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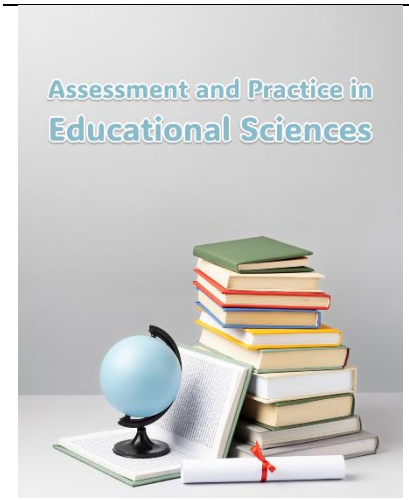

Exploration of the Emerging Patterns of EFL Learners' Written Languaging and Their Effect on Writing Accuracy

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ABSTRACT

This study aims at exploring the effects of written languaging about the reformulation provided on draft essays written by 22 Iranian learners of English during a three-stage task and within a pre-test-treatment-post-test design. The effect of the type (grammar-based vs. lexis-based) of written languaging was assessed by subsequent text revision. Three major findings emerged. First, written languaging about reformulation on linguistic errors in the first essay helped learners successfully correct these errors during immediate revision. Second, three categories were identified in participants' produced languaging episodes. Third, both lexis- and grammar-based written languaging were associated with improved accuracy. These findings appear to support Swain's (2006) claim that providing learners with the opportunity to language about or reflect on their developing linguistic knowledge in the course of L2 learning mediates L2 learning and development. Theoretical and pedagogical implications are also discussed.

Keywords: languaging, L2 writing, reformulation, revision, lexis, grammar

Introduction

Language functions not only as a means of communication but also as a powerful cognitive tool that enables individuals to reflect on, construct, and reorganize their knowledge. Building on Vygotskian sociocultural theory, Swain's notion of *languaging* emphasizes that verbalizing one's thoughts—whether orally or in written form—mediates cognitive activity and supports learning processes (1). Within the field of second language acquisition (SLA), languaging has attracted considerable scholarly attention, particularly for its role in scaffolding learners' understanding of linguistic concepts and facilitating

metalinguistic reflection (2, 3). While earlier research on languaging focused predominantly on oral modes such as collaborative dialogue and private speech (4-6), a growing body of work highlights the pedagogical potential of written languaging (WL), especially in L2 writing contexts (7, 8).

The concept of written languaging refers to learners' self-explanations, reflections, or annotations that make explicit their thought processes while engaging with written texts. Scholars argue that WL affords learners greater time for reflection than oral languaging and leaves a permanent record of their thought processes, thereby creating favorable conditions for deeper language learning (9). Empirical research has increasingly examined whether WL can contribute to improved linguistic accuracy and awareness. For example, Suzuki's pioneering studies demonstrated that engaging with WL while revising texts enhanced L2 learners' grammatical and lexical accuracy (9, 10). Ishikawa similarly found that WL could lead to improved performance in subsequent writing tasks, suggesting its facilitative impact on learners' metalinguistic awareness and revision practices (11).

Recent scholarship has expanded the scope of WL inquiry to explore mediating factors and learner variables. Ishikawa and Suzuki (2023), for instance, examined the extent to which language aptitude influenced the benefits of WL and concluded that the explicit nature of WL could partially neutralize aptitude differences, thereby making its benefits more widely accessible to learners (12). Similarly, Yang (2016) observed that WL enabled Chinese EFL learners to notice and articulate language forms during story-rewriting tasks, which facilitated both noticing and internalization of linguistic features (13). Such findings strengthen Swain's theoretical claim that languaging provides learners with opportunities to transform input into intake by promoting conscious reflection (1).

Another important pedagogical context in which WL has been explored is corrective feedback, particularly reformulation. Reformulation—providing learners with a native-like rewriting of their texts without altering meaning—has been identified as a promising form of feedback that draws learners' attention to discrepancies between their interlanguage and target-like forms (14). When coupled with WL, reformulation can encourage learners to analyze errors, generate hypotheses about language use, and internalize more accurate forms (15). Empirical studies demonstrate that learners who engaged in WL alongside feedback, such as dictogloss tasks or reformulation, achieved greater gains in accuracy than those who received feedback alone (15).

Meta-analytical reviews provide additional support for the facilitative role of WL in SLA. Niu and Li (2017), synthesizing a decade of research, emphasized that WL contributes to deeper processing of written corrective feedback, thereby enhancing language accuracy and retention (16). Ammar and Hassan (2017) likewise reported that collaborative dialogue, a form of oral languaging, significantly promoted L2 learning outcomes (17). These findings underscore that the mechanisms underlying oral languaging—such as hypothesis testing, noticing, and metacognitive reflection—are similarly applicable to WL contexts.

The cognitive and sociocultural dimensions of WL have been further illuminated by microgenetic studies. For example, Storch and Wigglesworth (2010) examined learners' written processing of corrective feedback and observed that WL mediated uptake and retention of linguistic forms (18). Likewise, Brooks et al. (2010) documented how WL mediated the internalization of both scientific and spontaneous concepts, providing evidence of its role in bridging everyday and academic language learning (2). The evidence from such studies affirms that WL is not a peripheral phenomenon but a central mediating process in L2 development.

Nevertheless, some studies caution against assuming a uniform effect of WL across learners and contexts. Storch (2008), for instance, showed that the quality and depth of metatalk (a related construct to WL) varied significantly depending on learners' engagement levels (19). Similarly, learner affective variables, such as anxiety, motivation, and self-efficacy, play a role in determining how effectively learners engage in WL. Research by Sun, Motevalli, and Chan (2024) highlighted the impact of writing anxiety on learners' engagement with the writing process, suggesting that high anxiety may hinder the extent

to which learners benefit from reflective practices like WL (20). Xu and Wang (2024) also demonstrated that academic buoyancy and emotions significantly influence learners' self-regulated learning strategies in L2 writing classrooms, implying that WL effectiveness is partly contingent on broader learner dispositions (21).

In addition to psychological factors, institutional and technological contexts shape how WL can be integrated into pedagogy. Research in Iranian EFL contexts has shown that systemic limitations in language instruction—such as insufficient writing practice and reliance on traditional grammar-translation methods—pose barriers to effective writing development (22). To overcome such challenges, pedagogical interventions such as WL and reformulation are considered promising alternatives. For example, Azimian, Rouhi, and Jafarigohar (2023) demonstrated that WL in response to reformulation improved Iranian EFL learners' writing accuracy at both lexical and grammatical levels (23). Complementing this line of research, Salajegheh and Hassani (2023) emphasized the role of technology-enhanced environments in supporting learners' writing skills, suggesting that online platforms may provide new opportunities for implementing WL tasks (24).

Corrective feedback remains a central pedagogical domain where WL has practical implications. Rafizade Tafti, Rahimi Esfahani, and Shafiee (2023) explored the role of audio corrective feedback in Iranian EFL learners' writing and found that such multimodal feedback enhanced writing at both micro and macro levels (25). These findings suggest that WL may complement other forms of corrective feedback, offering learners additional opportunities for reflection and error analysis. Taken together, the body of research points toward a converging consensus: WL, whether combined with reformulation, direct correction, or technology-enhanced feedback, significantly contributes to L2 writing development by encouraging active engagement with linguistic forms.

At the theoretical level, scholars have debated whether WL primarily benefits grammatical accuracy or lexical development. Suzuki (2012) argued that explicit corrective feedback paired with WL tends to foster grammatical accuracy, while implicit feedback methods such as reformulation may promote lexical development (9). However, findings remain mixed. The current study contributes to this debate by examining whether grammar- and lexis-based WL episodes differentially affect revision outcomes, building on prior findings that both types can improve accuracy (11, 15).

Despite the promising findings, gaps remain in understanding the full scope of WL's pedagogical implications. First, many studies have been conducted in controlled settings with limited sample sizes, raising questions about ecological validity (7). Second, while WL has been linked to improved revision accuracy, its long-term impact on writing development and transferability across tasks remains less understood (8). Third, questions persist about learner variability: for example, why some learners engage more actively and effectively in WL than others (19). These gaps underscore the need for continued empirical inquiry into WL's mechanisms, outcomes, and optimal implementation conditions.

The present study responds to this need by examining how Iranian EFL learners engage in WL in response to reformulation and how different types of WL episodes influence immediate revision outcomes.

Methods and Materials

The participants of the present study consist of 22 Iranian university students enrolled in the course Basic English Writing at Payame Noor university, Ardabil branch during the 1st and 2nd semesters of the academic year 2019_2020. Originally, they formed one group of the main study consisting of 66 participants of which part of the findings is already published. All the participants were female and aged 18_24 years. The homogeneity of the participants in terms of their language proficiency was determined by administering Oxford Placement test. Only the participants scoring at intermediate level (47 out of 70) were included in the study. They used to study English for at least 7 years at school before entering the university. The instructions and treatment as well as data collection were conducted during the regular classes they attended (one session a week). All the

participants were asked to sign a typed consent form on the first session. Since the classes were taught by the first author, the process of treatment and data collection was performed by the same researcher.

Test of English proficiency

Oxford Placement Test possessing a high degree of reliability (α=0.9) was chosen to ensure the homogeneity of the participants in terms of the language proficiency. The three sections of the test were as follows: 45 items of grammar and vocabulary, 10 items of reading comprehension and writing a short letter.

Writing prompt

One composition and a revision of the composition were written by individual participants which were based on a writing prompt selected from a course book published as the preparation book for the writing section of IELTS (Panahi, 2016:238). The prompt was "People attend college or university for many different reasons (for example, new experiences, career preparation, and increased knowledge). Why do you think people attend college or university? Use specific reasons and examples to support your answer". The justification for selecting the prompt was that the first author used to apply such topics in his classes of writing courses in which students of similar proficiency level had no difficulty writing on such writing prompts.

Languaging prompt

The participants received a languaging prompt on the second session once they received their reformulated writings. The prompt was written in Persian, the language used for formal instruction in Iran. The English translation of the prompt is "Your original writing has been reformulated. Please study the reformulated text carefully and compare it with your own writing and try to detect any changes made in your writing such as changing made in vocabulary and grammatical forms like third singular s, plural s, articles, and etc. Then, on the extra sheet of paper provided, write the reasons for which you believe some part of your text has been changed".

The study lasted for two sessions. On their first session, the participants were asked to write a short essay, in 30 min, based on a writing prompt (described above). At the end of the time allotted, the participants' sheets were collected and before correcting the essays an extra copy were made of them. Then, the essays were reformulated by the researcher. The procedure followed in reformulating the participants' writings was derived from the procedures provided by Cohen (1983) and Thornbury (1997); i.e., rewriting and typing the whole composition sentence by sentence without changing the original ideas and content to make it as native-like and error-free as possible. The corrections were done in two aspects: choice of vocabulary and grammatical accuracy. On the second session (one week later), the participants were provided with their original essays along with a reformulation of their essays which was typed. They were instructed to compare the two versions in order to notice the differences and to identify their errors. As an example, consider one participant's written languaging episode (WLE) on a reformulation of her sentence:

Example 1: *lexis-based WLE*

The original sentence "… it can be followed by a new changes in many surfaces…"

The reformulated sentence "… it can also be followed by a new change in many aspects…"

Written languaging episode: "I thought the words surface and aspect to have the same meaning. But it is not like that. They can have the same meaning in Persian, but not in English. Surface means outer part of an object but aspect means one part of a situation, idea, plan, etc. that has many parts."

The revised sentence "… It can also be followed by a new change in many aspects such as the changes in life style, behavior, ideas, plans, and so on."

Example 2: *grammar-based WLE*

The original sentence "… They are not basic ones…"

The reformulated sentence "… They are not the basic ones…"

Written languaging episode: "in my opinion, basic ones is pointing to a specific thing so we should add the article the"

The revised sentence: "They are not the basic ones"

Once the participants did their comparison, they were asked to perform a written languaging task during which they were instructed to explain to themselves and write down their self-explanations on a separate piece of paper (in Persian); i.e., their reasons for the noticed errors in their writings. They were also asked to write down the linguistic forms (both lexis and grammar) that they had recognized as errors although they did not know the exact reasons. The sheets containing the participants' comments and explanations were collected and then, they were given their original essays and were asked to revise their writing and rewrite their original composition.

Findings and Results

The first research question concerned the extent to which participants engaged in languaging in response to reformulation of an essay. To answer the question, we examined the occurrence of language-related episodes produced by the participants and here we call them written languaging episodes (WLE). Three patterns were identified in the analysis of the WLEs; namely, lexis WLEs, grammar WLEs and don't know. Table 1 illustrates how frequently the participants produced each WLE type. As can be seen, of total 386 WLEs, 243 (63%) were concerned with grammar, 126 (33%) with lexis, and only 17 (4%) remained to fall into the category of don't know type. The most frequently produced type of WLEs was the grammar type accounting for about two thirds of all the WLEs produced.

Table 1 Categories and frequency of written languaging episodes (WLE)

	N	%	Average
Grammar	243	63	11.04
Lexis	126	33	5.77
Don't know	17	4	0.8
Total	386	100	_

A one-sample chi-square test was conducted to assess the extent to which participants produced lexis WLEs, grammar WLEs, or don't know WLEs when asked to reflect on the reformulations of their writings. The result of the test was significant χ^2 (2, N = 387) = 142.7, p<.00, with a medium effect size (ϕ = .36). The test result revealed significant differences in the frequency of WLE types. Subsequently, to evaluate the points of the difference between the proportions, the follow-up pairwise comparisons were conducted. The results indicated two significant differences: a) between grammar WLEs and don't know WLEs, with a large effect size (ϕ=0.43); b) between lexis and don't know WLEs, with a large effect size (ϕ=0.44). The pairwise comparison between the grammar and lexis WLE types was not significant.

The second research question dealt with the improvement of the participants' performance across their original and subsequent writings and whether engaging in written languaging preceded by the comparison of their writing with its reformulation had any positive effect on the number of errors they were likely to commit during the revision of their writing. Accordingly, we counted the number of the words, sentences, and errors of each participant on their original and revised essays as shown in Table 2. Subsequently, based on the obtained data, the average number of normalized errors on their first and second performance was calculated as reported in Table 3. The procedure for calculating the normalized error scores is derived from Suzuki (2009, 2012) according to the following formula:

$$\textit{The normalized error score} = \frac{\text{the number of errors in a composition}}{\text{the number of the words in a composition}} \times \text{the average number of the words in the group}$$

Based on this formula, first the number of errors in a composition is divided by the number of the words in a composition; then, it is multiplied by the average number of the words in all compositions of the group. Hence, to obtain a normalized error score for each participant, the number of the words and errors produced by each participant were recorded per composition; then, the average number of the words for the whole group was calculated and, finally, the normalized error score was obtained by using the above mentioned formula.

To assess the difference between the two performances of the participants, the non-parametric test of Wilcoxon signed rank test was used. The reasons for choosing this test are as follows. First, two sets of scores were obtained from the same group. Second, the test that is generally used to compare the scores of a group of a normal sample size (N=30) is paired sample t-test. However, in conditions like our study where the number of the participants are below 30 an equivalent non-parametric test of Wilcoxon signed rank test is used.

To compare the performance of the participants across their two writings and to assess the probable improvement in their writing accuracy, a Wilcoxon singed rank test was conducted on the participants' obtained normalized error scores. The results revealed a significant difference between the participants' error scores of their original and revised compositions, z = - 4.109, p = 0.00. As shown in Table 4, normalized scores obtained in the revised compositions (M = 4.92) were quite lower than those for the original compositions (M = 16.00). This indicates a significant decline concerning the number of errors from the pre-test to the post-test.

Table 2. Average number of the words and errors produced by the participants

	First essay	Second essay
Average number of words	190	185
Average number of errors	15.47	4.11

Table 3. Average number of the normalized error scores (NES)

	First essay	Second essay
Average number of NES (SD)	16.00(4.73)	4.92(3.24)

Another research question concerns whether written languaging in response to reformulation of their writings in the first essay had differential effects on the successful incorporation of different areas of language into immediate revision. To answer this question, the frequencies and percentages of the learners' incorporation of each of the three WLEs types were calculated and compared. Of the total number of grammar WLEs (*n*=243), 222 (91.3%) led to successful incorporation and 21 (8.7%) led to unsuccessful incorporation. Of all lexis WLEs (*n*=126), 115 (94.3%) led to successful incorporation, and 11 (5.7%) led to unsuccessful incorporation. Due to the very small number of the occurrence of don't know category, they were excluded in this analysis. The results are presented in Table 3. Altogether, it seems that WLEs being either grammar or lexis types resulted in a high level of successful incorporation.

Table 4. Incorporation of the WLE types by the learners in their revision

	Successful Incorporation	Unsuccessful Incorporation	Total
WLE types			
Grammar	222	21	243
Lexis	115	11	126

A two-way contingency table analysis was conducted to evaluate whether incorporation of WLEs into subsequent revision corresponded more to lexis or grammar. Type of WLEs and type of revisions were found to be significantly related, Pearson $\chi 2$ (2, N = 243) = *0.0002*, p = .05*).* The proportions of lexis WLEs and grammar WLEs which were successfully incorporated into subsequent revision were .94, .91, respectively.

In summary, these results suggest that if the participants reflected on grammatical and lexical features, those features tended to be more successfully incorporated into subsequent revision than those which the participants were unable to reflect on.

Discussion and Conclusion

The present study aimed to examine the role of written languaging (WL) in response to reformulation and its impact on Iranian EFL learners' writing accuracy. The results demonstrated three major findings. First, participants engaged actively in WL, producing a considerable number of written languaging episodes (WLEs) predominantly focused on grammar, followed by lexis, with minimal instances of "don't know" episodes. Second, engaging in WL significantly reduced error rates in learners' subsequent compositions, suggesting that WL supported improved accuracy. Third, both grammar-based and lexis-based WLEs were associated with a high level of successful incorporation into learners' revisions, with no statistically significant differences between the two categories. These findings not only reaffirm the theoretical significance of WL as a mediational tool in second language (L2) development but also extend empirical support for its practical applications in L2 writing pedagogy.

The high proportion of grammar-related WLEs reflects learners' heightened sensitivity to grammatical features when prompted to engage in WL. This result aligns with previous studies reporting that learners frequently focus on grammatical structures when revising or receiving feedback (9, 15). Suzuki's work showed that WL in response to direct corrective feedback significantly enhanced grammatical accuracy, whereas reformulation often triggered lexical noticing. Interestingly, in our study, reformulation still led to a majority of grammar-related WLEs, suggesting that learners actively noticed structural features even in an implicit feedback context. This contrasts with Suzuki's (2012) proposition that reformulation primarily benefits lexical development, pointing instead to the flexibility of WL as a mediational mechanism across language domains. Similar to Ishikawa's (2013) findings, learners in our study displayed the ability to generate meaningful metalinguistic reflections that translated into accurate revisions, supporting the broader claim that WL fosters noticing and hypothesis testing (11).

The significant decline in error rates between original and revised essays highlights WL's potential to mediate immediate improvements in accuracy. This result resonates with findings by Azimian et al. (2023), who demonstrated that WL combined with reformulation significantly enhanced both lexical and grammatical accuracy among Iranian EFL learners (23). Similarly, Moradian et al. (2015) reported that learners who engaged in WL alongside direct written corrective feedback (DWCF) achieved greater gains in revision accuracy compared to learners who received DWCF alone (15). Together, these findings affirm Swain's claim that languaging provides learners with opportunities to process language deeply and convert input into intake by reflecting on linguistic problems (1). From a sociocultural theory (SCT) perspective, WL facilitated learners' transition from other-regulation to self-regulation by scaffolding their internalization of linguistic knowledge (2, 3).

Another key result of this study is that both grammar- and lexis-based WLEs were equally effective in leading to successful incorporation into revision. More than 90% of WLEs, regardless of type, were reflected in accurate revisions, suggesting that WL serves as a robust mediational tool across language domains. This outcome parallels findings by Adams (2003), who reported that both lexical and grammatical noticing episodes could be successfully incorporated into learners' revisions. It also resonates with Yang's (2016) observation that learners engaging in WL during story-rewriting tasks were able to notice and

apply both lexical and grammatical forms (13). In this sense, WL functions not merely as an error-focused activity but as a broader strategy for fostering metalinguistic awareness and hypothesis testing across domains.

The study's findings add to the growing body of literature that situates WL as a critical component of writing-to-learn frameworks. Manchón (2011) argued that writing tasks create conditions for learners to generate, test, and consolidate linguistic knowledge (7). Williams (2012) similarly underscored the role of writing in facilitating second language development through opportunities for self-reflection and revision (8). The present results reinforce these theoretical perspectives by showing that WL, as a form of writing-to-learn, fosters deeper processing of linguistic features that ultimately translate into improved accuracy. Moreover, the equal effectiveness of grammar- and lexis-based WLEs provides evidence that WL contributes broadly to linguistic development rather than privileging one area of language over another.

These findings also contribute to ongoing discussions about the relationship between WL and learner variables. Ishikawa and Suzuki (2023) found that aptitude moderated learners' engagement in WL, but its effect was partially neutralized due to the explicit nature of WL (12). In our study, the strong effectiveness of WL across participants suggests that WL tasks may indeed help mitigate differences in learner aptitude by providing structured opportunities for metalinguistic reflection. At the same time, affective factors such as writing anxiety must be considered. Sun, Motevalli, and Chan (2024) showed that writing anxiety negatively influenced learners' engagement with writing processes (20), while Xu and Wang (2024) highlighted the role of emotions and academic buoyancy in shaping learners' self-regulation strategies (21). Although our study did not directly measure affective factors, the positive outcomes indicate that WL tasks may help reduce cognitive load and provide learners with confidence in tackling linguistic challenges, thereby supporting emotional resilience in writing.

The integration of WL with reformulation as a corrective feedback strategy is another critical implication. Lázaro-Ibarrola (2013) emphasized that reformulation allows learners to notice differences between their output and native-like forms, promoting awareness and accuracy (14). When combined with WL, as in our study, reformulation does not remain a passive form of feedback but becomes an active cognitive process where learners articulate reasons for changes, compare linguistic forms, and revise accordingly. This interactive dimension of WL distinguishes it from traditional corrective feedback, which often leaves learners uncertain about the rationale behind corrections. The current findings, consistent with Rafizade Tafti et al. (2023), suggest that WL complements other feedback modalities, such as audio corrective feedback, by extending opportunities for reflection and incorporation (25).

The technological and contextual dimensions of WL also warrant attention. As Salajegheh and Hassani (2023) noted, technology-enhanced learning environments facilitate learners' opportunities for reflective writing (24). In contexts like Iran, where systemic barriers such as limited practice opportunities hinder effective L2 writing development, WL can serve as a low-cost, pedagogically feasible intervention (22). Importantly, the results of this study extend these insights by showing that even in non-technologically mediated classroom contexts, WL combined with reformulation can produce measurable improvements in accuracy. Thus, WL is not only adaptable to modern digital platforms but also applicable in traditional EFL classrooms.

Taken together, the present study's results contribute to the theoretical, empirical, and pedagogical literature on WL and L2 writing. By demonstrating that WL fosters active noticing, hypothesis testing, and incorporation of linguistic features across grammatical and lexical domains, this study provides strong evidence of its value in promoting writing accuracy. The findings confirm that WL is not merely an auxiliary activity but a central mechanism of language learning, supporting Swain's (2009, 2013) assertion that languaging constitutes a fundamental process of making meaning and mediating learning (1, 4).

Despite the promising findings, this study has several limitations that should be acknowledged. First, the sample size was relatively small (22 participants), which restricts the generalizability of the results. Larger and more diverse samples across different educational contexts would be needed to confirm the robustness of these findings. Second, the study employed a short-

term pre-test–post-test design, which captures immediate effects but not long-term retention or transfer of learning. Future studies should include delayed post-tests to assess whether the observed improvements in accuracy persist over time. Third, while this study focused on WL in response to reformulation, it did not explore learners' affective or cognitive load factors, which may influence engagement and outcomes. Variables such as motivation, anxiety, and writing self-efficacy could have impacted learners' performance but were not directly measured. Lastly, the study was conducted in a single institutional context in Iran, which may limit its applicability to other cultural and educational settings where instructional practices and learner expectations differ.

Future research should expand on the present findings in several directions. First, longitudinal studies are needed to investigate the durability of WL effects and their impact on learners' long-term writing development. Such studies could explore whether consistent engagement in WL leads to sustained improvements in grammatical and lexical accuracy. Second, cross-contextual studies should be conducted in diverse EFL and ESL settings to examine whether the effects of WL are influenced by institutional, cultural, or technological factors. Third, future research should explore the interaction between WL and learner variables such as aptitude, motivation, and anxiety, building on recent studies that highlight the importance of affective and cognitive dimensions in shaping WL engagement. Finally, experimental studies comparing WL with other feedback-enhanced learning strategies, such as peer review, audio feedback, or AI-assisted feedback, could provide insights into the relative effectiveness of different pedagogical interventions.

From a pedagogical perspective, the results of this study highlight the importance of integrating WL into L2 writing classrooms. Teachers are encouraged to incorporate WL tasks alongside feedback methods such as reformulation, direct correction, or audio feedback to promote learners' metalinguistic awareness and accuracy. WL can be used flexibly, either in traditional classrooms or in technology-enhanced environments, making it accessible across diverse contexts. Teachers should also encourage learners to produce both grammar- and lexis-focused reflections, since both types of WLEs proved equally beneficial in this study. Finally, educators should foster an environment where learners view WL not as a remedial activity but as an active learning strategy that empowers them to take responsibility for their linguistic development. By making WL a regular component of writing pedagogy, practitioners can help learners internalize more accurate language forms and develop greater confidence in their writing abilities.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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References

1. Swain M, Watanabe Y. Languaging: Collaborative dialogue as a source of second language learning. In: Swain M, editor. The encyclopedia of applied linguistics: Hoboken, NJ: Blackwell; 2013.
2. Brooks L, Swain M, Lapkin S, Knouzi I. Mediating between scientific and spontaneous concepts through languaging. Language Awareness. 2010;19(2):89-110. doi: 10.1080/09658410903440755.
3. Knouzi I, Swain M, Lapkin S, Brooks L. Self-scaffolding mediated by languaging: microgenetic analysis of high and low performers. International Journal of Applied Linguistics. 2010;20(1):23-49. doi: 10.1111/j.1473-4192.2009.00227.x.
4. Swain M, Lapkin S, Knouzi I, Suzuki W, Brooks L. Languaging: University students learn the grammatical concept of voice in French. The Modern Language Journal. 2009;93(1):5-29. doi: 10.1111/j.1540-4781.2009.00825.x.
5. Yoshida R. Functions of repetition in learners' private speech in Japanese language classrooms. Language Awareness. 2008;17:289-306. doi: 10.1080/09658410802146909.
6. Lee J. Gesture and private speech in second language acquisition. Studies in Second Language Acquisition. 2008;30:169-90. doi: 10.1017/S0272263108080303.
7. Manchón RM. Writing to learn the language: Issues in theory and research. In: Manchón RM, editor. Learning-to-write and writing-to-learn in an additional language: Amsterdam: John Benjamins; 2011. p. 61-82.
8. Williams J. The role(s) of writing and writing instruction in L2 development. Journal of Second Language Writing. 2012;21:321-31. doi: 10.1016/j.jslw.2012.09.007.
9. Suzuki W. Written Languaging, Direct Correction, and Second Language Writing Revision. Language Learning. 2012;62(4):1110-33. doi: 10.1111/j.1467-9922.2012.00720.x.
10. Suzuki W. Improving Japanese university students' second language writing accuracy: Effects of languaging. Annual Review of English Language Education in Japan. 2009;20:81-90. doi: 10.20581/arele.20.0_81.
11. Ishikawa M. Examining the effect of written languaging: the role of metanotes as a mediator of second language learning. Language Awareness. 2013;22(3):220-33. doi: 10.1080/09658416.2012.683435.
12. Ishikawa M, Suzuki W. Effects of written languaging on second language learning: Mediating roles of aptitude. The Modern Language Journal. 2023;107:95-112. doi: 10.1111/modl.12817.
13. Yang L. Languaging in story rewriting tasks by Chinese EFL students. Language Awareness. 2016;25:241-55. doi: 10.1080/09658416.2016.1197230.
14. Lázaro-Ibarrola A. Reformulation and Self-correction: Insights into correction strategies for EFL writing in a school context. Vigo International Journal of Applied Linguistics. 2013;10:29-49.
15. Moradian MR, Miri M, Hossein Nasab M. Contribution of written languaging to enhancing the efficiency of written corrective feedback. International Journal of Applied Linguistics. 2015;27(2):406-26. doi: 10.1111/ijal.12138.
16. Niu R, Li L. A review of studies on languaging and second language learning (2006-2017). Theory and Practice in Language Studies. 2017;7(12):1222-8. doi: 10.17507/tpls.0712.08.
17. Ammar A, Hassan RM. Talking it through: Collaborative dialogue and second language learning. Language Learning. 2017;68:46-82. doi: 10.1111/lang.12254.

18. Storch N, Wigglesworth G. Learners' processing, uptake and retention of corrective feedback on writing. Studies in Second Language Acquisition. 2010;32:303-34. doi: 10.1017/S0272263109990532.

19. Storch N. Metatalk in a pair work activity: Level of engagement and implications for language development. Language Awareness. 2008;17(2):95-114. doi: 10.1080/09658410802146644.

20. Sun J, Motevalli S, Chan NN. Exploring Writing Anxiety during Writing Process: An Analysis of Perceptions in Chinese English as a Foreign Language (EFL) Learners. Qualitative Research in Education. 2024:1-16. doi: 10.17583/qre.12938.

21. Xu J, Wang Y. The impact of academic buoyancy and emotions on university students' self-regulated learning strategies in L2 writing classrooms. Reading and Writing. 2024;37(1):49-67. doi: 10.1007/s11145-023-10411-9.

22. Faramarzi Babadi S, Eskandari Asl HA, Dolatyari F, Alipoor H. Limitations of English Language Learning in Universities of Chaharmahal and Bakhtiari Province and Strategies to Overcome Them. Iranian Journal of Educational Sociology. 2024;7(1):124-32. doi: 10.61838/kman.ijes.7.1.12.

23. Azimian E, Rouhi A, Jafarigohar M. Written languaging, reformulation and EFL learners' writing accuracy. Porta Linguarum. 2023;40(2):75-91. doi: 10.30827/portalin.vi40.23981.

24. Salajegheh N, Hassani S. The effect of technology and online learning on EFL learners' writing skills and self-concept. Journal of New Perspectives in English Language Learning. 2023:65-76.

25. Rafizade Tafti MR, Rahimi Esfahani F, Shafiee S. The Impact of Audio Corrective Feedback on Iranian EFL Learners' Writing Improvement at Micro and Macro levels: Static and Dynamic Assessment in Focus. iase-idje. 2023;6(3):204-15. doi: 10.61186/ijes.6.3.204.