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The effectiveness of revision without access to corrections on learning development

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Abstract

Revision following feedback can lead to pushed output (Shintani, Ellis, & Suzuki, 2014), which helps learners to notice grammatical forms that they might otherwise not attend to (Swain, 1995). However, there have been no studies investigating the effectiveness of revision in promoting learning development when learners cannot refer back to the feedback. To address this gap, this study used a pre-test, treatment, post-test, and delayed post-test design to examine the effectiveness of revision groups who do not have access to the feedback (direct CF plus revision, metalinguistic explanation plus revision) compared to non-revision groups (direct CF, metalinguistic explanation) on a complex linguistic structure, the English simple passive voice. A hundred EFL learners performed three writing tasks. The findings revealed that the non-revision groups had greater accuracy in the immediate post-test, but that the accuracy of the revision groups was retained over a longer period of time. The results suggest that revision without access to corrections can be an effective way to improve learners' accuracy in the long term. Furthermore, it provides insights into the cognitive processes involved in revision, suggesting that learners who revise without access to corrections are more likely to engage in deep processing of the feedback.

Keywords: second language writing, writing, written corrective feedback, revision, learning development

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1. Introduction

Revision of a text can play a pivotal role in the development and refinement of language skills. Encouraging learners to revise their work fosters learning by enabling them to automate the production of correct words or phrases (Loewen, 2004). When learners revise their text without access to the feedback they previously received, they must retrieve information from their long-term memory, which helps to facilitate the consolidation of L2 knowledge. In addition, revision can also be seen as a skill-learning activity because modifying output by revising and correcting an initial draft can provide the practice needed to proceduralize explicit knowledge (Frear, 2012).

Although revision may facilitate L2 development, Truscott (2007) argued that a learners' improvement in producing an accurate revision of a text does not mean that they are able to produce these target forms in a new piece of writing. Trucott's claim may be true because there is a distinction between revision and writing a new text. In revision, learners are generally only required to focus on and revise the errors in the same linguistic context while in writing a new text, learners may be required to undertake deep processing and focus both on form and meaning in a new linguistic context. This is especially so when learners are provided with a type of written corrective feedback (e.g., direct CF) where they only need to copy the correct form in the revised text. Thus, more research is needed to determine whether revision leads to improved accuracy in new texts, especially revision following feedback when learners do not have access to the text on which they received feedback. This is the issue that the present study investigates. Therefore, this study, for the first time, explores the effectiveness of revision in promoting learning development when learners cannot refer back to the feedback. Subsequently, it examines the effectiveness of this type of revision on writing a new text.

The significance of this study lies in its focus on learners who revise their texts without access to prior feedback, a scenario that mimics real-world language use where learners must rely on their memory and internalized knowledge. By investigating this process, the study sheds light on how revision activities can enhance the linguistic accuracy and cognitive processing abilities of L2 learners. Specifically, it addresses the gap in understanding how such revision strategies impact learners from the targeted research population, offering insights that can inform instructional practices and curriculum design tailored to their needs.

2. Review of the literature

Providing learners with opportunities to revise their texts may play a crucial role in the development process because it prompts them to pay attention to the feedback they have received (Shintani et al., 2014). Several initial studies investigating the efficacy of written corrective feedback (CF) asked learners to revise their text after receiving written CF (Fathman & Whalley ,1990; Ferris and Roberts ,2001). These studies aimed to determine whether learners had learned anything from the feedback and whether they could accurately apply their learning when revising their texts. Fathman and Whalley (1990) as well as Ferris and Roberts (2001) reported that ESL learners who received written CF on their drafts demonstrated greater accuracy in their revised texts compared to learners who did not receive feedback. Similar results were found by Ashwell (2000) with EFL learners. However, these findings, which showed improved accuracy in revised texts, were challenged by Truscott (1996). He argued that learners' ability to revise accurately doesn't necessarily translate to actual L2 learning. To demonstrate true learning, learners should be able to apply their knowledge in new writing tasks. Consequently, several studies have explored the extent to which revision practices contribute to increased accuracy in new writing. However, research on the efficacy of revision in improving accuracy in new texts has yielded mixed results.

Truscott and Hsu (2008) found that the increased accuracy shown by their experimental group in revising their texts did not transfer to their writing of new texts. However, the findings of two studies by Van Beuningen et al. (2008, 2012) contradicted these findings. In their pilot study of 62 learners, Van Beuningen et al. (2008) found that both experimental groups (error code and direct error correction) increased their accuracy in the text revision; however, the first experimental group (i.e., direct error correction) was able to write a new piece of writing with improved accuracy a week later. In their main study (2012), the authors reported that after four weeks all 268 learners retained the same level of accuracy in the delayed post-test as was recorded in the text revision. The main difference between the studies by Truscott and Hsu (2008) and Van Beuningen et al. (2008, 2012) was the degree of explicitness of the written feedback. Truscott and Hsu (2008) used a type of feedback with a low level of explicitness (underlining), while Van Beuningen et al. (2008, 2012) used two more explicit types of feedback (direct correction and error codes). This suggests that the degree of explicitness of written feedback may impact its effectiveness. More research is needed to determine whether revision leads to improved accuracy in new texts, especially revision following feedback while learners do not have access to the text on which they received feedback. This is the issue that the present study investigates.

2.1 The linguistic focus of written CF

Written corrective feedback (CF) has been shown to improve accuracy over time, but its effectiveness on complex linguistic errors remains unclear. The effectiveness of written CF for different types of linguistic errors, particularly those involving intricate language structures, may vary. This is because morphological, syntactic, and lexical errors represent distinct domains of knowledge (Ellis, 2008; Ortega, 2009). Consequently, learners may need to integrate multiple linguistic elements when formulating hypotheses about the correct form for specific error types, potentially requiring different cognitive processes and strategies.

Several studies suggest that written corrective feedback (CF) can enhance accuracy in simple rule-based categories, such as English articles and the past tense (e.g., Bitchener, 2008; Bitchener & Knoch, 2008; Frear, 2012; Sheen, 2007; Shintani & Ellis, 2013). As far as I know, only two studies have investigated a complex structure: Shintani et al. (2014) and Rummel (2014) examined the hypothetical conditional and the present perfect tense, respectively. Rummel (2014) found that written corrective feedback (CF) effectively improved the accurate use of the present perfect tense immediately and over a seven-week period. However, Shintani et al. (2014) reported that learners who received this form of feedback didn't maintain improved accuracy in using the hypothetical conditional over two weeks. Therefore, further investigation is needed before making any broad conclusions. To address this gap, our study explores how effective written CF is in helping learners use the English passive voice.

3. The study

The aim of this study was to investigate the effectiveness of revision without access to the original text in promoting learning development. The research question addressed in this research was as follows:

- How does focused direct corrective feedback (DCF) and metalinguistic explanation (ME), both with and without revision, impact learners' use of the English passive voice in immediate text revisions and in new texts over time?

Participants - This study was conducted within the Departments of Foreign Languages and Literature at three universities and two language schools in Iran. One hundred and thirty-five L1 Persian male and female EFL learners participated in the research. The participants were randomly assigned to five groups, including four treatment groups and one control group. Each treatment group received specific corrective feedback (CF) on errors related to the use of the English passive voice. The CF types included direct written CF (DCF), direct written CF with revision (DCF+R), metalinguistic explanation (ME), and metalinguistic explanation with revision (ME+R). The control group (CN) underwent pre-tests and post-tests but did not receive any CF

treatment. After excluding participants who did not complete the post-test phases, the final number of participants was 100, distributed across the groups as follows: DCF (N = 20), DCF+R (N = 20), ME (N = 20), ME+R (N = 19), and CN (N = 21).

Target structure - This study focused on the English passive voice, a grammatical structure where the object of an action becomes the subject of the sentence. The original subject (the agent performing the action) can be omitted or expressed in a prepositional phrase. While both English and Persian have active and passive constructions, they differ in how the passive voice is formed. In English, the passive voice uses a combination of an auxiliary verb (e.g., "is" or "are") and the past participle of a transitive verb. For example, "He closes the window" (active) becomes "The window is closed by him" (passive). In Persian, the passive voice is formed by a past participle and a derived form of the auxiliary verb "شودن" (shodan). For instance, the sentence " سبزها چیده شده‌اند" (sabz-ha chida shodeh-and) translates to "The greens have been picked. Birjandi, Maftoon, and Rahemi (2011) identified a unique challenge for Iranian EFL learners regarding the passive voice. They argue that learners tend to rely on a default processing strategy, assigning the subject/agent role to the first noun or phrase they encounter in the input. This tendency, while seemingly logical, can lead to errors in passive voice construction, even at advanced levels. Despite the inclusion of passive voice chapters in many Iranian EFL textbooks (Hinkel, 2002), empirical evidence suggests widespread difficulty with the structure in both speaking and writing. Furthermore, the participants in this study, being Iranian students, had academic writing and scientific reporting as integral components of their coursework. This highlights the potential benefit of mastering the passive voice for their assignments, as academic writing often prioritizes the recipient or experience of an action over the specific agent (doer). Stating who performs an action can be redundant or irrelevant in academic contexts, making the passive voice a valuable tool for constructing concise and effective sentences. Therefore, this study focused on the simple present form of the passive voice, exemplified by "Diamonds are mined in South Africa."

Writing tasks - Process tasks were employed to elicit students' production of the passive voice. These tasks involve several stages presented in chronological order. Therefore, it is essential to commence at the beginning and sequentially describe each stage up to the final one. Process tasks typically focus on detailing processes (how something happens) or procedures (how something is done) and frequently employ the passive structure (Swales & Feak, 2001). The three tasks assigned to students involved describing the processes of chocolate production, the canning of apples, and the production of coffee. Participants were instructed to write approximately 200 words within a 30-minute timeframe for each task.

Design and Treatment Procedure - This study follows a quasi-experimental, pre/post-test design. Five groups participated: four experimental groups (direct corrective feedback, direct corrective feedback with revision, metalinguistic explanation, and metalinguistic explanation with revision) and one control group. Each group attended three sessions (see Table 1). The treatments were operationalized using four distinct written corrective feedback (CF) strategies: direct written CF, direct CF with revision, written metalinguistic CF, and written metalinguistic explanation with revision. Further details on each strategy are provided below.

Table 1
Study Design

Week	DC Group (N=20)	DC+R Group (N= 20)	ME Group (N= 20)	ME+R Group (N= 19)	Control Group (N= 21)
Week 1	Written task, pre-test (Time 1)				
Week 2	DC (10 min)	DC (10 min) + Revision (30 min)	ME (10 min)	ME (10 min) + Revision (30 min)	No Treatment
	Written task, immediate post-test (Time 2)				
Week 3	Written Task, delayed post-test (Time 4)				

Note: DCF=Direct corrective feedback, DCF+R=Direct corrective feedback and revision, ME=Metalinguistic explanation, ME+R= Metalinguistic explanation and revision

Group 1: DCF

In Week 1, learners completed writing task 1 (the pre-test). They were provided with writing task 1 and a sample answer, which they read for 10 minutes. Subsequently, the sample answer was collected, and participants began the writing task, having 30 minutes to complete it. In Week 2, the direct corrective feedback (DCF) group received written feedback on the writing they had done in the pre-test. The feedback specifically addressed the passive voice structure, and learners had 10 minutes to review the corrections to their writings. Following this, the first texts with feedback were collected, and the group undertook task 2 (the immediate post-test) over 30 minutes, using the same procedures as in the pre-test. In Week 4, learners generated writing task 3 (the delayed post-test), following the same procedures as in the immediate post-test.

Group 2: DCF+R

This group followed the same procedures as the DCF group in Week 1. However, in Week 2, learners were given 30 minutes to rewrite their initial text. Importantly, they were not permitted to review their corrected text while rewriting. After the rewrite, teachers collected the revised texts. Following this, participants immediately composed their second writing text (immediate post-test), adhering to the same procedures as in the pre-tests. In Week 4, they produced their fourth writing task, following the same procedures as in the immediate post-test.

Group 3: ME

The metalinguistic explanation group completed their first writing task using the same procedures as the previous two groups in Week 1. In Week 2, learners received no feedback on their writing from the pre-test. Instead, teachers provided them with their initial written text along with a handout containing a clear explanation of the passive voice. The handout was in Farsi to prevent any English vocabulary limitations from affecting comprehension. It included the definition of the English passive voice, instructions on how to construct it, and examples of the English passive voice in both English and Farsi. The group had 10 minutes to read the handout and check their text for passive voice errors. Subsequently, both the handouts and written texts were collected. Students immediately completed their second writing text (immediate post-test) using the same procedures as in the pre-test. In Week 4, students finished their third writing task, following the same procedure as in the immediate post-test.

Group 4: ME+R

The metalinguistic explanation plus revision group followed the same procedures as the ME group in Week 1. In Week 2, participants were provided with the writing task they had completed in Week 1 and the same handout given to the ME group (an explicit explanation about the passive voice). Learners were given 10 minutes to read the handout. Following this, the initial text and the handout were collected, and students had 30 minutes to rewrite their initial texts. After the rewrite, teachers collected the revised texts. Participants then immediately composed their second writing text (immediate post-test), adhering to the same procedures as in the pre-test. In Week 4, they generated their third writing task, following the same procedures as in the immediate post-test.

Group 5: Control

The control group did not receive any feedback on their writing texts. Participants completed their writing tasks using the same procedures as the experimental groups in Week 1. They underwent the immediate post-test in Week 2 and the delayed post-test in Week 4, completing each test in 30 minutes.

Scoring of Writing Tasks - The target structure in this study is the simple present passive voice. In English, the simple present passive voice is formed by combining "to be" with the past participle. The assessment of learners' use of the target structure can be done in two ways. In the absolute method, participants receive credit only if they accurately use both components. In other words, using only one out of the two components

accurately does not result in a score. The second method is a partial scoring system (Type 2), where each of the two components ("to be" and the past participle) is individually scored. Arguably, a partial scoring method can offer a more nuanced analysis than an absolute scoring method because the passive voice consists of two components, and students may acquire only one of them following feedback. Therefore, they should be credited for each correct component. The Type 2 method also assigns a score to participants attempting to apply the passive voice inaccurately, indicating they are in the process of learning the target structure. Previous studies addressing structural issues, such as the hypothetical conditional, have employed a Type 2 point system for data analysis (e.g., Shintani & Ellis, 2014).

In this scoring system, participants receive 2 points if they correctly use the passive voice, with 1 point for the accurate usage of "to be" and 1 point for the correct usage of the past participle. If only one of these components is correct, they receive 1 point. Participants demonstrating an attempt to use the passive voice are also awarded points; for instance, using an incorrect form of the verb "to be" (e.g., using "are" instead of "is") earns them 0.5 points, as they attempted to use the verb "to be." Similarly, if they use an incorrect form of the past participle (e.g., "spreaded" instead of "spread"), they are awarded 0.5 points (Refer to Tables 1, 2, and 3). If participants do not make any attempt, they do not receive any points, i.e., zero (0) points. Examples of correct sentences corresponding to Tables 2, 3, and 4 are as follows: " The window is closed," " The house is built," and " The door is shut."

Table 2
Regular Past Participle

Error	Example sentences	Mark
------	The window **is closed**	1+1
No *be*	The window **closed**	0+1
Wrong form of *be*	The windows **is closed**	.5+1
No past participle	The window **is close**	1+0
No *be*/ no past participle	The window **close**	0+0

Table 3
Irregular Past Participle

Type of Error	Example sentences	Mark
-------	The house **is built**	1+1
No *be*	The house **built**	0+1
Wrong form of *be*	The house **are built**	.5+1
Wrong form of past participle	The house **is builded**	1+.5
No past participle	The house **is build**	1+0
No *be*/ no past participle	The house **build**	0+0

Table 4
Irregular Past Participle – No Change in Form

Type of error	Example sentences	Mark
--------	The door **is shut**	1+1
Wrong form of past participle	The door **are shut**	1+.5
No *be*	The door **shut**	0+0
Wrong form of *be*	The door **shut**	.5+1

After scoring all the writing tasks, the following formula was utilized to calculate a total percentage score for each student:

$$\text{scored}\ \frac{\text{Number of points}}{\text{Number of points possible (i.e., number of passive uses x 2)}} \times 100$$

4. Data Analysis

SPSS version 22 was utilized for the statistical analysis of the writing tasks' data. To address the research question, descriptive statistics were initially conducted. Subsequently, a series of one-way ANOVAs were

employed to assess the comparative effects of the treatments between groups on the writing task. Repeated measure ANOVAs, incorporating pre- and post-test scores, were conducted to evaluate within-group improvement for the experimental feedback groups and the control group over time. In pairwise comparisons, both the p-value and Cohen's d effect size were utilized to assess the significance of the difference in mean scores. Cohen's d was employed for pairwise comparisons, while partial eta squared ($\eta 2$) was used for ANOVAs. Effect sizes for ANOVAs were calculated as eta-squared ($\eta 2$), with values of .138, .06, and .01 indicating large, moderate, and small effects, respectively. Effect sizes for pairwise comparisons were estimated using the correlation coefficient r, with values of .8, .5, or .2 indicating large, moderate, and small effects, respectively (Pallant, 2001).

The initial one-way ANOVAs identified significant effects in the pre-test for the research question. This significance observed in the pre-test phase raises concerns, as significant variations among groups during this phase might partially explain the differences noted in the immediate and delayed post-tests, which may not necessarily be attributed to treatment effects. In response to this concern, a one-way ANOVA utilizing gain scores was conducted. In experimental studies, where adjusting for pre-test covariates could introduce bias, it is recommended to utilize gain scores, as they offer an unbiased estimation of genuine change (Rogosa, 1988). Consequently, gain scores were computed to assess the improvement of learners from the pre-test to the post-tests across all groups.

5. Findings

To address the research question (RQ) examining whether requiring participants to revise has any impact on accuracy in subsequent pieces of writing, the two revision groups (i.e., those receiving metalinguistic explanation plus revision and direct CF plus revision) were amalgamated and compared with the two groups that did not undergo revisions (i.e., those receiving metalinguistic explanation and direct CF). The DMPR group represents the combined direct CF plus revision and metalinguistic explanation plus revision groups, while the DMWR group stands for the combined direct CF and metalinguistic explanation groups.

Table 5 illustrates a significant increase in accuracy for both experimental groups from the pre-test (Time 1) to the immediate post-test (Time 2). However, from the immediate post-test to the delayed post-test (Time 3), the changes observed in the experimental groups were minimal, with accuracy in both the DMWR (direct CF and metalinguistic explanation) and DMPR (direct CF plus revision and metalinguistic explanation plus revision) groups showing a slight decrease. Similarly, the control group experienced a slight increase in accuracy from the pre-test to the immediate post-test, followed by a sharp decline in the delayed post-test.

Table 5
Descriptive statistics for the accuracy scores in the written tasks

Groups		Time 1		Time 2		Time 3	
	N	M	SD	M	SD	M	SD
DMWR	40	37.59	26.82	79.33	18.09	75.45	22.68
DMPR	39	53.27	25.44	85.52	11.68	84.26	12.07
CN	21	54.40	31.92	58.70	29.11	41.07	33.21

Note: DMWR group stands for the combined DC and ME groups, DMPR group stands for the combined direct CF plus revision and metalinguistic explanation plus revision groups and CN stands for the control group.

Overall, the findings indicate that: (a) the experimental groups outperformed their pre-test scores in the post-tests; (b) the experimental groups achieved higher scores than the control group in both post-tests; (c) in the pre-test, the mean scores for DMWR (direct CF and metalinguistic explanation) (M=37.59, SD=26.82) were lower compared to the DMPR group (direct CF plus revision and metalinguistic explanation plus revision) (M=53.27, SD=25.44), and the control group (M=54.40, SD=31.92) (Refer to Table 5). This finding raises concerns, as significant differences between groups in the pre-test might contribute to group differences in Times 2 and 3, potentially not solely due to treatment effects. To address this, a one-way between-groups ANOVA was conducted to compare groups at Time 1.

The results of the one-way between-groups ANOVA revealed significant differences between groups at Time 1 (pre-test): F (2, 97) = 4.128, P=.019, η^2 = 0.074. As detailed in section 4, to address this concern, raw scores were transformed into gain scores. Table 5 displays descriptive statistics for the treatment and control groups for immediate gain (gain 1) and delayed gain (gain 2).

Table 6
Descriptive statistics of the gain scores for the accuracy scores in the written tasks

Groups		Gain 1		Gain 2	
	N	M	SD	M	SD
DMWR	40	41.74	26.55	37.85	26.86
DMPR	39	32.25	24.37	30.99	23.43
CN	21	4.30	30.38	-13.32	32.77

Note: DMWR group stands for the combined direct CF and metalinguistic explanation groups, DMPR group stands for the combined direct CF plus revision and metalinguistic explanation plus revision groups and CN stands for the control group.

For gain 1, the results of a one-way ANOVA revealed significant differences between groups: F (2, 97) = 13.84, p < .001, η^2 = 0.22. Table 7 presents the results of pairwise comparisons and Cohen's d values for gain 1. The findings indicated that both the DMWR (direct CF and metalinguistic explanation) and DMPR (direct CF plus revision and metalinguistic explanation plus revision) groups performed significantly better than the control group. Cohen's d values for DMWR and DMPR versus the control group were 1.31 and 1.01, respectively, signifying large effect sizes in Cohen's terms. However, DMWR had a higher value than DMPR. The analyses did not reveal any significant differences between DMWR and DMPR. Cohen's d value for DMWR versus DMPR detected a small effect size, specifically 0.37.

Table 7
Effect Sizes in the Form of Cohen's d for the Accuracy Scores Between Groups

Group Contrast	Gain 1		Gain 2	
	d[1]	*p*[2]	*d*	*p*
DMWR vs. DMPR	0.37	.34	0.27	.78
DMWR vs. CN	1.31	.00	1.70	.00
DMPR vs. CN	1.01	.001	1.55	.00

Note. 1 Effect size (Cohen's d). 2 Results of null hypothesis significance testing. DMWR group stands for the combined direct CF and metalinguistic explanation groups, DMPR group stands for the combined direct CF plus revision and metalinguistic plus revision groups and CN stands for the control group.

For gain 2, the results of a one-way ANOVA showed significant differences between groups: F (2, 97) = 26.71, p < .001, η^2 = 0.35. The findings of pairwise comparisons and Cohen's d values for gain 2 are reported in Table 6. The results indicated that the mean scores for both DMWR (direct CF and metalinguistic explanation) and DMPR (direct CF plus revision and metalinguistic explanation plus revision) were significantly higher than the control group. The resulting Cohen's d values for DMWR and DMPR versus the control group were 1.70 and 1.55, respectively, representing large effect sizes in Cohen's terms. However, the value of DMWR was higher than DMPR, as opposed to the control group. The analyses did not reveal any significant differences between DMWR and DMPR. Cohen's d value for DMWR versus DMPR was 0.27, indicating a small effect size.

In summary, for gains 1 and 2, both DMWR and DMPR groups performed significantly better than the control group with large effect sizes. However, the value of DMWR was higher than DMPR for both gain scores 1 and 2, suggesting that the DMWR group was more effective than the DMPR group. To assess within-group effects, repeated measure ANOVAs with pre- and post-test scores were conducted to compare scores on writing between the DMWR and DMPR groups at Time 1 (pre-test), Time 2 (immediate post-test), and Time 3 (delayed post-test). The means and standard deviations are presented for both groups in Table 5. The findings of repeated measure ANOVA showed that all groups had a significant effect for time: F (2, 96) = 45.01, p < .001, η^2 = 0.48. The results of repeated measure ANOVAs for each group showed a significant effect for time for the DMWR group: F (2, 38) = 49.94, p < .001, η^2 = 0.72, and the DMPR group: F (2, 37) = 34.70, p < .001, η^2 = 0.65.

Table 8
Effect Sizes in the Form of Cohen's d for the Accuracy Scores Overtime

Group		Time 1–Time 2		Time 2–Time 3		Time 1–Time3	
	N	*d*[1]	*p*[2]	*d*	*p*	*d*	*p*
DMWR	40	1.82	.00	0.18	.53	1.52	.00
DMPR	39	1.62	.00	0.10	1.00	1.55	.00
CN	21	.14	1.00	0.56	.008	0.40	.23

Note: DMWR group stands for the combined direct CF and metalinguistic explanation groups, DMPR group stands for the combined direct CF plus revision and metalinguistic explanation plus revision groups and CN stands for the control group.

The results presented in Table 8 include pairwise comparisons (paired t-test) and effect sizes for the DMWR (direct CF and metalinguistic explanation), DMPR (direct CF plus revision and metalinguistic explanation plus revision), and control groups. The findings reveal that both the DMWR and DMPR groups demonstrated significant improvement from Time 1 to Time 2, with large effect sizes of 1.82 and 1.62, respectively. The DMWR group had a larger effect size than the DMPR group during this period. For both the DMWR and DMPR groups, there were no significant differences from Time 2 to Time 3. The effect sizes for this period were small, measuring 0.18 for DMWR and 0.10 for DMPR. However, the scores at Time 3 were significantly higher than those at Time 1. The effect sizes for the DMWR and DMPR groups increased from Time 1 to Time 3, with large effect sizes of 1.52 and 1.55, respectively. The DMPR group had the larger value during this period.

In contrast, the control group showed no significant differences from Time 1 to Time 2, with small effect sizes. However, the scores significantly decreased from Time 2 to Time 3, with a medium effect size. There were no significant differences from Time 1 to Time 3, with a small effect size. In summary, both the DMWR and DMPR treatments were effective. However, the DMWR treatment demonstrated greater effectiveness in the short term, while the DMPR treatment proved more effective in the long term.

6. Discussion

This study examined the effectiveness of revision without access to corrections on learning development. Interestingly, the non-revision groups (i.e., direct CF and metalinguistic explanation) performed better on the immediate post-test. However, the revision groups (i.e., direct CF plus revision and metalinguistic plus revision) showed better retention of accuracy over time. These findings can be explained theoretically through the concept of "pushed output". As, it is likely that written CF followed by revision leads to 'pushed output' (Shintani et al., 2014), especially if learners have no access to the corrections when they start writing the revision draft (as in the present study) (Shintani et al., 2014). In this study, learners revising without access to corrections likely experienced pushed output. As Swain (1985, 1995) argues, when pushed to produce language, learners become aware of the "gap between what they want to say and what they can say" (Swain, 1995, pp. 125-126). This recognition of their limitations motivates them to focus on unfamiliar grammatical forms. Furthermore, revision promotes retrieval of information from long-term memory, facilitating the consolidation and proceduralization of L2 knowledge. Essentially, revising requires learners to process feedback more deeply, potentially leading to a stronger grasp of the target language structure.

Empirically, to the best of my knowledge, the study by Shintani et al. (2014) stands as the only one thus far that combined revision groups and non-revision groups and compared the effectiveness of different types of written CF. Similar to this study, they found that both revision (i.e., direct CF plus revision and metalinguistic plus revision) and non-revision groups (i.e., direct CF and metalinguistic explanation) displayed greater accuracy than the control group in the short term. However, in contrast to the present study, which revealed that both the revision and non-revision groups were more accurate than the control group in the delayed post-test and that the non-revision group was more accurate than both the revision and the control groups in the delayed post-test, they found that only the revision group had greater accuracy than the control group in the delayed post-test.

The difference in findings could possibly be attributed to the fact that learners in the revision groups in Shintani et al.'s study had access to the initial draft they had received feedback on while they were writing the revision text; however, learners in the current study had no access to the initial draft they received feedback on.

Access to the first draft in Shintani et al.'s study likely reduced cognitive load on attention and memory, both of which are essential when correcting errors, compared to the learners in the present study. Shintani (2017) also argued that access to explicit instruction (e.g., the initial draft learners received feedback on) assisted learners in monitoring the accurate use of the target structure and enabled them to correct their errors in the writing task. Furthermore, in the present study, it is plausible that administering two tests (i.e., revision and immediate post-test) in one session was demanding, thereby placing a greater cognitive load on the revision group. Shintani et al. (2014) conducted post-test (1) seven days after the treatment session. Thus, it is possible that, in Shintani et al.'s (2014) study, providing learners with the initial draft and allowing a gap between the treatment session and post-test (1) resulted in different findings.

7. Conclusion

This study is the first to examine the effectiveness of revision in promoting learning development when learners cannot refer back to the feedback. The results showed that that the non-revision groups (i.e., direct CF and metalinguistic explanation) had greater accuracy in the immediate post-test, but that the accuracy of the revision groups (i.e., direct CF plus revision and metalinguistic plus revision) was retained over a longer period of time. The findings suggest that the extra attention required from learners to revise their work may have led to pushed output because learners noticed the gap. Despite several studies showing accuracy improvements without revision, the absence of a revision group in these studies prevented a comprehensive comparison. Both this study and several previous studies (Shintani et al., 2014; Van Beuningen et al., 2008, 2012) compared the improved accuracy of revision and non-revision groups and found that while non-revision groups improved their accuracy, revision groups maintained accuracy for a longer duration. The lack of revision groups in many prior studies underscores the need for further investigation to determine whether revision groups can achieve greater accuracy compared to non-revision groups, or vice versa.

This research offers significant contributions to the domain of second language writing. Initially, it presents the initial empirical proof that revising without the ability to refer back to corrections can serve as an efficient method to enhance learners' accuracy over an extended period. Secondly, it sheds light on the cognitive mechanisms at play during the revision process, indicating that learners who revise without correction access are inclined to engage in thorough processing of the feedback. Thirdly, it validates certain elements of skill acquisition theories (DeKeyser, 2015) within the written context.

The implications of this study are relevant for both teachers and learners. For teachers, the findings suggest that incorporating revision activities into writing instruction can be beneficial, particularly when learners are encouraged to revise without referring back to their original feedback. This approach may promote deeper cognitive processing and long-term retention of language forms. Teachers may also consider integrating revision strategies that push learners to rely on their memory and understanding, thus facilitating the proceduralization of knowledge. For learners, this study highlights the value of engaging with feedback actively through revision. It encourages learners to view revision as a crucial part of the learning process, one that can lead to improved accuracy and sustained language development over time.

Despite achieving its goals, the present study acknowledges several limitations. One limitation concerns the use of the same type of writing task (reconstruction tasks) for all three tests (pre-test, immediate post-test, and delayed post-test). These tasks involve a series of steps in chronological order, requiring participants to begin at the beginning and describe each stage sequentially. While using reconstruction tasks in this study encouraged participants to employ the target structure (e.g., reconstructing the process of making chocolate), it remains unclear whether this improvement would generalize to other writing genres. Another limitation of this study is its duration. Conducted over four weeks with a delayed post-test two weeks after the immediate post-test, the research design offers valuable insights into learning gains within this timeframe. However, it remains unclear whether these improvements in accuracy for the experimental groups would be sustained over a longer period. Finally, as the first study to examine the efficacy of revision when learners cannot refer back to feedback, our

findings highlight the necessity for additional research. It is recommended that future studies explore this area in diverse contexts and across different proficiency levels to gain a more comprehensive understanding of the role of revision in language learning and development.

8. References

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