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The efficacy of dynamic written corrective feedback for university-matriculated ESL learners

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Abstract

Truscott's (1996) indictment on error correction in second-language (L2) writing has ignited much discussion and research on the appropriateness of written corrective feedback (WCF) in L2 contexts. Out of this has emerged a body of research that suggests that WCF can positively impact the linguistic accuracy of student writing. However, these studies have examined only one or two error types. A central aspect of the efficacy of any corrective measure has to do with using feedback that is appropriate for the learner and the learning context. This paper builds on previous studies of dynamic WCF, which targets all linguistic errors simultaneously. Previously, dynamic WCF was studied in the context of an intensive English program where students' linguistic accuracy was positively affected. The current study tested the efficacy of dynamic WCF in the context of ESL students who are enrolled in university undergraduate studies. A comparative study was conducted measuring ESL learners who were taught using dynamic WCF against students who received traditional process writing instruction. Results indicated that students who received traditional process writing instruction experienced some declines in linguistic accuracy while those who received dynamic WCF showed significant improvement in the linguistic accuracy of their L2 writing.

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1. Introduction

Most practitioners would agree that a language teacher's primary purpose is to help students achieve their language learning goals as efficiently and effectively as possible. Furthermore, few would argue with the view that factors involved in achieving that aim are numerous and complex. In the case of helping students achieve their second-language (L2) writing goals, the undertaking is multifaceted and time-consuming (Ferris, 2003; Hyland and Hyland, 2006; Leki, 1992). Students must learn to develop and present complex ideas, often using entirely new rhetorical, mechanical, and linguistic tools. What adds to the difficulty of this process is that the pedagogy and

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research in L2 writing are still relatively new; consequently, the issues are many, and the answers are often disparate or even contradictory. For instance, some question the practice of written corrective feedback (WCF)¹ in second-language writing, arguing that the process is more important than the product; others insist on content before form, exclaiming that we are, after all, teaching writing, not grammar (Ferris, 2002; Hyland and Hyland, 2006; Leki, 1992; Truscott, 1996; Zamel, 1982, 1983, 1985).

Despite the arguments for and against the inclusion of WCF in L2 writing pedagogy, ESL learners frequently struggle to produce writing that is linguistically accurate, and because students face actual demands for linguistically accurate writing, the stigma associated with inaccurate writing cannot be overlooked (e.g., Beason, 2004; Evans et al., 2010a; Ferris, 2006; Horowitz, 1986). Unfortunately, a process approach to writing has failed to provide L2 writing students with the tools or the ability they need to generate linguistically accurate writing (Ferris, 2002; Ferris and Hedgcock, 2005; Hinkel, 2004). Furthermore, many practitioners who use WCF continue to struggle with the inconsistencies in the research (Bitchener, 2008; Bruton, 2009, 2010; Chandler, 2003; Ellis et al., 2008; Ferris and Hedgcock, 2005; Guénette, 2007; Russell and Spada, 2006; Truscott, 1996, 2010).

It is our observation that not only do L2 writing students expect to receive corrective feedback, but also that principle-based WCF can lead to more independent writers who produce more linguistically accurate writing (Evans et al., 2010b). The purpose of this paper is to build on existing research which suggests that a principle-based strategy for correcting students' errors—a strategy we call dynamic WCF—can lead to more linguistically accurate writing (Hartshorn et al., 2010). In this paper, we begin with a brief review of WCF in second-language writing research. This review leads to an overview of the principles of dynamic WCF and a discussion of the first study that reported improved linguistic accuracy of students enrolled in an intensive English language program (IEP) (Hartshorn et al., 2010). With this as a backdrop, we then present the current study, which measures the effects of dynamic WCF on the linguistic accuracy of writing produced by ESL students who are enrolled in university undergraduate studies (i.e. matriculated students).

2. Written corrective feedback in second-language writing

2.1. Uncertainties and controversies

Ortega (2006) once compared the course of corrective feedback research in second-language writing and speaking skills to the *Odyssey* of Ulysses with its many uncertainties and much discovery along an uncharted course. The fledgling debate over the efficacy of WCF in L2 writing, which started in the 1980s, became more galvanized when Truscott (1996) denounced the pedagogical practice of “grammar correction” as a waste of time and potentially harmful to students. This controversial stance ignited significant responses and initiated interest in WCF research. Ferris (1999) was foremost among those rejecting Truscott's claim. Many have followed since, arguing that WCF helps students improve their language accuracy (Bitchener, 2008; Bruton, 2009, 2010; Chandler, 2003; Ellis et al., 2008; Russell and Spada, 2006; Sheen, 2007). Despite these counterclaims, the research in support of WCF is far from conclusive (Ellis et al., 2008; Ferris, 2003; Guénette, 2007; Hyland and Hyland, 2006; Storch, 2010).

In an effort to buttress his original claim that corrective feedback was not effective, Truscott (2007) turned to meta-analysis, which combines the results of several studies that address a set of related research hypotheses. This is normally done by identifying a common measure of effect size (Russell and Spada, 2006; Truscott, 2007). Truscott's meta-analysis was done in response to the studies undertaken since the appearance of his 1996 article as well as a meta-analysis conducted by Russell and Spada (2006) that suggested that WCF was effective. Truscott's (2007) meta-analysis suggested that the practice of error correction is a failure and that the question “How effective is correction?” should perhaps be replaced by “How harmful is correction?” (p. 271). To further complicate the matter, current research on the meta-analytical procedures Truscott used suggests that his procedures may be flawed since he offers little to describe a systematic approach to include criteria in his analysis (Poltavtchenko and Johnson, 2009). Bruton (2010) also indicated that meta-analyses present a flawed view of writing in a second language and tell us little of what actually happens as a result of corrective feedback.

¹ While a number of terms have been used in the literature in reference to correcting grammatical errors in student writing, these terms are not always used consistently. In this paper, we use *written corrective feedback* (WCF) to mean feedback that targets grammatical and lexical errors.

2.2. *Voices of reason*

Several scholars can be credited for creating a meaningful shift from the back-and-forth debate Truscott's work created to a more focused look at research methods and WCF practices. Ferris (2004) was foremost among those who called for more and better research and less debate. She noted that we are essentially "at Square One and need to see to better, well designed research" (p. 49). In similar fashion, Guénette (2007) argued that most claims about corrective feedback being effective or ineffective are difficult to substantiate since much of the current research is faulty and methodologically inconsistent. Most recently Bruton (2009) has taken issue with Truscott's stance that corrective feedback is a waste of time, by stating that it is counter intuitive to think that focused attention would be "detrimental to improving accuracy" (p. 600). He further notes that "Truscott does not explain how L2 writers might effectively improve either their correctness or other language features of their writing, if any type of language-focused feedback on written tests is excluded" (p. 601).

2.3. *Focused WCF research*

The most recent line of research has turned to focused WCF, which investigates students' abilities to improve one grammatical element in their writing. Bitchener has been foremost in this research by pursuing a line of inquiry based on sound research design principles (Bitchener, 2008; Bitchener and Knoch, 2010; Bitchener et al., 2005). Bitchener et al. (2005) found corrective feedback to be effective on certain error types, such as simple present tense and the definite article. Building on these findings, Bitchener has undertaken a number of studies in which corrective feedback has been focused on and shown to improve the use of definite articles in subsequent writing (Bitchener, 2008; Bitchener and Knoch, 2008, 2009a, 2009b, 2010). Similar findings have been reported by Sheen (2007), Sheen et al. (2009) and Ellis et al. (2008).

While these findings are encouraging and are based on careful research designs that earlier studies lacked, the findings may be too focused to be practical. Despite Bitchener and Knoch's (2010) claim that a focused approach has practical applications, L2 writing teachers and their students must deal with writing that contains many error types, some of which are far more distracting than misused or missing definite articles. As Ellis et al. (2008) suggest, "we need more studies looking at different grammatical features" (p. 368).

3. A new research agenda

In addition to the need to continue research on "focused" error categories, we believe WCF research should also determine the efficacy of pedagogical practices that utilize feedback that is (a) more extensive, (b) based more on individual learner needs, and (c) aligned with the ecology of writing as it actually happens. One of Bruton's (2009) most valuable contributions to clarifying the WCF questions is found in his critique of Truscott and Hsu' (2008) attempts to measure the efficacy of corrective feedback. Bruton appeals for "future research to be situated in real contexts within a decision-making framework for L2 writing tasks" (p. 601). It is his position that corrective feedback research must meet certain basic design requirements. These requirements include an experimental/control group design; a pretest with initial text, and a posttest with new text, and "probably a delayed posttest" (p. 605); corrective feedback that is provided over a period of time; awareness of possible contaminating factors; and some way to ensure that corrective feedback has been seriously attended to by the learners. This framework is particularly germane to the current study and will be discussed in more detail.

We also acknowledge that the variables that influence the outcomes of WCF are many, and each must be carefully considered if we are ever going to clarify efficient and effective practices. We find it useful to consider the variables related to WCF in three general categories: learner, situational, and methodological (Evans et al., 2010b). Each of these variables has many subcategories that must also be included in a full research agenda if we are to make significant progress toward understanding how to help L2 writing students become better writers.

Earlier research, in which learner, situational, and methodological variables were taken into account by means of what we call dynamic WCF, positively impacted IEP students' linguistic accuracy on subsequent writing samples (Evans et al., 2010b; Hartshorn et al., 2010). Since the current study and the findings of the earlier IEP study are based on the principles of dynamic WCF, a discussion of dynamic WCF and the IEP study is warranted.

4. Dynamic WCF: an overview

We first consider a brief overview of dynamic WCF. Because of the interactive and continuous nature of the feedback in this instructional strategy, we deliberately use the word *dynamic*, which can refer to “an interactive system or process” marked by “continuous change, activity or progress” (Pickett, 2000). Dynamic WCF is based on the concept that feedback must focus on the most immediate needs of the learner as demonstrated by the specific errors the learner produces. Furthermore, in order to be most effective, this interactive strategy must adhere to four principles to ensure that the feedback is meaningful, timely, constant, and manageable. Though we only briefly summarize these principles here, their implications and applications are detailed in previous publications (see Evans et al., 2010b; Hartshorn et al., 2010).

WCF is meaningful when learners understand the provided feedback and know how they are expected to utilize it. Based on notions from skill acquisition theory (DeKeyser, 2001, 2007), WCF and new opportunities to practice applying feedback should also be timely and constant if the goal is for the learner to reach a meaningful level of automatization in the production of accurate L2 writing. Feedback is timely when learners receive it soon after writing. Feedback is constant when it is provided to the learners at regular, frequent intervals over an extended period of weeks or months. Finally, writing tasks and feedback need to be manageable. Teachers need enough time to provide quality feedback and students need enough time to process and apply the feedback they receive. Too much feedback could undermine efforts to keep feedback meaningful, timely, and constant.

There may be a number of appropriate ways to operationalize these four principles. As in the IEP study, the current study provided feedback for all errors produced on shorter pieces of writing so that tasks and feedback could be more frequent while maintaining manageability. Thus, 3–4 times per week, students received WCF for paragraphs they had written within a 10-minute time limit. Errors were marked using indirect codes, and students were expected to keep error tally sheets (list of error by type for each paragraph), error lists (comprehensive list of all errors in context), and edit logs (record of number of edits needed to eliminate all errors). These additional tools not only raised student awareness of the accuracy of their writing, but also provided a basis for classroom instruction which focused on the most frequent error types produced in their writing.

With this overview of dynamic WCF in mind, it may be useful to make an important clarification. Some may mistakenly confuse dynamic WCF and dynamic assessment (DA). While certain principles of dynamic intervention are common between them, they do not have the same objectives. DA is an approach to psychological and educational assessment that is based on Vygotskian socio-cultural principles. The chief aim of DA is to determine an individual's potential to learn with the intervention of the examiner (Lantolf and Poehner, 2004). In contrast, dynamic WCF is an instructional approach which draws on principles of L2 acquisition to facilitate improved written linguistic accuracy (Evans et al., 2010b).

5. Dynamic WCF: the IEP study

The first study measuring the effects of dynamic WCF was conducted in a pre-university IEP context over a 15-week period and used ESL students with proficiency levels ranging from advanced-low to advanced-mid. Traditional process writing methods were used for a control group ($n = 19$). Ages for this group ranged from 18 to 33, with a mean of 26. This group included 4 males and 15 females from the following first language (L1) backgrounds: Spanish (6), Korean (3), Mandarin (3), Portuguese (3), French (1), Mongolian (1), Romanian (1), and Russian (1). Dynamic WCF was used for an experimental group ($n = 28$) with ages ranging from 18 to 45, with a mean of 25. This group included 16 males and 12 females with the following L1 backgrounds: Spanish (19), Korean (6), Japanese (2), and French (1).

Both the control group and the treatment group spent 13 h each week in class, working on reading, listening, and speaking and approximately 6 h per week devoted to homework designed to strengthen these skills. In addition, students in both groups spent 4 h and 20 min per week in their respective writing classes and approximately 2 h per week on homework outside of class. In the writing class for the control group, students wrote 4 multi-draft essays and received detailed feedback on each, including feedback on the linguistic accuracy of their writing. Students in the treatment group wrote three or four 10-minute paragraphs each week and received dynamic WCF on each paragraph. Though dynamic WCF uses shorter pieces of writing, the intent was to see how student learning would transfer to longer pieces of writing. Thus, both groups used the same pretest and posttest prompts to write 30-minute essays under controlled conditions.

Though differences between the control and treatment groups were not statistically significant² for measures of rhetorical competence ($F(1,45) = .09, p = .77$, fluency, $F(1,45) = 1.8, p = .19$), or complexity ($F(1,45) = 3.2, p = .08$), results showed a significant difference for accuracy as measured by error-free T-unit³ ratios ($F(1,45) = 12.26, p = .001$) (Hartshorn et al., 2010). While the results of this IEP study are meaningful and should be encouraging for those interested in helping ESL learners to improve the accuracy of their writing, the IEP study examined only one learning context. Additional studies must determine how contextual differences might impact the effect of dynamic WCF (e.g., Evans et al., 2010b; Ferris, 2004; Guénette, 2007). What may be highly effective in one learning context may not work in another. Thus, it is vital that researchers continue to test the efficacy of WCF in a wide variety of practical contexts to identify those in which it may be beneficial.

While the IEP study was useful, one of the most compelling contexts for questions about ESL writing accuracy is the university setting. Typically ESL students who have been admitted to undergraduate studies have demonstrated a specified level of language proficiency as a prerequisite for being accepted into a university, yet many continue to struggle with the accuracy of their writing. Such challenges seem to be compounded amid high-stakes testing and concerns over future employability.

One additional consideration about the IEP study deserves our attention. The unit of measurement used to determine accuracy was the error-free T-unit. Though this approach to establishing linguistic accuracy is sound and highly recommended by researchers such as Wolfe-Quintero et al. (1998), others, such as Wigglesworth (2008), argue that error-free clause ratios may be a much more precise measure of L2 writing accuracy since a piece of writing will almost invariably contain more clauses than T-units. Though error-free T-unit and clause ratios function similarly in accuracy analyses, the assumption is that the error-free clause ratio is likely to be more discriminating. With this in mind, we determined to conduct our new study aimed at testing the effect of dynamic WCF on the linguistic accuracy of students in a university setting using the error-free clause ratio (error-free clauses divided by total number of clauses) as the unit of measurement.

6. Dynamic WCF: the current study

In an effort to better understand the potential effects of dynamic WCF, it was determined that research similar to the IEP study would be conducted with university-matriculated ESL learners. This would provide a slightly different learning context and allow us to analyze the writing of students at a proficiency level similar to those observed in the IEP study. Thus, the intent was to analyze the same factors examined in the IEP study with the exception of rhetorical competence, which produced no appreciable effect in the IEP study. Our research questions were thus formed: (a) Will university-matriculated ESL learners exposed to one semester of dynamic WCF produce greater linguistic accuracy than students exposed to a traditional process writing approach? (b) What effect, if any, will this treatment have on writing fluency or writing complexity?

7. Method

As noted, this study was designed to replicate the IEP study as closely as possible. In addition, we find it useful to compare our methodology with Bruton's (2009) recommendations for quality corrective feedback research (see Table 1). In every instance except the inclusion of a delayed posttest which he suggests would be preferable, the current study adheres to those recommendations. Details of this methodology are noted in subsequent sections.

7.1. Participants

The study utilized a control group ($n = 14$) in which learners were taught in a traditional university process writing course, while students in the treatment group ($n = 16$) took a course that emphasized dynamic WCF. The mean age of

² Though not statistically significant, both groups made small gains in their rhetorical competence scores. Also, the treatment may have had a slight stifling effect based on the partial eta squared (η_p^2) for fluency ($\eta_p^2 = .04$) and complexity ($\eta_p^2 = .067$).

³ The T-unit is simply defined as "one main clause plus the subordinate clauses attached to or embedded with in it" (Hunt, 1965, p. 49). The error-free T-unit ratio is based on the number of error-free T-units divided by the total number of T-units, thus indicating a specific measure used to indicate an overall level of accuracy for a piece of writing.

Table 1
A comparison of Bruton's (2009) recommended research design to the current study.

Bruton's Recommendations	Current Study
1. Control/experimental group design	Yes
2. Pretest with initial text	Yes
3. Posttest with new text	Yes
4. Delayed posttest preferable	No
5. Sufficient corrective feedback for potentially significant effect	Yes
6. Method of ensuring that corrective feedback has been attended to by learners	Yes
7. Consideration of other important variables (e.g., number of grammatical features, type of grammatical features, type of supplemental instruction provided)	Yes

students in the control group was 21, while the mean age of those in the treatment group was 24. Participants in this study were all ESL learners who had been admitted to undergraduate studies in a university in the USA, each having at least the requisite minimum scores on English screening exams for admission to the university (IBT 66, PBT 550, or IELTS 6.5). Students' native languages varied, with Spanish being the most common language in both groups. Table 2 shows the subjects in both groups broken down by L1 and gender.

7.2. Procedures

Classroom activities and data elicitation procedures were patterned after those from the IEP study. For example, like the IEP study, a control/experimental group design was utilized. The university students in the control group were enrolled in a process writing course. During the semester they wrote approximately 20 pages of polished writing which did not include prewriting and drafts. Assignments included an opinion editorial (1 page), a rhetorical analysis (4–6 pages), and a research paper (11–13 pages). Feedback focused primarily on rhetorical aspects of writing, though feedback was also given on the linguistic accuracy of what the students produced.

Also like the IEP study, students in the treatment group wrote 10-minute paragraphs on topics students are likely to encounter in an academic context such as *a serious social problem, preventing crime, the power of language, the value of art* (see Appendix A for samples of student writing). These paragraphs were written 3–4 times per week. Over the course of a thirteen-week semester, students wrote thirty-five paragraphs totaling approximately 19 pages of polished writing on academic topics. As described previously, feedback on these paragraphs followed the principles of dynamic WCF and focused almost exclusively on form errors. Every paragraph received feedback from the teacher, and students were required to correct errors and resubmit their work until it was error-free. Many times this process required multiple drafts. Students also utilized the same tally sheets, edit logs, and error lists described previously to record and track the WCF.

Table 2
Experimental groups by native language and gender.

Native Language	Experimental Groups					
	Treatment Group			Control Group		
	Male	Female	Total	Male	Female	Total
Spanish	1	4	5	5	1	6
Korean	1	2	3	0	3	3
Mandarin	1	1	2	1	0	1
Portuguese	0	0	0	1	1	2
Japanese	0	1	1	0	0	0
German	0	0	0	0	1	1
Mongolian	0	1	1	0	0	0
Nepali	0	0	0	1	0	1
Russian	0	1	1	0	0	0
Norwegian	0	2	2	0	0	0
Polish	0	1	1	0	0	0
Totals	3	13	16	8	6	14

Students in both the control group and treatment group completed the same 30-minute pretest (initial text) and posttest (new text) essays that were used by the students in the IEP study. The pretest prompt presented the following:

Do you agree or disagree with the following statement? Only people who earn a lot of money are successful. Use specific reasons and examples to support your answer.

The posttest prompt presented the following:

In your opinion, what is the most important characteristic (for example, honesty, intelligence, a sense of humor) that a person can have to be successful in life? Use specific reasons and examples from your experience to explain your answer.

Students in both the treatment and control groups typed their essays in computer labs under secure testing conditions. The in-house software allowed students to copy, cut, and paste text, but no other electronic tools were included (e.g., spelling or grammar checkers). After 30 min, the software automatically shut down the test and forwarded the essay to test administrators.

Two raters (R1 and R2) divided the pretest and posttest essays into clauses. The total number of clauses identified in each essay by each rater showed a very strong correlation ($r = .99$). R1 and an additional rater, R3, determined the total number of error-free clauses for each essay, producing a correlation of .97. With strong evidence of the reliability of these measures, it was determined that the statistical analysis needed to answer the research question would utilize the data provided by R1.

A pretest, posttest, nonequivalent control group design was used for this study as described by Shadish et al. (2002). Using a mixed model of repeated measures Analysis of Variance (ANOVA), mean error-free clause ratios from students in the control group were compared with those from students in the treatment group, and ratios from students on pretest measures were compared with ratios on posttest measures.

8. Results

The descriptive statistics for the mixed model ANOVA are displayed in Table 3, the ANOVA summary table is presented in Table 4, and plots with juxtaposed ratios from the IEP study and the current study are included in Fig. 1. While both sets of means are plotted on the same ratio scale running vertically, the IEP means are plotted as error-free T-unit ratios, and the means from the matriculated students are plotted as error-free clause ratios. Though the sets of means appear at different locations on the ratio scale, a similar interaction pattern is evident for both the IEP and the current study. This suggests that dynamic WCF had a positive effect on improved writing accuracy for the treatment groups in both studies. While dynamic WCF had a large effect on improved accuracy, effects were negligible for fluency ($p = .60$, $\eta_p^2 = .01$) and complexity ($p = .46$, $\eta_p^2 = .02$).

9. Discussion

The aim of this study was to test the effect of dynamic WCF on ESL writing students in a new context. While a previous study utilizing dynamic WCF took place in an IEP where learners studied English intensively, the current study took place with matriculated ESL students at a large university. Not only did both studies demonstrate significantly greater accuracy for those students who received dynamic WCF, but the effect sizes for both the IEP study ($p = .001$, $\eta_p^2 = .21$) and the study of matriculated students ($p = .03$, $\eta_p^2 = .16$) could also be considered large according to standards set by Cohen (1988, 1992).

Table 3
Mean error-free clause ratios for the control and treatment groups.

Group		Pretest	Posttest	Means
Control ($n = 14$)	Mean	.514	.503	.508
	SD	.126	.194	.160
Treatment ($n = 16$)	Mean	.471	.578	.524
	SD	.112	.109	.110
Total ($N = 30$)	Mean	.491	.543	.517
	SD	.119	.156	.138

Table 4
Mixed ANOVA summary for group and time.

Source	SS	df	MS	F	<i>p</i>	η_p^2
Between Subjects		29				
Group	.004	1	.004	.138	.713	.005
Error	.775	28	.028			
Within Subject		30				
Time	.035	1	.035	3.434	.074	.109
Time × Group	.052	1	.052	5.169	.031	.156
Error	.284	28	.010			
Total	1.150	59				

Though students in both the IEP treatment group and the students in the current study treatment group experienced significant improvements in the accuracy of their writing, perhaps the most striking finding was that writing from those in the control groups was actually less accurate in posttests than it was in the pretests. While these declines were not statistically significant, they defy the expectation that students in the control groups would demonstrate at least some improvement in accuracy over the course of the study.

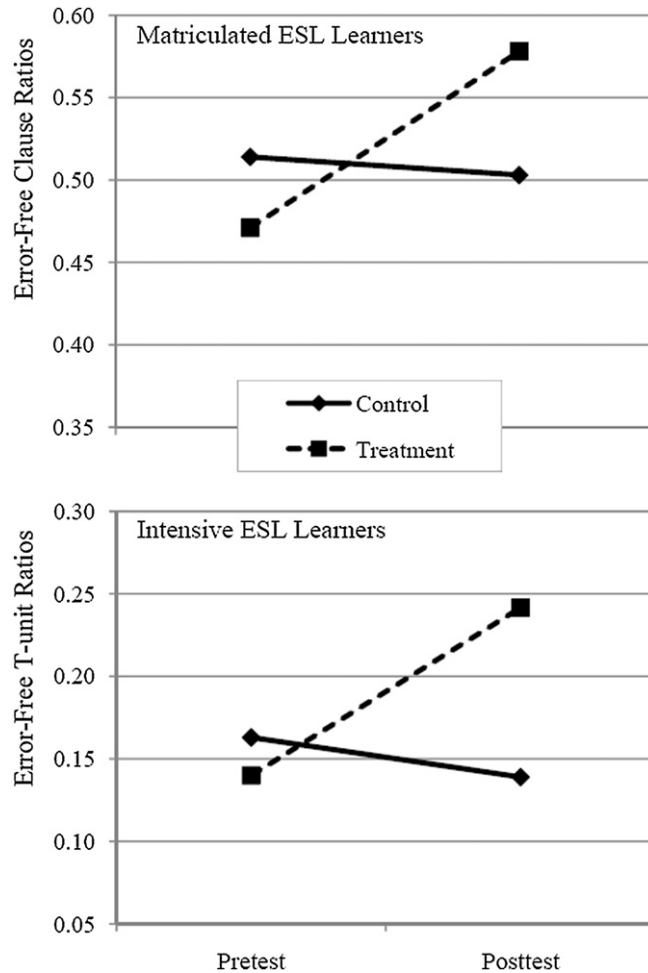


Fig. 1. Pretest and posttest accuracy scores for IEP and university ESL learners.

The reasons for these declines in accuracy for students in the control groups are not obvious, yet there may be a few factors worth considering. First, close observation of these students has led us to hypothesize that these writers may struggle with a type of cognitive overload, which hinders their writing accuracy. In other words, it may become more difficult for these students to manage the cognitive load needed to preserve linguistic accuracy as they face increasingly more complex demands on the rhetorical aspects of their writing (e.g., attending to the writing purpose; the tone and needs of the audience; the organization, sequencing, and flow of ideas; the use of appropriate examples and support; the originality of the ideas expressed; and so on). In addition, some learners who assume that their writing is adequate (despite varying degrees of fossilization) may not be motivated to continue to improve their accuracy when they face so many other priorities in their academic experiences.

If these observations are true, traditional approaches to process writing may be inadequate for sustained improvement in linguistic accuracy as rhetorical expectations for student writing increase. In such cases, learners may benefit from principle-based instructional strategies that focus on helping them improve their accuracy while they are learning to produce writing that is more rhetorically complex. Thus, students who desire to improve the accuracy of their writing may benefit from the kinds of writing tasks and feedback included in dynamic WCF.

10. Limitations and further research

Though this study provides evidence that WCF can improve writing accuracy, the reader should note its limitations and the ways in which future research might be enhanced. First, this study was conducted with a small group of students over the course of only one semester. Both the IEP study and the current study produced similar results, yet additional studies with more students over longer periods of time are needed to fully understand the effects of the instructional strategy used. Also, since no changes were evident in the rhetorical competence of student writing in the IEP study, no attempt was made to analyze this dimension of writing in the current study. However, we acknowledge that it may be useful to gather such data in further research.

Moreover, these findings tell us nothing about the effects of dynamic WCF on specific linguistic features. Therefore, the evidence that dynamic WCF may improve overall accuracy justifies the pursuit of additional research to identify whether some linguistic features are more treatable with this strategy than others. Such research may have important implications for the L2 writing classroom as well as for the field of L2 acquisition.

Another important issue highlighted in this study is the need to identify the most discriminating method for measuring writing accuracy. The error-free clause ratio was used in the current study because it was believed to be more discriminating than the error-free T-unit ratio. However, the clause may yet be too large and unwieldy for the highest-stake testing. Further research may be needed to identify the most appropriate ways to measure writing accuracy for similar studies in the future.

11. Conclusion

We recognize that the instructional strategy used in this study may not be appropriate for all learners in all contexts. These findings do, however, suggest that dynamic WCF may be an effective way for improving writing accuracy in contexts similar to those examined in this study. Rather than focusing on whether practitioners should or should not provide WCF, we encourage researchers and practitioners to continue to identify those strategies that may improve the accuracy of the L2 writers in the unique contexts in which they work.

Appendix A

Samples of 10 min paragraphs: First drafts written by treatment group.

Topic: Health

Student A

Health is the most important thing in our lives. Without health, people cannot do anything else. Money can almost buy everything, but not health. If health is very important for us, why some people keep doing bad things to damage

their health? We all know smoking, drinking, taking drugs and other things that will hurt our body, but some people still keep doing those everyday. People need to realized how important to maintain their health, so they won't regret in the future. Daily exercise, good eating habit and rest can help us maintain our health. Therefore, we need to remember that it's never too late to change! If you are doing something that is hurting your body, stop it before too late!

Topic: Successful Business

Student B

For a successful business, a business man have to prepare a lot of things which is related to the business thoroughly. First of all, it is a basis factor that a business man have to know about the other company. When he or she business with others, he or she have to understand what my company wants and what the other company wants. If the purpose of business is similar or same, a business can be successful. Also, a business man understands and analyzes both advantages and disadvantages about a business. And a business man tries to make a successful business which his or her company can get more advantages. A business man tries to make a good relationship between them.

Topic: Fast Food

Student C

Eating the fast food is not good for your health. There are some reasons for this. One is that it contains too much fat which causes accumulation of cholesterol in your body. I turn, it causes illness such as hurt attacks, and brain tumor etc. Another is that it doesn't contain enough nutrition and vitamins which also causes other kinds of illness or sickness. Other is that because it tastes good for many people, people overeat the fast food which causes overweight which in turn causes different illness. For these reasons, eating the fast food is not good for your health.

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