



Dovetailing Written Corrective Feedback to ESP Courses for Students of Allied Medical Sciences

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Abstract

This study attempted to determine the viability of the pedagogic interventions in ESP writing courses that fall within the ambit of Written Corrective Feedback (WCF). Considering this objective, 93 intermediate-level ESP learners in 3 intact classrooms of a medical sciences university in Iran were assigned to three groups. They were provided with corrective feedback; using three feedback strategies comprising direct, indirect, and metalinguistic WCF over ten treatment sessions. The researchers endeavored to itemize the utility of the interventions mentioned above via analyzing the participants' performance on an immediate and a delayed writing posttest. The results displayed the efficacy of WCF for the betterment of the ESP learners' writing performance. Furthermore, they accentuated the short-term and long-term supremacy of explicit WCF strategies (i.e., metalinguistic & direct) over the implicit ones (i.e., indirect). The findings might enable syllabus designers and curriculum developers to redress the English courses for students of allied medical sciences.

Keywords: Allied Medical Sciences; Corrective Feedback; English for Specific Purposes; Writing; Written Corrective Feedback Strategies

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1. Introduction

In light of a multitude of studies (e.g. [Bitchener, 2008; 2009; 2017; 2018; Bitchener & Knoch, 2008, 2009a, 2009b; 2015; Bruton, 2009a, 2009b; Chandler, 2003; Ferris, 2010; Guo & Barrot, 2019; Karim, & Nassaji, 2020a, 2020b; Mao & Lee, 2020; Reinders & Mohebbi, 2018; Truscott, 1996, 1999, 2007, 2008, 2009, 2010a, 2010b](#)) Corrective Feedback (CF) has procured plenteous lure due largely to its alleged potential to instigate and precipitate the bona fide conditions for the consummation of students' writing ability. CF comprises a reaction to learner output entailing a linguistic error ([Ellis, 2009b](#)). It escalates learner motivation and presumably intensifies accuracy in language use. Furthermore, CF inhibits learners' irresolution, disinclination, and oscillation and expedites their acquisition. These issues permeate oral CF. Nonetheless, they characterize Written Corrective Feedback (WCF) likewise ([Ellis, Sheen, Murakami, & Takashima, 2008](#)).

Several researchers (e.g., [Bitchener, 2008; Ferris, 1999](#)) support WCF, highlight its putative importance and noticeable effectiveness in writing courses, and contend that it is a prerequisite for developing the second language writing ability. Notwithstanding, the cogency and efficiency of WCF have been criticized by some researchers (e.g., [Truscott 1996; 2007](#)), and it is inadmissible in some practitioners' writing courses. The disputation over the potency of WCF emerged from [Truscott's \(1996\)](#) vindication, which pivoted around the assertion that grammar teaching has to be renounced in the instruction of writing. He remonstrated with the appraisal of writing assignments in terms of the authenticity of grammar. He highlighted its detrimental impacts mainly due to the incongruity between underlying presumptions about the efficacy of WCF and the natural sequences in the evolution of interlanguage. Indeed, [Truscott \(1996\)](#) endorsed a *process theory* of writing and posited that, while WCF engenders conscious attention to linguistic integrity in students and induces them to correct their errors in consecutive drafts, it does not secure accuracy in other writing tasks.

Nonetheless, [Truscott's \(1996\)](#) view that WCF does not motivate and invite the learners to pay attention to linguistic authenticity has been rejected by other researchers, including [Ferris \(1999\)](#), who highlighted the predominant role of WCF in the instruction of writing. [Ferris \(1999\)](#) underpinned her contention using the alleged unanimity among the learners and teachers that WCF not only escalates the students' writing ability but also precipitates the consummation of their organizational skills. In fact, [Ferris \(1999\)](#) focused on the evaluation of the essence of the given WCF and noted that the clarity and consistency of WCF are the predominant criteria for its efficacy.



The credibility of Ferris's (1999) postulation about the promising role of WCF in honing writing ability provoked a series of in-depth studies during the next decade (e.g., Chandler, 2003; Ellis, Loewen, & Erlam, 2006; Ellis, Sheen, Murakami, & Takashima, 2008; Hyland & Hyland, 2001, 2002; Lee, 2004; Sheen, 2007; Sheen, Wright, & Moldawa, 2009). Overall, research has produced mixed results. Indeed, while several studies (e.g., Bitchener, 2008; Ellis, 2007; Russel & Spada, 2006; Sheen, 2007) have principally accentuated the auspicious effects of WCF on students' writing performance, others (e.g., Guenette, 2007; Truscott, 2004, 2007; Van Beuningen, 2010) have attested that it is unserviceable for the amelioration of writing ability. Considering this issue, the present study strived to determine the effectiveness of WCF for developing the learners' writing ability in the courses for students of allied medical sciences.

2. Review of the Related Literature

In addition to the controversies over the desirability of WCF, abundant inquiries have been made regarding its optimum strategies (Chandler, 2003; Ferris, 2006). In an attempt to explain the multitudinous feedback alternatives, Ellis (2009a) developed a typology of WCF strategies. This typology distinguishes six teacher feedback options, including a) direct feedback in which the teacher imparts the correct linguistic feature; b) indirect feedback through which the teacher specifies the occurrence of the error without its conferment; c) metalinguistic feedback that transpires by dint of explicit grammatical instruction; d) focus of the feedback which restricts the focus of correction on either all types or specific kinds of linguistic errors; e) electronic feedback that refers to the indication and exemplification of correct linguistic forms via hyperlinks to a concordance file; and f) reformulation which renders a native speaker's rephrasing of the learner's erroneous written draft. Moreover, the typology enumerates two strategies for the student's response to the provided WCF: revision required and no revisions required, which refer to the modification of the teacher-corrected draft and perusal of the draft by the learner, respectively. The learners' undivided attention to the correction is a prerequisite for these strategies.

Even though research (e.g., Bitchener, 2008, 2009; Sheen, Wright, & Moldawa, 2009; Truscott & Hsu, 2008) has embarked on the specification of optimal WCF strategies, it has produced mixed results and has exacerbated this issue. In fact, research has been unable to end the disputation over the latent potential of WCF to hone second language writing ability. The dissension within the research was recapitulated by Hyland and Hyland (2006), who pointed out that:

“While feedback is a central aspect of L2 writing programs across the world, the research literature has not been unequivocally positive about its role in L2

development, and teachers often have a sense they are not making use of its full potential” (p. 83).

Finally, even though empirical research has particularized the potency of WCF in second/foreign courses, it has overlooked the scrutiny and appraisal of this type of feedback in English for Specific Purposes (ESP) classrooms. ESP constitutes a host of English courses that pivot around a distinct group of learners’ genuine needs. It is an approach to the instruction of a second language that examines the learners’ intent in the target position, determines the linguistic requirements of the relevant situation, and tries to enable the learners to use their vocational instructions (Hutchinson & Waters, 1987). More specifically, these courses try to determine the learners’ essential skills in the pertinent vocation, evaluate the importance of the relevant skills, establish their hierarchy, design an appropriate curriculum based on their importance, designate the suitable methodology for their instruction, and furnish the learners with the auspicious learning materials and learning tasks which are liable to result in favorable learning conditions (Hutchinson & Waters, 1987).

Among the various ESP courses, English for Medical Sciences has been a research cynosure mainly due to the import of English for medical professionals. Researchers have tackled miscellaneous research lines, including the issue of plagiarism in medical papers (e.g., Karami & Danaei, 2016), erroneous language use by medical specialists (e.g., Gholami & Zeinolabedini, 2015), medical specialists’ convenience editing processes (e.g., Gholami & Zeinolabedini, 2017), and the roles played by in-text citations in medical research (Goodarzi & Gholami, 2017). Notwithstanding, none of these research lines accentuates the underlying import of instruction regarding the writing of medical papers. Indeed, it seems that research in this area presupposes that writing proficiency is a concomitant and by-product of academic medical studies. This issue has forestalled the inspection of the efficacy of instructional procedures such as WCF in English for Medical Sciences courses. The problem has been exacerbated and aggravated by the injudicious, inconsistent, and unbecoming curriculum and methodology of these courses in most university settings. Consequently, it is discernable and conspicuous that research is requisite in this area since the pertinent studies have overlooked the consequential roles of writing instruction and feedback used in medical professionals’ writing competence in scientific articles. This research study tried to deal with this issue in the body of research on English for Medical Sciences in the English as Foreign Language (EFL) context of Iran. More specifically, the study endeavored to respond to the following question:

1. What are the most efficient short-term and long-term WCF strategies in writing courses for the students of allied medical sciences?



3. Method

3.1 Participants

The researchers appointed a university of medical sciences in Iran as the research site of the study primarily due to the obtainability of a large sample at the university and its optimum characteristics, which were congruent with the intentions and objectives of the study. Based on the purposes mentioned above, 93 intermediate-level surgical technology students (42 male & 51 female) were singled out as the participants based on their performance on the Oxford Placement Test (Allan, 2004). The participants were B.S. freshmen, ranged in age from 18 to 22, and were selected from among the native speakers of Persian, Kurdish, and Azeri in three intact classrooms.

3.2 Materials and Instruments

3.2.1 The Proficiency Test

On account of the predominant intents of the study, the researchers used Oxford Placement Test (Allan, 2004) to appoint the intermediate-level students as the participants. This test encompasses 60 multiple-choice items in three sections, including cloze test, grammar, and vocabulary. As Allan (2004) contended, statistical analyses have ascertained that the test has satisfactory reliability and validity indices and is apt for the appraisal and assessment of language proficiency.

3.2.2 Hyland's Model of Move Structures

In light of the issues as mentioned earlier about the methodological deficiencies in ESP writing courses, the researchers opted to examine the utility and practicality of WCF within the context of systematic writing instruction. To this end, they utilized Hyland's (2000) model of move structures in the abstract sections of research papers to furnish the participants with tailor-made instructional mediation and to scrutinize and appraise the efficacy of WCF in ESP courses. Hyland's (2000) model focuses on the import of moves in the structure of the abstract section of the research articles. Moves are semantic or structural portions of the stream of discourse that manifest the writer's intent through the performance of precise functions (Connor, Upton & Kanoksilapatham, 2007). In this model, Hyland (2000) distinguished five overarching moves, including introduction, purpose, method, product, and conclusion. He pointed out that the introduction states the general objectives of the article and justifies the research. The purpose move specifies the intents of the research and highlights the overarching objectives of the paper. Method explains the methodological characteristics of the survey and encompasses detailed information on the design,

participants, and procedures of the study, among the others. The product move delineates the overriding results of the survey to respond to the primary inquiries of the research article. Finally, the conclusion move expounds upon the findings, speculates the reasons behind the findings, strives to broaden the results, and discusses the significant implications of the study.

3.2.3 Grading Scale

The researchers implemented a modified version of [Brown and Bailey's \(1984\)](#) scoring scale to rate the participants' abstract writing tasks on the writing pretest and posttests of the study. This scale enables the raters to gauge and appraise the writing tasks objectively through the use of specific grades which specify the participants' ability in various aspects of the writing tasks. The modified version of this scale in the present study enabled the researchers to evaluate the writing tasks in three categories, including a) structure, b) punctuation, spelling, and mechanics, and c) style and quality of expression. Each of these categories was rated by the researchers on a 20-point scale based on four sub-categories. The analysis results based on Cohen's kappa coefficient showed that the inter-rater reliability ($K=.81$) was satisfactory in the present study.

3.2.4 The Writing Pretest and Posttests

The main objective of this study was the specification of the usefulness of WCF for improving ESP students' writing ability in the research paper abstract sections. To this end, the researchers singled out three surgical technology research articles from among the articles of a quality medical science journal to be the basis for the writing pretest, immediate posttest and delayed posttest of the study. More specifically, in these tests, the researchers removed the article's abstract. They prompted the participants to write a 150 to 250 abstract for each of them based on the various sections of the report. The researchers implemented [Brown and Bailey's \(1984\)](#) scoring scale to appraise the participants' performance on these tests.

3.2.5 Typology of WCF Strategies

The chief aspect of the treatment of this study was the utilization of various WCF strategies for the betterment of ESP students' writing ability. Consequently, [Ellis's \(2009a\)](#) typology of WCF was employed to hand-pick the major feedback strategies for the treatment sessions of the study. This typology encompasses six predominant processes, including direct corrective feedback, indirect corrective feedback, metalinguistic corrective feedback, the focus of feedback, electronic feedback, and reformulation. Based on the objectives mentioned above, direct corrective feedback, indirect corrective feedback, and metalinguistic corrective feedback were appointed to be utilized in this study. To provide direct WCF, the



researchers furnished the participants with appropriate target forms. Furthermore, they indicated and located the participants' writing errors to give indirect WCF feedback. In this process, they underlined the erroneous sections of the texts and utilized cursors to highlight their omitted areas. Lastly, the researchers gave metalinguistic feedback to the learners using concise metalinguistic hints, which empowered the learners to specify the source of the error. The researchers adopted an unfocused approach to provide the relevant feedback. In other words, they strived to give extensive feedback to the learners regarding all of the errors. Each of these WCF strategies was used for the treatment of each of the experimental groups of the study.

3.3 Procedure

The researchers adopted a quasi-experimental design to resolve the pertinent questions of this study. Accordingly, first, they implemented the Oxford Placement Test (Allan, 2004) to select 93 intermediate-level surgical technology students in three intact classrooms. These students were randomly assigned to three experimental groups, including the direct WCF group, the indirect WCF group, and the metalinguistic WCF group, with 31 students in each group.

Second, the writing pretest of the study was administered to all of the groups to discern the participants' writing proficiency and to ascertain their homogeneity regarding their writing competence before the onset of the treatment. In this test, the participants were furnished with a surgical technology research paper and were implored to write its abstract section in 30 minutes. The participants' performances on this test were rated using Brown and Bailey's (1984) scoring scale.

Third, throughout the treatment sessions, the participants of the groups received apt writing instruction and were given their germane WCF. In the first treatment session, the participants of all of the groups were familiarized with the definitions and functions of discourse moves. They were provided with much information on Hyland's (2000) model of move structures using a genuine specimen of a research paper abstract. Following this phase of instruction, the stage of practice and trial began. At this stage, the participants were asked to write an abstract for a research article in the field of surgical technology. The instruction and trial phases of the first session took about 90 minutes. At the end of the first session, the researchers collected the students' writing tasks, perused them to specify their errors, and provided the participants of each group with their fitting WCF. More specifically, in the direct WCF group, they supplied the participants with the correct forms of the errors. In the indirect WCF group, they underlined the erroneous parts of the abstract section and utilized cursors to foreground the omissions in the text of the abstract. Lastly, in the metalinguistic

WCF group, the researchers used metalinguistic clues and hints to assist the participants in identifying the source and type of their errors.

The trial phase recurred throughout nine consecutive sessions in nine weeks. During these sessions, the participants of all of the groups were prompted to write abstract sections of research articles and received their germane WCF. This phase lasted about 30 minutes in each session. The immediate writing posttest of the study was given to all of the groups in the eleventh session to determine the short-term effectiveness of WCF for improving the participants' writing accuracy. This test was analogous to the preset and required the participants to write the abstract section of a surgical technology article in 30 minutes. Finally, the participants in all of the groups took the delayed posttest of the study four weeks after the immediate posttest of the study. This test was akin to the pretest and the immediate posttest and implored the participants to write the abstract section of an article in the field mentioned above, in 30 minutes. The researchers evaluated the performances of all of the experimental groups on the posttests using [Brown](#) and [Bailey's \(1984\)](#) grading scale.

4. Results

Due to the objectives mentioned above, the researchers compared the writing performances of the experimental groups prior and posterior to the appropriate treatment. To this end, they used a one-way ANOVA test to specify the differences among the groups on the writing pretest. Table 1 provides the descriptive statistics for this test:

Table 1

Descriptive Statistics for the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Writing Pretest

	N	Mean	Std. Deviation
Direct Group	31	24.97	3.619
Indirect Group	31	26.68	3.004
Metalinguistic Group	31	25.52	3.129
Total	93	25.72	3.305



To specify the significance of the differences among these groups, the results of the one-way ANOVA test had to be scrutinized. Before the perusal of these results, the researchers examined the results of Levene's test for homogeneity of variances. The significance value in the results of this test (.589) was greater than .05. That is, the assumption of the homogeneity of variances was not violated. Consequently, the researchers examined the results of the one-way ANOVA test. Table 2 represents these results:

Table 2

ANOVA Test of the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Writing Pretest

	df	F	Sig.
Between Groups	2	2.221	.114
Within Groups	90		
Total	92		

As shown in Table 2, the p-value in the results of this test .114 (represented as Sig.) was higher than the level of significance .05. Consequently, there were not any significant differences among the performances of these groups. That is, they were homogeneous regarding their writing ability before the treatment of the study. These results are illustrated in Figure 1:

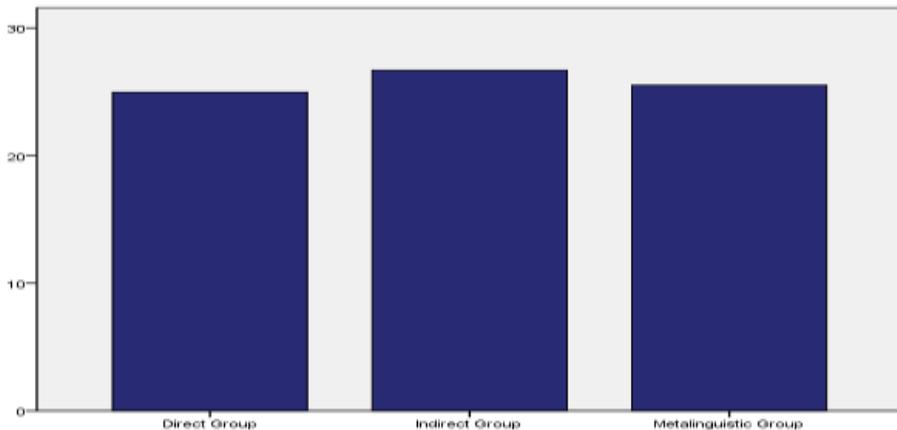


Figure 1. Comparison among the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Writing Pretest

Considering these results, the researchers carried out the study and analyzed the participants' performances on the immediate writing posttest. Table 3 provides the descriptive statistics for the comparison among the performances of the experimental groups on this test:

Table 3

Descriptive Statistics for the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Immediate Writing Posttest

	N	Mean	Std. Deviation
Direct Group	31	34.32	3.745
Indirect Group	31	31.81	3.371
Metalinguistic Group	31	37.10	3.145
Total	93	34.41	4.028

To determine the statistical significance of the differences among the performances of these groups, the researchers had to examine the results of the one-way ANOVA test. The scrutiny of the significance value (.333) in Levene's test for homogeneity of variances accentuated the fact that the assumption of homogeneity of variances was not violated, and the researchers could peruse the results of the ANOVA test. Table 4 represents the results of this test:

Table 4

ANOVA Test of the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Immediate Writing Posttest

	df	F	Sig.
Between Groups	2	18.460	.000



Within Groups	90
Total	92

As shown in Table 4, the p-value in the results of this test .000 (marked as Sig.) was lower than the level of significance .05. Therefore, there were significant differences among the performances of these groups. Notwithstanding, there was a need to examine the results of the Post Hoc test to determine the locations of these differences. Table 5 represents the results of the Tukey Post Hoc Test:

Table 5

Tukey Test of the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Immediate Writing Posttest

(I) Groups	(J) Groups	Mean Difference (I-J)	Sig.
Direct Group	Indirect Group	2.516*	.013
	Metalinguistic Group	-2.774*	.006
Indirect Group	Direct Group	-2.516*	.013
	Metalinguistic Group	-5.290*	.000
Metalinguistic Group	Direct Group	2.774*	.006
	Indirect Group	5.290*	.000

As shown in Table 5, all p-values were less than .05. Consequently, it was contended that metalinguistic WCF was the most efficient short-term strategy for improving the surgical technology students' writing ability. Moreover, it was noted that, although direct WCF was not as productive as metalinguistic WCF, it had a more beneficial impact on these learners' writing ability than the indirect WCF. These results are illustrated in Figure 2:

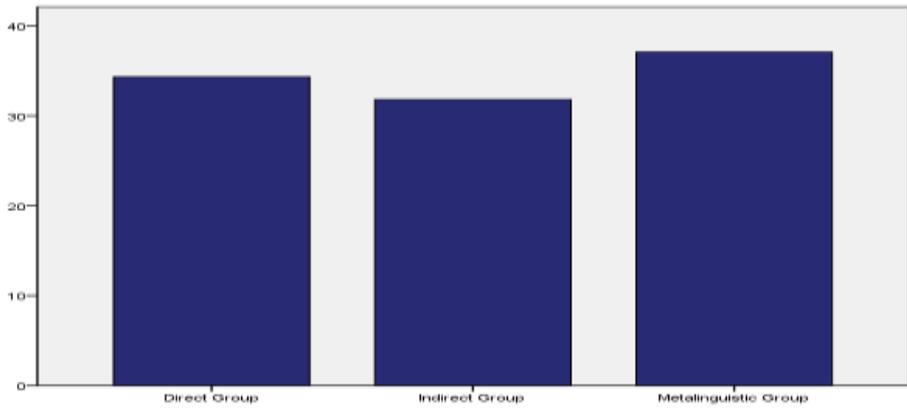


Figure 2. Comparison among the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Immediate Writing Posttest

Finally, the researchers compared the results of the experimental groups on the delayed posttest of the study. Table 6 provides the results of this test:

Table 6

Descriptive Statistics for the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Delayed Writing Posttest

	N	Mean	Std. Deviation
Direct Group	31	30.58	3.576
Indirect Group	31	27.97	2.983
Metalinguistic Group	31	33.94	3.172
Total	93	30.83	4.048

To specify the significance of the differences among the performances of these groups on this test, the researchers checked the results of Levene's test. The significance value in the results of this test (.663) showed that the assumption of homogeneity of variances was not violated. Consequently, the researchers scrutinized the results of the one-way ANOVA test. These results are illustrated in Table 7:



Table 7

ANOVA Test of the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Delayed Writing Posttest

	df	F	Sig.
Between Groups	2	26.217	.000
Within Groups	90		
Total	92		

The scrutiny of Table 7 highlighted that there were significant differences among the performances of the experimental groups on the delayed posttest. Nonetheless, the researchers perused the results of the Tukey Post Hoc Test to determine the locations of the differences mentioned above. Table 8 provides these results:

Table 8

Tukey Test of the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Delayed Writing Posttest

(I) Groups	(J) Groups	Mean Difference (I-J)	Sig.
Direct Group	Indirect Group	2.613*	.006
	Metalinguistic Group	-3.355*	.000
Indirect Group	Direct Group	-2.613*	.006
	Metalinguistic Group	-5.968*	.000
Metalinguistic Group	Direct Group	3.355*	.000
	Indirect Group	5.968*	.000

As shown in Table 8, all of the p-values in the results of the Tukey test were less than .05. Therefore, there were significant differences among the performance of all of the groups. More specifically, the metalinguistic WCF

strategy was the most productive long-term strategy. Moreover, the direct WCF strategy had a more powerful impact on the participants' writing ability than the indirect WCF strategy. Figure 3 shows these results:

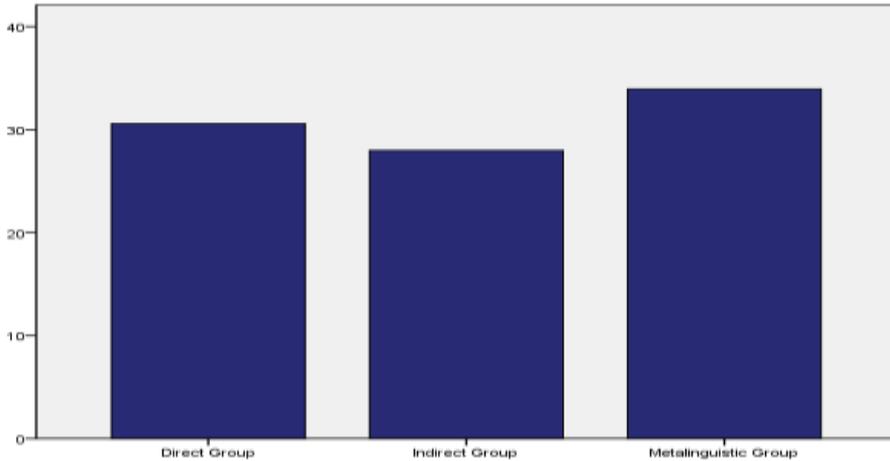


Figure 3. Comparison among the Performances of the Direct Group, Indirect Group, and Metalinguistic Group on the Delayed Writing Posttest

5. Discussion

The results of this study accentuated the fact that, in general, WCF strategies had a beneficial impact on the participants' writing ability. These results are in line with the preponderance of research on WCF (e.g., Abbaspour, Atai, & Maftoon, 2020; Bitchener, 2008; Bozorgian & Yazdani, 2021; Ellis, et al., 2008; Ferris, 2004, 2006; Ferris & Roberts, 2001; Gholami & Zeinolabedini, 2014; Karim & Endley, 2019; Karim & Nassaji, 2020a; Lopez, Steendam, Speelman, & Buyse, 2018; Luquin & Garcia Mayo, 2021; Mohammadi, Ghanbari, & Abbasi, 2019; Pourdana, Nour, & Yousefi, 2021; Rastgou, Storch & Knoch, 2020; Suzuki, Nassaji & Sato, 2019). Notwithstanding, the scrutiny of the results foregrounded the short-term and long-term pre-eminence of metalinguistic WCF strategy compared to direct and indirect WCF strategies. Moreover, it demonstrated that, overall, direct WCF was more efficacious in comparison with indirect WCF. These results reinforce the findings of several studies comprising Nagata (1993), Kim and Mathes (2001), Rosa and Leow (2004), Sheen (2006), Karim and Endley (2019), Karim and Nassaji (2020a), and Bozorgian and Yazdani (2021).



These findings reveal and underscore the predominance and superiority of clear WCF strategies (i.e., metalinguistic & direct) for improving writing ability. They contradict the results of specific studies, including [DeKeyser \(1993\)](#), and [Kim and Mathes \(2001\)](#), which have not reported any significant differences between the impacts of implicit and explicit WCF strategies. These results might be explained via both the Computational Model and Sociocultural Theory (SCT) perspectives.

In terms of the computational frame of reference, [Schmidt's \(2001\)](#) Noticing Hypothesis might expound on the ascendancy of the explicit WCF strategies over the implicit ones. This hypothesis highlights the significant role of conscious attention to linguistic input. It argues that this kind of attention changes the furnished input to intake, which is an indispensable prerequisite to long-term learning. To be more specific, the examination of the peculiarities of both metalinguistic and direct WCF strategies shows that they attract the learners' attention to the noticeable differences between their output and native speaker linguistic usage. It highlights their effectiveness in the acceleration of their cognitive comparison which might result in acquisition. In other words, these strategies empower the learners to intuit, specify, and ascertain the apparent incongruities and disparities between the erroneously employed structures and their pertinent apt counterparts in the target language. This issue allows them to rework their cognitive structure and processing strategies for relocating their attentional resources and processing capacity. These resources are the prerequisites for subsuming language knowledge and storing it in the long-term memory. On the other hand, the examination of the characteristics of indirect WCF manifests the fact that mainly due to its implicit nature, it might result in hesitancy, confusion, and indecision on the part of the learners. More specifically, indirect WCF does not provide the learners with an appropriate means of identifying the apposite second language forms. That is, it remains incomprehensible to most of the language learners.

Furthermore, in the above-mentioned conceptual framework, the results may be attributable to the beneficial and advantageous impact of metalinguistic and direct WCF strategies on the learners' detection of the target language forms. [Tomlin and Villa \(1994\)](#) contended that several implicit teaching interventions (e.g., indirect WCF) might expedite the learners' awareness of the second language code features. Notwithstanding, as they pointed out, these teaching procedures are not capable for accelerating their detection of the relevant formal components. The detection of these forms is indispensable to the process of acquisition. Therefore, the explicit nature of metalinguistic and direct WCF strategies may justify their instrumental role in changing the target language input into learner intake in ESP writing courses.

On the other hand, from an SCT perspective (Lantolf, 2000), the results might be ascribed to the impact of the metalinguistic and direct WCF strategies on the construction of the participants' Zone of Proximal Development (ZPD). The concept of ZPD encompasses the discerned disparity between a learner's genuine and bona fide development, which is assessed based on their unassisted problem-solving and their future development that is evaluated with the help of an expert or peer reinforcement (Vygotsky, 1978). Lantolf and Thorne (2006) averred that the teachers' scaffolding might empower the learners to transcend their actual psychological development and perform arduous tasks using social development. More specifically, the expert assistance may capacitate the learners to construct steady and consecutive ZPDs and undertake the pertinent tasks more autonomously.

6. Conclusion

The present study investigated the utility of WCF strategies in writing courses for students of allied medical sciences. The results highlighted that the strategies mentioned above, had a beneficial and advantageous impact on these learners' writing ability. It appears that some provisional conclusions can be drawn based on the obtained results. First, the university English courses for the students of allied medical sciences which use the Grammar-Translation method have to be thoroughly redressed and revamped. The course developers should take cognizance that academic writing competence does not emanate from the target language reading competence. Second, in contradistinction to Truscott's (1996) contention, our results accentuated the fact WCF strategies increased the learners' accuracy in successive writing tasks. They did not become ineffectual over time. Consequently, the focus-on-form and focus-on-forms approaches might have a more beneficial impact on the instruction of the formal aspects of the second language in comparison with a zero-option system which rejects their detailed instruction. Finally, the explicit WCF strategies might facilitate the transmogrification of the input to intake and may assist the learners to construct stable ZPDs. Notwithstanding, the beneficial and promising impact of the implicit WCF strategies should not be overlooked since their utility may gain momentum at higher proficiency levels.

A myriad of learner factors and contextual variables sway the efficacy of WCF strategies. Consequently, caution should be exercised regarding the generalization of the findings of this study to similar situations. The selection of the participants from different age groups, proficiency levels, language backgrounds, and academic settings may produce different results. The present study delimited itself to examining metalinguistic, direct, and indirect WCF strategies. Future studies should focus on the native speakers'



reformulations of the learners' output and electronic WCF using hyperlinks to concordance files. The investigation of these strategies might expound on the utility of authentic language exemplars to increase ESP learners' writing accuracy. Moreover, these studies have to specify the effectiveness of diverse WCF strategies in various sections of the research articles. Lastly, research has to appraise the impact of the different WCF strategies on the amelioration of the learners' writing accuracy in diverse ESP writing tasks such as memos and nursing reports.

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