. Thus, this study formulates two research questions: (1) Is there any significant difference in students' writing quality before and after collaborating in a heterogeneous pairing method in an asynchronous writing classroom? (2) Is there any significant difference in the writing quality of high and low achievers before and after collaborating in a heterogeneous pairing method in an asynchronous writing classroom?

2 Methods

This study was conducted in the English Department at a state university in Eastern Indonesia. This study employed One group pretest-posttest design involving two intact classes of Paragraph Writing in the academic year of 2020/2021 with 42 first-semester students in each class. The course aims to provide students with experience composing ideas into a good paragraph based on several genres, including descriptive. This study required meetings for each class via Zoom platform, and eight meetings included pre-test and post-test.

In the first meeting, the students were given a pre-test in which they were assigned to compose a descriptive paragraph individually. The pre-test result was used to pair the students heterogeneously (high-low). Students were classified as high achievers when their scores ranged from 75 to 100, whereas those who obtained scores between 50 and 75 were categorized as low achievers [21]. The compositions were marked by two raters (outside the researchers) with at least ten years of experience teaching English writing at the university level. The involvement of two raters was to avoid bias and increase this study's reliability.

Before marking the compositions, the raters were trained by one of the researchers to make them familiar with the writing rubric adopted in this study. The compositions were marked based on Hedgcock and Lefkowitz's (1992) rating scale that covered five components: content (30 points), organization (20 points), grammar (25 points), vocabulary (20 points), and mechanics (5 points).

The topic for the pre-test (meeting 1) was "Interesting Places in Your Hometown", whereas the topic for the post-test (meeting 8) was 'Favourite Traditional Food.' In weeks 2 to 6, the students were composed on three different topics collaboratively and received feedback from the teacher.

The students were required to write 180-220 words for each task. Because of internet connection problems, the time allocated to fulfill each writing task via Google Docs, including pre-test and post-test, was 2 hours.

A paired sample t-test was utilized to see the difference in the writing quality of students before and after collaborating in heterogeneous pairs in asynchronous learning (R.Q. 1) and to examine the difference in the writing quality of high achievers and low achievers before and after collaborating in heterogeneous pairs in asynchronous learning (R.Q. 2).

3 Findings

This section presents the findings of this study derived from two research questions that guided this investigation.

3.1. Differences in the writing quality of students before and after collaborating in heterogeneous pairing method in an asynchronous writing classroom

As table 1 displays, the pre-test's mean is 72.36, with a standard deviation of 8.19. Meanwhile, the mean score of the post-test after writing collaboratively in a heterogeneous pairing method is 75.27, with a standard deviation of 7.08. The scores indicate that students' writing performance improves in the post-test after working in heterogeneous pairs.

Table 1. Descriptive statistics of the pre-test and post-test in H.E.T. pairs

	Min	Max	N	Mean	SD
Pre-test Het	56	90	84	72.36	8.199
Post-test Het	58	91	84	75.27	7.083

Table 2 shows that the Sig. (2-tailed) is .000 (lower than level of significance 0.05). The result infers a significant difference between students' writing ability before and after they experienced pair collaboration with their heterogeneous partners.

Table 2. Paired sample t-test result of pre-test and post-test in H.E.T. pairs

	T	Sig. (2-tailed)
Pre-test Post-test	-12.078	.000

R.Q. 2. Difference in the writing quality of high achievers and low achievers before and after collaborating in heterogeneous pairing method in an asynchronous writing classroom

Two sets of paired sample t-tests were utilized to uncover the difference in the writing quality of high achievers and low achievers on the pre-test and post-test.

-Writing performance of high achievers

Table 3 remarks that the mean of the pre-test of high achievers is 79.50, with the standard deviation being 3.35, whereas the mean score of the post-test is 81.07 (SD= 3.39). The scores indicate the writing improvement of high achievers in the post-test after working with their lower-ability pairs.

Table 3. Descriptive statistics of the pre-test and post-test of high achievers

	Min	Max	N	Mean	SD
Pre-test HighAch	75	90	84	79.50	3.35
Post-test HighAch	76	91	84	81.07	3.39

Table 4 demonstrates that the Sig. (2-tailed) of the pre-test and post-test of high achievers is .002. This result is less than the significance level of 0.05, implying a significant difference in the writing quality of high achievers before and after experiencing collaboration with a lower-level partner.

Table 4. Paired sample t-test result of pre-test and post-test of high achievers

	T	Sig. (2-tailed)
Pre-test Post-test	-3.398	.002

-Writing performance of low achievers

As has been found in Table 5, the mean score for the low achievers' pre-test is 65.45, with a standard deviation of 4.52. Meanwhile, the mean score for the low achievers' post-test is 69.28, with a standard deviation 4.12. These results signify that low achievers achieve better writing performance on the post-test than on the pre-test. The findings further indicate that the low achievers improve writing quality after they experience pair collaboration with higher-ability partners.

Table 5. Descriptive statistics of the pre-test and post-test of low achievers

	Min	Max	N	Mean	SD
Pre-test LowAch	56	72	84	65.45	4.52
Post-test LowAch	59	74	84	69.28	4.12

As pointed out in Table 6, the Sig. (2-tailed) the pre-test and post-test of low achievers is .000. This result is less than the level of significance 0.05, implying a significant difference in the writing quality of low achievers before and after experiencing collaboration with their higher-ability partners.

Table 6. Paired sample t-test result of pre-test and post-test of low achievers

	T	Sig. (2-tailed)
Pre-test Post-test	-3.398	.000

4 Discussions

The first research question in this study is investigating whether there is a significant difference in students' writing development before and after experiencing collaborative writing in heterogeneous pairs. The result of the analysis (Table 1) pinpoints a significant difference in the students' pre-test and post-test scores, in which the students achieved better writing scores in the post-test after collaboration with their heterogeneous pairs. These findings are in line with previous findings on the impact of collaborative writing tasks on individuals' writing ability [19, 20, 21, 22, 23]

Concerning the second research question, the findings revealed two crucial points. First, high achievers acquire higher writing scores in the post-test than pre-test scores, as reported in Table 3. This finding reinforces an earlier study [18] that the heterogeneous pairing method significantly affected the high achievers' writing quality. However, this confronted previous findings [21], which discovered that high achievers' writing abilities were not significantly affected by the experience of writing heterogeneously with low-level partners.

Another interesting finding is that low-proficient students also gained higher scores on the post-test after collaborating in mixed-level pairs. This finding exposes that students with low proficiency levels benefit from working with high-level partners. Having experience working in heterogeneous pairs led the students to have better writing quality on the post-test, confirming earlier findings [20, 21], pointed out that heterogeneous pairing positively affected the low achievers' writing development. These findings also align with Johnson & Johnson's (2009) theory, stating that heterogeneous grouping is the effective grouping method for collaborative learning because such pairing allows high achievers to reinforce their prior knowledge when they share knowledge with their lower-ability peers. In contrast, the low achievers gain new knowledge from higher-ability partners during the collaboration. However, these findings confront earlier studies [20] that students might learn more comfortably with relatively equal proficiency peers and not comfortable working with higher proficiency peers due to hierarchy culture. In this regard, mutuality and equality affect the pairs' performance.

5 Conclusion and Recommendation

This study provides empirical evidence that students have better writing ability after experiencing pair collaboration with their heterogeneous pairs. The heterogeneous pairing method could optimally facilitate and maximize language learning for low and high-achievers. These findings can be an excellent resource for EFL teachers considering mixed pairing as they assign writing tasks to students because the heterogeneous pairing method benefits the high achievers and low achievers, as this study portrayed. Additionally, as witnessed in this study, students' mixed-collaboration in asynchronous classroom settings through Google Docs has indicated that C.W. could be extended from a face-to-face classroom to a virtual classroom setting.

However, this study has several limitations. First, it did not see closely the interaction process during the collaborative writing tasks. It is worthwhile for other researchers to investigate the collaboration process. It is also beneficial for future research to explore more detail the dynamics of heterogeneous pairing interaction during collaboration. By doing so, additional in-depth explanation can be added to this conclusion. The last suggestion is that the next researchers may investigate the effects of working in heterogeneous pairs on different genres because the present study focused only on one descriptive genre. It would be useful to compare the writing quality of heterogeneous pairing as they performed two different genres, providing additional explanation to this conclusion.

AUTHORS' CONTRIBUTIONS

All authors equally contributed to the development of the study. The authors read and approved the final manuscript.

REFERENCES

- [1] A. Dobao, Vocabulary learning in collaborative tasks: A comparison of pair and small group work, in: *Journal of Second Language Writing*, 2012, vol. 21 (4), pp. 40-58. DOI: <https://doi.org/10.1177/1362168813519730>
- [2] K. McDonough, J.D. Vleeschauwer, Comparing the effect of collaborative and individual prewriting on EFL learners' inwriting development, in: *System*, 2019, vol. 44, pp. 123-130. DOI: <https://doi.org/10.1016/j.jslw.2019.04.003>
- [3] K. McDonough, J.D. Vleeschauwer, Crawford, Comparing the quality of collaborative writing, collaborative prewriting, and individual texts in a Thai EFL context, in: *System*, 2018, vol. 74 (8), pp. 109-120. DOI: <https://doi.org/10.1016/j.system.2018.02.010>
- [4] K. McDonough, C.G. Fuentes, Writing to learn language: The effect of writing task on Colombian EFL learners' language use, in: *TESL Canada Journal*, 2015, vol.32(2), pp. 67-79. DOI: <https://doi.org/10.18806/tesl.v32i2.1208>
- [5] H. Neumann, K. McDonough, Exploring student interaction during collaborative prewriting discussions and its relationship to L2 writing, in: *Journal of Second Language Writing*, 2015, vol. 27, pp. 84-104. DOI: <http://dx.doi.org/10.1016/j.jslw.2014.09.009>

- [6] Y.M. Fung, Collaborative Writing Features, in: Regional Language Centre (RELC) Journal, 2010, vol. 41 (1), pp. 18-30. DOI: <https://doi.org/10.1177/0033688210362610>
- [7] A.F. Dobao, A.Blum, Collaborative writing in pairs and small groups: Learners' attitudes and perceptions, in: System, 2013, vol. 41 (4), pp. 365-378. DOI: <https://dx.doi.org/10.1016/j.system.2013.02.002>
- [8] M.P.G. Mayo, The effectiveness of two form-focused tasks in advanced EFL pedagogy, in: International Journal of Applied Linguistics, 2002, vol. 12, pp. 156-175. DOI: <https://dx.doi.org/10.1111/1473-4192.t01-1-00029>
- [9] A.F. Dobao, Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work, in: Journal of Second Language Writing, 2012, vol. 21, pp. 40-58. DOI: <https://doi.org/10.1016/j.jslw.2011.12.002>
- [10] S.H. Mozaffari, Comparing student-selected and teacher-assigned pairs on collaborative writing, in: Language Teaching Research, 2016, vol. 21(4), pp. 496-516. DOI: <https://doi.org/10.1177/13621688166641703>
- [11] P. Maftoon, N. Ghafoori, A comparative study of the effect of homogeneous and heterogeneous collaborative interaction on the development of EFL learners' writing skill, in: J. Appl. Linguist., 2009, vol. 2 (1), pp. 127-158, 2009. <https://www.sid.ir/FileServer/JE/1009720090406.pdf>
- [12] Y. Kim, K. McDonough, The effect of interlocutor proficiency on the collaborative dialogue between Korean as a second language learners, in: Language Teaching Research, 2008, vol.12, pp. 211-234 DOI: <https://doi.org/10.1177/1362168807086288>
- [13] F. Kuiken, I. Vedder, Collaborative Writing in L2: The Effect of Group Interaction on Text Quality, in: S. Ransdell & M. Barbier (Eds.), New directions for research in L2 Writing, Dordrecht, Kluwer, 2002, pp. 169-188. DOI: https://doi.org/10.1007/978-94-010-0363-6_9
- [14] M. Zamani, Cooperative learning: Homogeneous and heterogeneous grouping of Iranian EFL learners in a writing context, in: Cogent Educ.,2016, vol. 3, pp. 1-11. DOI: <https://doi.org/10.1080/2331186X.2016.1149959>
- [15] M.J. Leaser, Learner proficiency and focus on form during collaborative dialogue. Language Teaching Research, 2004, vol. 8, pp. 55-81. DOI: <https://doi.org/10.1191%2F1362168804lr134oa>
- [16] N. Storch, A. Aldosari, Pairing learners in pair work activity. Language Teaching Research, 2013, vol. 17 (4), pp. 166-185. DOI: <https://doi.org/10.1177/1362168812457530>
- [17] A. Susanti, A.U. Widiati, B.Y. Cahyono, The effect of proficiency pairings on EFL students'writing ability in genre-based approach context, in: International Journal of Evaluation and Research in Education, 2020, vol. 9(1), pp. 245-251. DOI: <http://doi.org/10.11591/ijere.v9i1.20439>
- [18] A.J. Kruse, Proceedings from CIED 500 Principle of Educational Research. The Benefits of Heterogeneous Groupings over Homogeneous Groupings. Minneapolis, University of Saint Thomas, 2011.

- [19] J. Cady, The Effects of Implementing Heterogeneous Writing Groups in a Fifth Grade Classroom, (Unpublished thesis). Rowan University, New Jersey, 2011. DOI: <https://rdw.rowan.edu/cgi/viewcontent.cgi?article=1264&context=etd>
- [20] S.O. Adodo, J.O. Agbayewa, Effect of homogenous and heterogeneous ability grouping class teaching on students' interest, attitude and achievement in integrated science, in: *International Journal of Psychology and Counselling*, 2011, vol. 3(3), pp. 48-54. DOI: <https://doi.org/10.5897/IJPC.9000013>
- [21] H. Fauziah, M. Latief, The effects of working in heterogeneous and homogeneous pairs on the students' writing skill, in: *Arab World English J.*, 2015, vol. 6 (2), pp. 174-188. DOI: <http://dx.doi.org/10.24093/awej/vol6no2.14>
- [22] A. Shehadeh, Effect and student perceptions of collaborative writing in L2. In: *Journal of Second Language Writing*, 2011, vol. 20 (3), pp. 286-305. DOI: <https://doi.org/10.1016/j.jslw.2011.05.010>
- [23] I. Villareal, N. Gil-Sarratea, The effect of collaborative writing in an EFL secondary setting, in *Language Teaching Research*, 2019. DOI: <https://doi.org/10.1177/1362168819829017>

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