



Comparative Effects of Direct and Metalinguistic Computer-Mediated Feedback on L2 Learners' Writing Ability and Willingness-to-Write

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ABSTRACT

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The present study investigated the probable effects of asynchronous direct and metalinguistic computer-mediated corrective feedback (CMCF) on the writing ability (WA) and willingness-to-write (WTW) of upper-intermediate L2 learners. To this aim, a convenient sample of 90 upper-intermediate L2 learners volunteered to participate in this study. In the next stage, they were assigned into 3 intact groups. Intact experimental groups received asynchronous direct CMCF and metalinguistic CMCF on the different aspects of their writings, whereas the control group did not receive any CMCF. To check the (probable) impact of asynchronous direct and metalinguistic CMCF on the participants' WA, the researchers assessed the participants' WA before and after the treatment. Furthermore, participants filled out a previously developed and validated WTW questionnaire before and after the treatment, which measured their WTW. In the last stage, 16 participants of the experimental groups were interviewed to provide an in-depth understanding of factors affecting the participants' WTW. ANOVA results revealed that the participants' WA significantly improved due to both asynchronous direct and metalinguistic CMCF, with no significant difference between the efficacies of the CMCF types. Besides, the results indicated that both CMCF types resulted in an improvement in the participants' WTW. Furthermore, the theme analysis of interview findings suggested that the participants perceived CMCF to be facilitative. The interview results were in agreement with those of the quantitative analyses. The findings of this study may contribute to understating L2 learners' needs and considering pedagogical decision-making for course developers and instructors.

Keywords: Computer-Mediated, Direct Feedback, Metalinguistic Feedback, Writing Ability (WA), Willingness-to-Write (WTW)

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1. Introduction

Second or foreign language (L2) writing is an elaborately complex process, which includes individual attempts to explore their thoughts and ideas to generate meaning (Harmey, 2020). Cho and Schunn (2007) highlight that success, either personal or educational, is highly dependent on individuals' writing skills. For most learners, writing is a skill through which they fulfill their communicative purposes (e.g., narration and argumentation). The importance of good writing is even pronounced more within academic contexts, especially in higher education (graduated and postgraduate), when learners should write a comprehensive thesis based on their research. (Bitchener, 2018). Therefore, instructors should provide various means to help learners improve their writing, one of which is written corrective feedback (WCF).

Despite the evidence against the inclusion of WCF in L2 writing pedagogy (e.g., Truscott, 1996, 2007), L2 learners' demand to develop high-quality writing has led instructors to provide WCF on learners' L2 production. WCF is one way to draw learners' attention to erroneous utterances and facilitate noticing gaps between their output and the L2 (Swain, 2000).

An issue deeply associated with the efficacy of WCF (Bitchener, 2012; Suzuki et al., 2019) is its typology and degree of explicitness, especially in contexts where English is not frequently used or spoken. Ellis (2009) classified WCF into different groups based on the provided feedback in response to errors. One way to address learners' errors in his classification is direct WCF. He considered direct WCF as providing correct L2 forms above or near L2 learners' errors.

Direct WCF is among the most widely employed feedback types in the L2 classroom, as it is the easiest way for teachers to correct L2 learners' mistakes (Saeli, 2019). One crucial advantage of this type of WCF, in contrast to other WCF types, is its capability to repair and model correct L2 forms (Shintani & Ellis, 2013). The correct forms' juxtaposition to the erroneous utterances for direct WCF makes it easier for L2 learners to compare their incorrect form with the correct L2 form provided. Hence, this type of feedback promotes L2 by enhancing correct L2 forms (Leeman, 2003). Furthermore, it avoids the confusion that may occur when L2 learners do not understand the meaning of error codes used by L2 teachers (Bitchener & Knoch, 2010). Another advantage of direct WCF is that it contributes to developing L2 forms by assisting L2 learners in internalizing correct L2 forms immediately. Therefore, seeing their errors corrected by L2 teachers, L2 learners internalize correct L2 forms (Chandler, 2003).

Despite the findings of a well-documented number of empirical studies (e.g., Bitchener & Knoch, 2010; Ene & Upton, 2018; Karim & Nassaji, 2019) suggesting that direct WCF can positively affect L2 learning, researchers, including Truscott and Hsu (2008) cast doubts regarding its efficacy. They argue that L2 learners have always had access to corrections when revising their writings. Thus, they might have only copied the corrections (Shintani & Ellis, 2013). As evidenced by the findings of Truscott and Hsu (2008), direct WCF did not lead to improved accuracy in a new piece of writing. Another argument against direct WCF comes from theoretical perspectives suggesting that direct WCF may not engage L2 learners in problem-solving and hypothesis-testing activities, which, in turn, will not promote L2 writing skills over time (Lalande, 1982). These controversies are sufficiently exciting to trigger a new wave of research in the WCF realm.

The second area of research interest on WCF types that has expanded in recent years is the relative effectiveness of metalinguistic WCF. According to Ellis (2009), one way to provide metalinguistic WCF is “the provision of abbreviated codes for different kinds of errors placed over the error, in the text, or the margin through which L2 learners work out the correction needed from the clue provided” (Ellis, 2009, p. 100). Such cues as WCF are classified as metalinguistic because they emphasize grammatical rules and indicate the location of errors through using codes and symbols (Lee, 2017).

This type of feedback has the advantage of enhancing the strength of the corrective function of WCF for L2 learners because it supposedly helps L2 learners to notice the gap between their knowledge by providing them the opportunity to reflect on and attempt to correct the incorrect forms (Bitchener, 2012).

To draw on the differences between these WCF types, metalinguistic WCF is less explicit than direct WCF as it does not provide the correct form. Furthermore, the two types of feedback are theoretically different, as direct corrective feedback is input-providing, whereas metalinguistic feedback is output-prompting and pushes learners to correct their errors (Ellis, 2013).

Abundant studies focused on how such WCF types, in conventional paper-and-pen mode, could contribute to L2 learning (e.g., Chandler, 2003; Esmaeli & Sadeghi, 2020; Karim & Nassaji, 2020). However, with the advancement of technology, computers have been introduced as alternative mediums to provide L2 learners with WCF. Computer-mediated corrective feedback (CMCF) provides an opportunity for L2 learners to receive corrective feedback on their writing samples when they are home or when the teacher is unavailable (Saadat et al., 2016).

Despite the shift towards the implementation of CMCF studies (e.g., Sarre et al., 2019; Yamashita, 2022), our understanding of the probable impact of affective factors on CMCF is far and between. One of these affective factors is willingness-to-write (WTW)—a newly proposed concept closely linked with motivation (Kaivanpanah et al., 2019). Previous studies have indicated that motivation could contribute to L2 learners' writing ability (WA) (Goldstein, 2005; Hayes, 2012; Kormos, 2012; Lee et al., 2018; Tang & Liue, 2018); however, the probable mediating impact of WCF on learners' WA and WTW is still unclear. To shed light on the issue and provide some insights in this regard, the current study aimed to investigate (1) whether asynchronous direct and metalinguistic CMFC had a significant impact on the upper-intermediate L2 learners' WA, (2) whether asynchronous direct and metalinguistic CMFC effectively improved their WTW, and (3) what learners' perceptions of CMCF and WTW were. The synchronous communication mode was not chosen because online writing classes rarely occur in the L2 context due to the internet speed.

2. Literature Review

2.1. Corrective Feedback Studies

Interest in investigating the efficacy of direct and metalinguistic WCF has been gathering momentum over the past decades (e.g., Bitchener & Knoch, 2008, 2010). Bitchener (2008) probed into the effectiveness of combinations of direct feedback and metalinguistic explanation on L2 the learners' WA, whose results indicated that different WCF types led to improvements in learners' writing. Further comparative investigations on direct WCF and metalinguistic WCF impacts on the learners' WA were done by Bitchener and Knoch (2008, 2010). Their results provided substantial evidence that both WCF types equally led to the L2 learners' writing development.

Aiming to examine the impacts of WCF on L2 learners' writing accuracy, Suzuki et al. (2019) provided the L2 learners with different types of WCF in four experimental groups. Their results indicated that WCF types, which were more explicit were more beneficial for the learners.

Karim and Nassaji (2019) investigated the comparative impacts of WCF and metalinguistic cues on L2 learners' grammatical accuracy, whose results indicated that both WCF types effectively improved the L2 learners' grammatical accuracy. Another study in this line of research was conducted by Esmaeeli and Sadeghi (2020). They investigated the comparable impacts of direct and metalinguistic cues on upper-intermediate learners' grammatical accuracy, whose findings indicated that the learners' gain in the posttest was

more significant in the groups that received WCF in the form of cues on their errors.

Within the gathering momentum of investigating the efficacy of WCF, the prominent appearance of probing the effectiveness of CMCF has been observed in the research of some scholars (e.g., Ene & Upton, 2018; Shintani & Aubrey, 2016). In a case study, Shintani (2016) investigated the efficacy of CMCF on two university students. Her results indicated that WCF promoted noticing the gap and led to a better understanding of writing features.

Shintani and Aubrey (2016) examined the relative effects of (a)synchronous WCF on 68 learners' L2 development. They received (a)synchronous direct WCF. The findings indicated that both groups significantly benefited from the feedback. Ene and Upton (2018) also aimed to see if the L2 learners' writing improved due to CMCF, whose results illustrated that CMCF resulted in the L2 learners' writing development. Another study to examine the efficacy of CMCF on L2 learners' writing accuracy was conducted by Sarre et al. (2019). Their findings manifested that CMCF assisted the learners in producing more accurate samples of writing. Furthermore, Sherafati et al. (2020) investigated the efficacy of CMCF on the L2 learners' writing skills, whose results provided further evidence for the efficacy of CMCF on the learners' WA.

In a similar line of research, Tan et al. (2022) investigated the impacts of CMCF on the L2 learners' writing performance. Analysis of data indicated that treatments led to the learners' writing development. Also, Sherafati and Mahmoudi Largani (2022) investigated the differential effects of CMCF, whose results provided evidence for its positive impact on the learners' writing development. Finally, in a comparative study, Yamashita (2022) intended to check the impacts of (in)direct CMCF on learners' knowledge of the referential articles. The results indicated that direct CMCF more significantly impacted the learners' knowledge of the referential articles.

2.2. Willingness-to-Write (WTW)

As a “flexible, versatile, and powerful tool,” writing helps L2 learners improve their comprehension and communicate their ideas with others (Graham & Harris, 2019, p. 7). One of the critical factors connected to L2 writing is WTW, representing willingness and readiness to engage “in writing tasks freely or by the writer's choice” (Rafiee & Abbasian-Naghneh, 2020; p. 2). In other words, this affective factor is concerned with the extent to which learners are inclined to initiate L2 writing.

Few studies have examined WTW as it is a new concept. For example, Al-abais (2017) investigated the potential relationship between

willingness to write and writing achievement, whose results manifested that these two variables were positively correlated.

The first validated questionnaire to measure L2 learners' WTW was developed by Kaivanpanah et al. (2019). They examined the validity of the questionnaire that measured L2 learners' WTW. The factor analysis findings confirmed the questionnaires' validity.

The final study, among a few recent studies investigating WTW, was conducted by Rafiee and Abbasian-Naghneh (2020). Their study indicated that L2 learners' WTW positively correlated with corrective feedback, autonomy, motivation, and L2 learners' attitude. As the literature review suggests, few studies have focused on L2 writing and WTW in various L2 contexts. More studies should be conducted to develop our understanding of this new concept.

Considering the possible connections between corrective feedback and WTW as well as paucity of research on WTW, the current study aimed to examine the (possible) effects of asynchronous direct and metalinguistic CMCF on upper-intermediate learners' WTW. Additionally, it was intended to investigate the probable impacts of WCF on L2 learners' WA. Accordingly, the following research questions were investigated:

1. Are there any statistically significant differences between the effects of asynchronous direct and metalinguistic CMC on L2 learners' WA?
2. Are there any statistically significant differences between the effects of asynchronous direct and metalinguistic CMC on L2 learners' WTW?
3. What are L2 learners' perspectives toward CMCF and WTW?

3. Method

3.1. Participants

The current study followed a quasi-experimental design. A convenient sample of 90 upper-intermediate L2 learners in a language institute in Iran participated in this study voluntarily. They were all adult L2 learners with a Persian sociocultural background. Their L1 was Persian, with their ages ranging from 23-38 ($M = 31.62$). The participants were both female ($n = 51$) and male ($n = 39$) who had learned English for 14 years, mainly through traditional teaching methods (e.g., the audiolingual method). A questionnaire filled out by the participants provided information about their background information (i.e., cultural background, age, and L1).

Two highly proficient and experienced L2 instructors with a Ph.D. in TEFL were invited to act as error correctors during the treatment sessions.

The error correctors were trained in advance on how to provide direct and metalinguistic CMCF in response to the participants' errors.

3.2. Materials and Instruments

The materials included the writing tasks, a pretest, and a posttest. The writing tasks, the pretest, and the posttest were adopted from IELTS, Writing section 2, held in 2018-2020. Ten topics were chosen from online sources: two for the testing situations and eight for the treatment session tasks. Attempts were made to select interesting topics that posed a challenge to the participants, as they were upper-intermediate learners.

The learners' proficiency level was checked through an in-house placement test developed by experienced instructors. The test, held at the offset of the semester, included items assessing different aspects of language (e.g., writing, listening, grammar, vocabulary, and speaking). The results of each proficiency test assured that the learners were homogenous in terms of their English language proficiency.

The participants were supposed to write argumentative writing tasks. For instance, in one of the sessions, they argued if studying English in an English-speaking country best helps L2 learners to improve their English proficiency. The pretest and posttest were conducted online in Google Docs. The participants were required to compose argumentative 250-word writing tasks and develop their writing tasks to win an argument in 50 min. The tests aimed to measure the participants' learning due to direct and metalinguistic CMCF. The rubric adapted from Jacobs et al. (1981) was used to rate the participants' writings in the pretest and posttest. Their writings were rated out of 100 using five main criteria: content (30 points), organization (20 points), (20 points), mechanics (5 points), and language use (25). The interrater reliability was found to be 0.89.

Furthermore, a questionnaire developed by Kaivanpanah et al. (2019) was used to assess the participants' WTW, which contained 38 5-point Likert-type scale items with a 5-point Likert-type scale for each item, ranging from 1 (*definitely not willing*) to 5 (*definitely willing*). The reliability of the questionnaire was estimated via Cronbach's alpha, whose value was found to be .87, indicating that the questionnaire was reliable. Besides, the factor analysis results by Kaivanpanah et al. (2019) suggested that the questionnaire was valid. The last instrument was a semistructured interview intended to address the participants' experiences, feelings, and perceptions of the treatment.

3.3. Procedure

The data were gathered online over three semesters in 2021 and 2022. In the first step, invitation links were sent to learners for their voluntary participation in the study. In an online session, the researchers informed the participants about the study's aim in Adobe Connect, where the regular classes of the participants were held. Those who agreed to participate in the study completed an online consent form explaining that their participation would be confidential. They could leave the treatment sessions if they wanted to. A convenient sample of 90 upper-intermediate L2 learners volunteered to participate in the study through invitations sent on WhatsApp. The volunteers were assigned into three groups: direct group (DG), metalinguistic group (MG), and control group (CG). The number of DG, MG, and CG participants were 30, 29, and 31, respectively. The experimental groups would receive CMCF on different aspects of their writing, whereas the learners in the CG would not receive any CMCF.

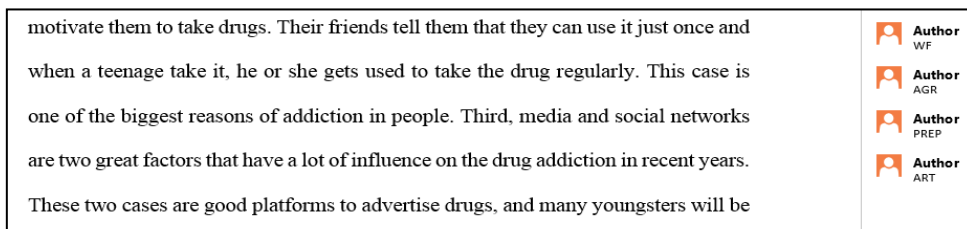
The learners of each group joined WhatsApp groups created by researchers, used to communicate essential information and questionnaire links. In the next step, participants filled out a demographic form that elicited their age, cultural background, and L1 information. In the next phase, an online questionnaire was created on Google Form, whose link was shared with the participants in the WhatsApp groups. The participants were asked to fill out the WTW questionnaire (Kaivanpanah et al., 2019) online using their mobile phones, tablets, or computers.

Having filled the questionnaire, they were supposed to write a 250-word argumentative task in the next phase, which acted as the pretest and measured their WA before the treatment. The pretest was held online in Google Docs, and the participants were given 50 min to finish their writing tasks. One week later, the participants developed their first writing task and e-mailed it to the instructor as a Word file version. Error correctors read each writing task carefully and provided learners of experimental groups with direct or metalinguistic CMCF on different aspects of their writing (unfocused feedback). Microsoft Word Office (2013) was used to comment on the experimental groups' writing tasks, and track changes were utilized to monitor the participants' revisions.

The treatment for MG included metalinguistic codes based on which the participants had to revise their writing tasks. For example, the errors related to tense were marked using T in the comment section. Below is an example of the MG participants' writing tasks and feedback provided on their errors:

Figure 1

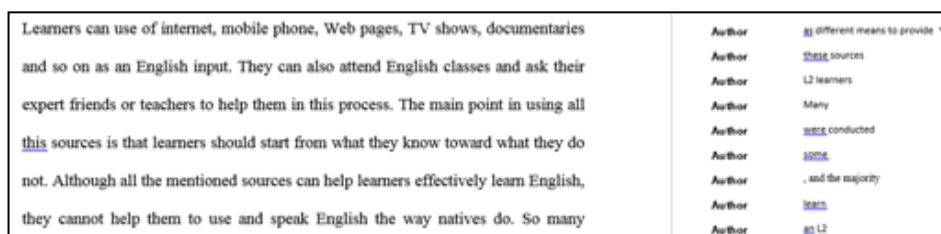
Metalinguistic CMCF Provided on the L2 Learners' Writing Tasks



The other experimental group received direct CMCF. The instructor provided the correct form in the comment section rather than simply typing the correct form in the body. This approach was adopted, hoping that the participants would pay more attention to the correct form when revising their writing tasks. The figure below illustrates an example of the DG participants' writing tasks and feedback provided on their errors:

Figure 2

Direct CMCF Provided on the L2 Learners' Writing Tasks



The MG and the DG participants were required to revise their texts and send them back to the instructor 3 days after the WCF was provided. One week after the last revision, the participants were post-tested, in which they wrote a 250-word writing task to see if CMCF had any positive impact on their WA scores. The participants' writing tasks were rated in the pretest and the posttest phases using a rubric adapted from Jacobs (1981) by the researchers. After rating different aspects of writing tasks, the sum of the writing would be the final score of learners.

Two days after the writing posttest, the potential impacts of CMCF on the participants' WTW were measured by asking them to fill out the WTW questionnaire (Kaivanpanah et al., 2019). The last stage of the study was a semi-structured interview conducted online on WhatsApp. In this phase, 16 participants from the experimental groups volunteered to participate in the study. Nine participants belonged to the MG, and 7 learners were part of the DG. The interviews lasted for 15-20 min in which the participants expressed their feelings and opinions on the provided treatment and if they felt

motivated. The participants were required to share their opinions on the treatment process. For instance, they were asked to verbalize how they felt during the treatment sessions and whether they positively or negatively impacted their WA and WTW. The interviews were audiorecoded and transcribed for further analysis. Then, they were analyzed and coded by the researchers to find the main themes in the interview data.

3.4. Data Analysis

First, descriptive statistics were calculated for the participants' pretest and posttest scores. Then, four one-way ANOVAs were run to check the possible variation between different groups' WA and WTW scores before and after the treatment. Before performing ANOVA, attempts were made to ensure the underlying assumption of ANOVA was not violated. The results of Shapiro-Wilk indicated data were normally distributed. Thus, the assumption was not violated. Furthermore, two post hoc was performed on the participants' WA and WTW posttest scores to see which WCF type more significantly impacted their WA and WTW. The last step in the data analysis phase was coding the interview data and finding common themes among categories.

4. Results and Discussion

4.1. Results

4.1.1. Descriptive and Inferential Statistics

Multiple statistical analyses were performed (i.e., descriptive statistics, ANOVA, and post hoc) to explore the effect of direct and metalinguistic CMCF on the participants' WA and WTW. Descriptive statistics were first performed on the participants' pretest and posttest scores. Table 1 shows a summary of the participants' WA and WTW pretest and posttest scores:

Table 1

Descriptive Statistics on Upper-Intermediate' WA and WTW Pretest and Posttest Scores in the DG and MG

			<i>N</i>	<i>M</i>	<i>SD</i>
WA Pretest and Posttest	DG	Pretest	30	63.63	14.17
		Posttest	30	69.33	13.58
	MG	Pretest	29	57.79	17.06
		Posttest	29	71.72	15.22
	CG	Pretest	31	60.16	12.93
		Posttest	31	58.55	14.44
WTW Pretest	DG	Pretest	30	148.17	25.60
		Posttest	30	158.63	23.86

and Posttest	MG	Pretest	29	134.59	26.76
		Posttest	29	143.90	37.45
	CG	Pretest	31	141.03	24.68
		Posttest	31	115.77	36.93

The descriptive statistics on WA scores indicated that the participants' mean scores in the experimental groups changed from the pretest to the posttest. The highest pretest mean score belonged to the DG participants (63.63), whereas the MG had the highest posttest mean score (71.72). The CG participants' mean score on the posttest (58.55) was relatively lower than the pretest (60.16).

As with the WTW scores, the mean scores of all the groups changed from the pretest to the posttest, with the DG posttest mean score as the highest (158.63) and the CG posttest mean score as the lowest one (115.77). As indicated above, the DG's and MG's WTW performance on the pretest and the posttest indicated an improvement in the participants' WA and WTW scores in the posttest.

After running a preliminary examination of the dependent variables (i.e., the scores) to ensure the scores were normally distributed, two ANOVAs were performed on the participants' WA pretest and posttest scores.

Table 2

ANOVA Results on the learners' WA Pre- and Posttest Scores

Variable	<i>df</i>	<i>F</i>	<i>P</i>	η^2
Pretest	2	1.59	.32	.02
Posttest	2	7.193	.001	.16

The ANOVA results on the pretest scores ($F_{[2, 87]} = 1.59, p > .000$) illustrated that the participants' WA scores did not differ significantly as the *p* value was more than .05. This finding suggests the participants of different groups were not statistically different before the treatment in terms of their WA. Confirming that WA differences between the groups were not significant, another ANOVA was performed on the WA posttest scores, whose results indicated that the *p* value was less than .001. Therefore, it was concluded that differences between the participants' WA in posttest scores were significant ($F_{[2, 87]} = 7.193, p < .001$). Tukey's post hoc test was also performed on their posttest WA's scores to locate the potential differences among the participants of different groups:

Table 3

Post Tukey Upper-Intermediate Learners' WA Posttest Scores in the DG, CG, and MG

I) WCFT	(J) WCFT	Mean Difference (I-J)	<i>Sig.</i>

DG	MG	-2.391	.800
	CG	10.785*	.012
MG	DG	2.391	.800
	CG	13.176*	.002
CG	DG	-10.785*	.012
	MG	-13.176*	.002

The results indicated that the MG and the DG participants' WA outperformed the CG participants on the posttest, with no significant differences among the efficacy of the two types of CMCF on the experimental groups' WA posttest scores. Also, two more one-way ANOVAs were performed on the WTW pretest and posttest scores to answer the second research question:

Table 4

ANOVA Results on the learners' WTW Pre- and Posttest Scores

Variable	<i>df</i>	<i>F</i>	<i>P</i>	η^2
Pretest	2	2.07	.32	1.4
Posttest	2	13.111	.000	.42

The one-way ANOVA results on the WTW pretest scores indicated that the participants of the different groups did not differ significantly in terms of their WTW pretest scores ($F_{[2, 87]} = 2.07, p > .000$) as *p* value was less than .05. Concerning the WTW posttest scores of the participants, the results indicated that the significant value was less than .05, suggesting that the participants of three groups' WTW scores were statistically different ($F_{[2, 87]} = 13.111, p < .000$). Additionally, to detect the potential differences between learners' WTW scores in the posttest, Tukey's post hoc was performed on the participants' WTW posttest scores, whose results are given in Table 5:

Table 5

Post Tukey Upper-Intermediate Learners' WTW Posttest Scores in DG, CG, and MG

(I) WCFT	(J) WCFT	Mean Difference (I-J)	<i>Sig.</i>
DG	MG	14.737	.210
	CG	42.859*	.000
MG	DG	-14.737	.210
	CG	28.122*	.004
CG	DG	-42.859*	.000
	MG	-28.122*	.004

As illustrated above, the post hoc test results indicated that the WTW posttest score of the DG and the MG significantly improved as a result of the treatment. Although both experimental groups outperformed the CG participants, differences in the WTW posttest scores of the DG and the MG participants were not statistically significant. Overall, the results suggested that direct and metalinguistic CMCF effectively improved the participants' WA and WTW.

In the last data analysis step, the interview data were coded to answer the third research question. Common themes among them were found and categorized into:

1. Efficacy: The extent to which the participants considered WCF to be effective. Whether it had a positive impact on their writing and its various aspects

➤ Extracts

- DGF1: *I used to hate writing. I was not enthusiastic when this project started. But when I got my first writing task edited, it motivated me. Probably because I felt there was someone there to help me. This motivation helped me move forward. This WCF was great, like positive energy.*
- DGF3: *Indeed, it had a positive impact on my writing. It was written and recorded. We could refer to them anytime we wanted to.*
- MGF5: *WCF is best to save face. No need to be corrected in front of others and get embarrassed. I like it is better than OCF cuz it is personal and private. When my instructor corrects me orally, my classmates think less of me and think I am not as good as them.*

2. Focus: The amount of WCF they preferred to receive: a wide range of WCF or a specific aspect of writing.

➤ Extracts

- MGF5: *I like to receive as much as possible cuz I feel insecure about my writing.*
- MGF6: *I prefer to get feedback when my mistakes make a huge difference. I think vocabulary is more important than commas and semicolons.*
- DGF1: *I do not like to receive much WCF because it makes me feel I am an awful writer. I prefer my instructor to focus on my main problems, not all.*

- DGF7: *The more, the better. I want to know my mistakes. I never feel sad when someone corrects and comments on my writing tasks. I certainly feel relieved that I can improve my writing.*

3. Metacognitive: How CMCF helped the participants monitor their performance and improve it.

➤ Extracts

- MGM8: *I think when our errors are corrected, gradually, we notice the progress and development. We see it as a source of strength and eventually helpful to us.*
- DGF9: *WCF assists me in the process of revising my texts. I can identify what my strength and weakness are. Which part to focus more.*
- MGM10: *Having my instructors correct my mistakes raises my attention, and I can finally figure out what is wrong. I will plan to cover my weakness and not repeat them again.*

4. Cognitive: This category referred to the participants making use of feedback and analyzing the information to find out about rules.

➤ Extracts

- DGF3: *Every time I received feedback on my errors, I analyzed them and saw how they were used. I tried to find the rules by searching the net or using other sources.*
- MGF4: *The error codes on my errors did not provide me with enough information. It was difficult for me to find out how to correct the errors. And, sometimes, I was not sure if my revisions were correct or not.*
- MGM10: *The error codes eventually led me to refer to my previous knowledge and books. This feedback type was interesting as it did not impose any right choice on me when there were alternative ways to correct my errors.*

5. Affective: This criterion was about the description of the participants' feelings on how they felt during the treatment: Whether they felt anxious, motivated, confident, or supported.

➤ Extracts

- DGM2: *It encouraged me to write. There has always been a gap, and we rarely focused on writing. This motivated me to work harder, and I made a bond with writing.*
- MGM10: *This WCF, in my opinion, creates facilitative stress, which leads to progress and increases my motivation. Compared to oral CF, which creates much anxiety in me, this one is far better.*
- MGF4: *This WCF positively impacted my motivation. As I approached the end, my writing issues decreased, and I felt confident.*
- MGF11: *The beginning was a big challenge and stressful. After my first writing task, I felt down because there were many mistakes. However, gradually I overcome this feeling and felt competitive. I wanted to achieve a high level like the person who commented on my writing tasks. Eventually, motivation prevailed over the disappointment.*

As Table 6 indicates, all interviewed participants believed that CMCF positively impacted their writings. They believed that WCF could motivate them and help them move forward. However, they mentioned the type of corrective feedback and the amount of feedback could impact their motivation or its efficacy. Most participants ($n = 12$) mentioned that they preferred all their errors corrected. However, few ($n = 4$) mentioned that they felt that focused WCF probably had a better impact on their WA and WTW.

Table 6

Frequency of L2 Learners' Coded Interview Data

Category	Affective	Metacognitive	Cognitive	Efficacy	Focus
Frequency	81	38	25	16	Focused 4 Unfocused 12

Besides, the direct CMCF and metalinguistic CMCF were among the participants' preferred WCF types. Seven participants mentioned that metalinguistic CMCF worked best for them, as it made them think and find the correct form. Besides, 7 participants believed that direct CMCF could best help them, as it avoided confusion on how to correct their errors. Two participants, however, claimed they preferred explicit explanation of rules, as it was difficult for them to rely on the provided WCF to revise their tasks and develop their future writing tasks.

4.2. Discussion

The aim of this research was to compare the potential impacts of direct and metalinguistic CMCF on upper-intermediate L2 learners' WA and WTW. Furthermore, this study sought to see which factors contributed more to development of the participants' WA and WTW. The results indicated that direct CMCF positively affected the participants' WA concerning the first research question. The findings support previous studies (e.g., Bitchener & Knoch, 2010).

Most instructors and researchers are concerned about providing direct CMCF because L2 teachers are unsure if L2 students necessarily review the provided WCF. The current study operationalized direct CMCF as the instructor's comments on the participants' errors in the margin and asked them to revise their texts to address such issues. The findings showed the positive impacts of direct CMCF on the participants' writings, especially grammar. This finding supports the meta-analysis study done by Kang and Han (2015) in that WCF most significantly affected the students' writing accuracy.

Besides, the results, in line with previous research (e.g., Esmaeeli & Sadeghi, 2020; Hashemian & Farhang-Ju), indicated that metalinguistic CMCF improved the participants' WA. This finding corroborates with the tents of perceptual salience, which underscored the necessity of providing saliency in L2 learning (Ellis, 2016). As saliency is of significant importance in helping L2 learners to notice the correct forms, CMCF offered the participants an opportunity with salience to make them aware of the error conveyed through the negative evidence. Therefore, the findings provide further evidence for perceptual salience in L2 learning.

The results further indicated that both direct and metalinguistic CMCF had a similar effect on the participants' WA. Similar to the present study, Bitchener and Knoch (2008, 2010) found no difference between the direct and the metalinguistic WCF groups as far as language use was concerned.

The findings can be explained through text-processing theories that understanding is a process for which L2 learners represent a text on different levels. These theories propose three levels of representation: the surface level, the text base, and the situation model. The situation level, considered the highest level of representation, supports knowledge transfer because the text's interpretation often includes preexisting knowledge. As for the present study, metalinguistic and direct CMCF might have improved their situation model of the text in that it was related to their preexisting knowledge and experience. This is convincing as most L2 teachers provide their learners with explicit instruction in EFL contexts (Ferris et al., 2013). Therefore, practicing

retrieving the critical concepts from memory resulted in better development of their WA and transferred them to new contexts (e.g., Roediger & Butler, 2011). Another possibility is that retrieval has reopened a memory, leading to reconsolidation and alteration (e.g., Lee, 2009). For instance, Finn and Roediger (2011) indicated that postretrieval processing of new information led to better retention by integrating this information into the existing memory. Concerning this study, the retrieval processing of the metalinguistic and direct CMCF has likely resulted in the information being integrated into the memory before treatment sessions (i.e., explicit explanation of rules by the teachers). During the last treatment sessions, the participants might have reopened a memory when integrating new information into the existing memory. That is why the metalinguistic CMCF and direct CMCF participants WA mean scores improved on the posttest.

It should be noted that the participants in the MG slightly outperformed the DG participants in the WA posttest. The findings can be justified concerning L2 learners being engaged with finding the correct forms rather than providing them with the correct forms. According to Shintani and Ellis (2013), L2 learners process information differently through direct and metalinguistic WCF. As for direct CMCF, the correct form was provided near the error, enabling L2 learners to compare the errors and the correct forms, whereas WCF in the form of clues results in problem-solving tasks. Furthermore, the two types of feedback are theoretically different, as direct CMCF is input-providing and involves L2 learners in comparison. In contrast, metalinguistic CMCF is output-prompting and pushes L2 learners to correct their errors.

Moreover, the results indicated that CMCF positively impacted the participants' WTW. The results run counter to Truscott's (1996) claims that WCF demotivates L2 students. The participants' interview data can justify the findings. The participants frequently mentioned they felt supported and preferred receiving CMCF, as they considered it a facilitator to their learning development.

Besides, one crucial issue was that WCF mode seemed to affect its efficacy, too, because most participants believed that OCF could cause anxiety. Also, the interview results indicated that some participants' perceptions of CMCF changed over time.

> Extracts

- MGF14: *I was not motivated when the project started as I do not like it when my instructors use a harsh tone when correcting my mistakes. I hate to be mocked and corrected harshly in front of others. The implicit feedback provided for me was written and motivated me to find the correct version myself.*

The participants argued that they believed WCF was positively affective, which contrasts with Goldstein (2005). For instance, they argued that lack of motivation is one reason L2 students may not be paying enough attention to CMCF.

➤ Extract

- MGF4: *I am an average writer. I never consider myself a good writer. But I felt it would help me improve my work quality, and it did. It helped me think of alternative structures or phrases to improve my text.*

This finding is similar to previous research conducted by Ferris et al. (2013). The learner with low L2 writing self-efficacy but an attachable attitude had a mindset that helped her believe that she could learn and grow her L2 WA.

The interview results are in harmony with the findings of the quantitative phase in that the participants' WTW and mindset changed over time and potentially as a result of CMCF. Furthermore, the interview findings suggested that the participants' opinions toward WCF were malleable. Hence, raising their awareness and proper instructional interventions can lead to improved performance and development and improve their belief systems, which, in turn, can contribute to more adaptive learning patterns.

Besides, 4 L2 writer participants mentioned that too much feedback harmed their self-efficacy and motivation, as indicated in previous research (Busse, 2013; Duijnhouwer et al., 2012). They considered it as a lack of progress or even ability. Or, they mentioned that CMCF lacked a clear picture of their main weaknesses.

Overall, the results run counter to nativist approaches opponents (e.g., Gass, 2003), for they highlight the effectiveness of positive feedback over negative feedback. The current study's findings indicated that the groups that had received CMCF performed better on the posttest than on the pretest, emphasizing the significance of WCF in EFL settings where the instructor's feedback is an important way to improve their language proficiency. Providing WCF by the instructors helps L2 learners to acquire correct forms and structures. Most researchers believe (e.g., Ellis, 2009; Ferris et al., 2013; Karim & Nassaji, 2019; Suzuki et al., 2019) that negative feedback can affect L2 learners' competence. As a result, the findings of this study will help L2 teachers decide whether they should provide their learners with feedback whenever they produce incorrect utterances or ignore some of the errors. It might help them recognize how much WCF should contain explicit feedback types to gain the most effectiveness in L2 learning. According to Carroll (2001), autonomous induction theory feedback can only work for L2 learning if the L2 learner recognizes the feedback's corrective intentions.

5. Conclusion and Implications

The results contribute mainly to the existing literature in that the findings indicated that both direct and metalinguistic CMCF affected the upper-intermediate L2 learners' WA. It, further, highlighted that both input-providing (i.e., direct CMCF) and output-promoting feedback (i.e., metalinguistic CMCF) were effective when WA was the focus. The results can help instructors in providing learners with the most effective types of feedback to address the incorrect part of the utterance. The results manifested that the provision of unfocused WCF effectively improved the participants' WA and WTW. More specifically, the results provided further evidence for the effectiveness of CMCF on L2 learners. This could suggest that this generation of L2 learners learn when the provided WCF is provided through a user-friendly medium.

Although attempts were made to control the potential intervening factors, this study suffers from several limitations: First, due to the limited number of participants available, the efficacy of two types of CMCF was examined. It is suggested to replicate the study with a higher number of L2 learners to have a more representative sample of the entire population. It leads to increased external validity. Second, this study investigated the effect of CMCF on upper-intermediate L2 learners in an EFL context. Although this study addressed a gap in the literature review, further studies should examine the relative effects of different types in other contexts and proficiency levels in relation to affective factors. It is suggested that future research should probe the effectiveness of other types of CMCF and mediating impact of affective factors.

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