Learner Uptake of Teacher Electronic Feedback in ESL Composition

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Abstract

The research on electronic feedback in second language writing is scarce, despite the increasingly frequent use of computers in ESL writing classrooms. The current study's purpose is to determine (1) what types of electronic written feedback ESL learners receive on writing that has been submitted and returned electronically, and (2) the relationship between teacher feedback and uptake. Twelve ESL students and three teachers participated in this longitudinal study. Multiple drafts of two essays from two semesters of college-level first-year composition were analyzed. The findings show that most of the teachers' electronic feedback consisted of marginal comments that were, for the most part, directive, explicit, principled, systematic, and needs-based – much like handwritten feedback. Importantly, electronic feedback was successful at eliciting appropriate revisions of grammatical structures or surface-level features, but also content and organization. This suggests that electronic feedback can be effective and therefore should not be avoided.

Keywords: Electronic; Written corrective teacher feedback; Uptake; ESL composition; L2 writing

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Introduction

The efficacy of feedback on language development has been an important and controversial issue in second language acquisition (SLA) in general and, since the 1990s, in second language writing (SLW) studies in particular. The idea that feedback – oral or written – supports SLA derives from several theories. First, corrective feedback is hypothesized to aid in language acquisition because it creates opportunities for interaction and meaning negotiation, and provides a learner with the input needed for acquiring language while also making the input more comprehensible for the learner – as posited by the widely accepted Interaction Hypothesis (Long, 1996). In addition, the value of feedback is connected to Schmidt's Noticing Hypothesis (1990, 1995, 2001), which holds that "SLA is largely driven by what learners pay attention to and notice in target language input and what they understand the importance or significance of noticed input to be" (Schmidt, 2001, p. 3-4). Researchers of SLW (e.g., Qi & Lapkin, 2001; Swain, 1998) have also argued that writing provides opportunities for learners to focus on input and notice the gap between their interlanguage and the target language (Gass, 1997). The value of feedback in language development is also supported by Swain's (1985, 1995) Output Hypothesis, which claims that pushing students to produce challenging output raises a learner's awareness of linguistic input and gaps. Corrective feedback is hypothesized to encourage students to produce language above their independent abilities, facilitating their progress towards the target language.

Indeed, some studies suggest that student writers responding to feedback display outcomes that match the predictions of SLA theories. For example, Sheen (2007, 2010) and Ferris and Roberts (2001) argue that students' command of linguistic forms improves when they attend to feedback due to having their attention drawn to input-output gaps. In addition, studies

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that analyze uptake and revisions – Chandler (2003), Ferris (2006), Heift (2004), Storch and Wigglesworth (2010), and Santos, López-Serrano and Manchón (2010) – describe the presence of corrections and revisions as support for the Output Hypothesis. However, it has been noted that research design inconsistencies have made it difficult to generalize findings from studies on written feedback in SLW (Ellis, 2009; Ferris, 2004; Guénette, 2007) and fueled prominent arguments between those who see feedback as largely useless (e.g., Truscott, 1996, 1999, 2004) and those who do not (e.g., Bruton, 2010; Ferris, 1999, 2004). For each study that illustrates the effectiveness of feedback, reviewers find that there is a research design flaw, another study with contradicting findings, or no other research to back up conclusions (for detailed reviews, see Ellis, 2009; Ferris, 2011; Bitchener & Ferris, 2012). The currently accepted hypothesis is that "there is some role for written CF [corrective feedback] in L2 instruction, although the nature and extent of this role remains in dispute" (Ferris, 2010, p.183). With the growing use of technology-enhanced instruction, two important questions warrant further study with regard to SLW instruction: Is electronic feedback useful to learners? If so, which types of electronic feedback do learners attend to and lead to improved accuracy, long-term retention of linguistic forms, and overall improved language use?

1. Literature review

To provide context for the current study, this section first reviews the most important concepts and findings from the research on the effectiveness of written feedback in SLW. An overview of the few studies that have been done on feedback in online environments is then provided, including findings on synchronous and asynchronous peer and teacher feedback.

1.1. Feedback

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The focus of earlier studies on feedback in SLW was primarily on the effects of direct or indirect feedback on grammatical accuracy (Chandler, 2003; Ferris & Roberts, 2001; Lalande, 1982; Robb *et al.*, 1986) and on the effects of feedback on form and/or content (Ashwell, 2000; Fathman & Whalley, 1990; Fazio, 2001; Semke, 1984), reflecting that fact that SLW studies have drawn heavily on studies of oral feedback in exploring types of written feedback. For example, SLW studies typically describe feedback as *direct* or *indirect*, a key feature of oral corrective feedback. In his review, Ellis (2009) notes that direct corrective written feedback can consist of "crossing out an unnecessary word, phrase, or morpheme, inserting a missing word or morpheme, and writing the correct form above or near to the erroneous form" (p.99). Codes, metalinguistic explanations and examples have also been identified as types of direct feedback by Bitchener and Knoch (2009, 2010), although Storch and Wigglesworth (2010) and Guénette (2007) argue that codes better represent indirect feedback. As described by Ellis (2009, p. 100), indirect feedback "involves indicating that the student has made an error without actually correcting it," including underlining or highlighting the errors, or placing a mark in the margin of the text containing an error.

In addition, some studies on written feedback in SLW development have explored the distinction between *explicit* and *implicit* feedback, also a major focus of interest in the research on oral feedback. Ellis (2009) and Sheen (2007) argue that the implicit-explicit dimension does not apply to written feedback, which they believe – by virtue of being written – can only be explicit; nevertheless, studies which consider this distinction as a feature of written feedback have been done. Li (2010) in a comprehensive meta-analysis of feedback in SLW studies insists on the importance of the implicit-explicit continuum. Based on a review of feedback studies in SLW and the original typology by Lyster and Ranta (1997), Li notes:

> implicit feedback included recasts, negotiation (clarification requests, elicitation, and repetition), and any type of feedback that was not intended to overtly draw the learner's attention to his/her erroneous production; explicit feedback included metalinguistic feedback, explicit correction, and any feedback type that overtly indicated that the learner's L2 output was not acceptable… The implicit versus explicit dichotomy is necessary because it has been argued that explicit feedback is superior to implicit feedback in SLA because the former is more salient. (p. 11)

Some SLW researchers have been interested in capturing nuances of teacher feedback beyond directness and explicitness. For example, Ferris *et al.* (1997) sorted comments based on intent or purpose. Their classification included: directives such as asking for information, making a suggestion or request, or giving information; grammar/mechanics comments; and positive comments.

As pointed out in comprehensive reviews by Ellis (2009) and Bitchener & Ferris (2012), one conclusion that can be extracted from studies on written corrective feedback is that when feedback is present, learners' accuracy and fluency seem to improve, even if only for the duration of the study, when compared with control groups who receive no feedback at all. However, the results are mixed regarding which specific types and combinations of feedback are beneficial and long-lasting. Additionally, a limitation of most studies on feedback in SLW is that they artificially isolate either feedback that focuses on certain forms (e.g., nouns or sentence structure; see for example Bitchener, 2008; Ellis *et al.*, 2008; Ferris & Roberts, 2001; also Ferris, 2010; Xu, 2009) or selected types of feedback (e.g., coding, circling, or error description; see for example Chandler (2003) and Ferris & Roberts (2001)). This leaves us without a comprehensive understanding of the effectiveness of a variety of feedback techniques considered together, the way they are typically used in real classrooms (Ellis, 2009; Hyland & Hyland, 2006).

1.2. Electronic Feedback

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The use of computers and other technology has become common in educational contexts, and is often preferred by students and teachers of SLW (Hyland, 2010). It has become common for teachers of writing, particularly in university contexts, to require students to submit their papers electronically through classroom management programs like Blackboard, and for teachers to provide feedback on student papers electronically in chats, forums, or via word-processing software. Studies on feedback in SLW and computer-assisted language learning (CALL) use the term electronic feedback, or e-feedback, to refer to computer-facilitated feedback produced by either the teacher or student peers with the help of a computer and delivered electronically to the student. Computer-*facilitated* feedback such as comments, track changes, or feedback provided in synchronous or asynchronous computer mediated communication (CMC) is distinct from computer-*generated* feedback – or automated writing evaluation (AWE), which provides automated algorithm-derived feedback drawn from an existing database of comments or corrections (Heift, 2001, 2004, 2010; Warden & Chen, 1995; Ware, 2011). While computer-generated feedback shares some similarities with computer-facilitated feedback, the focus of this study is on the latter.

To date, studies of human e-feedback have focused primarily on CALL as a means to enhance SLW by facilitating learning as a social activity through computer-mediated interaction with peers (Lantolf, 1994; van Lier, 2000). Liu and Sadler (2003), Schultz (2000), and Tuzi (2005) have observed that on-line, written feedback from peers, through chat rooms or classroom websites, is more beneficial than oral feedback, even though students tend to prefer to engage face-to-face. However, Ware and O'Dowd (2008) noted that peers who engaged in written forum discussions offered feedback on form only when required, and incorporated little of the language

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modeled by their peers in their own written posts. This observation led to their conclusion that teachers may still be the best ones to offer useful feedback.

The current body of research on e-feedback from teachers is limited. In particular, to our knowledge, there are no studies that describe comprehensively the use and the impact on student writing of e-feedback by skilled teachers in non-experimental, SLW classrooms. There are a few studies that analyze e-feedback strategies used by tutors or teachers-in-training in written interactions with language learners in discussion forums. Zourou (2011) found that tutors' feedback focused on both form and meaning, but the proportional distribution of these feedback types is not provided. Additionally, the effectiveness of the feedback as illustrated by learner uptake was not analyzed. Using a similar tellecollaborative setting with English language learners from Taiwan and ESL writing tutors/teachers in-training from the U.S., Martin-Beltran and Chen (2013) conducted a case study of one tutor's feedback to two graduate ESL students in an online forum discussion. Their analysis of 47 comments revealed that the tutor used a variety of speech acts, leading the authors to conclude that asynchronous comments can be as interactive as synchronous ones; 92% of the comments resulted in uptake. The feedback formulated as interrogatives and hedges led to most revisions, and the learners reported increased awareness of language and revisions. Samburskiy and Quah (2014) studied the online written interaction of novice online tutors with Belarusian college-level English learners and found that most of the feedback provided by the tutors focused on meaning rather than form. Despite this finding, the authors focused their analysis on the form-focused feedback and determined that recasts and textual enhancements were used most frequently, while explicit feedback was combined with metalinguistic information. Lexical errors were more frequently targeted than grammatical errors. The study revealed inconsistent learner responses and no statistically significant uptake of

the tutors' e-feedback. Explicit and metalinguistic feedback elicited more responses than implicit feedback, as noted by Bitchener *et al.* (2005), Bitchener and Koch (2010), and Heift (2004). In a study of synchronous feedback offered by native-speaking peers to English language learners from Sweden via a chat, Sauro (2009) focused on recasts and metalinguistic feedback about the use of the zero article with abstract nouns. The study found an increase in accuracy for the metalinguistic feedback, but the increase was not significant.

In sum, the research conducted so far on teacher electronic feedback is scarce, even though most scholars deem teacher feedback as more appropriate and impactful than the e-feedback of peers. In addition, like many experimental studies on written corrective feedback, most CALL studies of e-feedback either pick and choose the kind of feedback that is analyzed or neglect uptake altogether. Importantly, more attention has been focused on written responses from discussion forums rather than essay-writing per se, and thus have diminished relevance for teachers who want to learn how to comment directly on essay drafts.

2. Overview of the study

The present study is motivated by gaps in our understanding of written feedback in general, and teacher electronic feedback in particular. First of all, due to their selective focus and short duration, SLA-oriented studies of feedback have not enhanced our understanding of feedback as a complex combination of a variety of types of comments and corrections, and so do not reflect how feedback is actually offered by teachers outside of experimentally designed studies (Ferris, 2010). Since the advent of the process approach in writing instruction and its adoption as a preferred approach to teaching writing in the U.S. (Hyland, 2003), teacher feedback in ESL contexts, particularly since the 1990s, has focused not only on linguistic forms, but also on content, organization, style, process steps, and other aspects of written discourse.

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(For a review of pedagogical approaches to SLW, see Hyland, 1996, 2010.) Teachers often offer feedback via comments of varying lengths (from a single mark to multiple sentences), in a variety of locations (such as in the margins and at the end of a paper), using both a variety of types of propositions or speech acts (questions, commands, suggestions) as well as specialized markings and codes – all in the same paper (Baker & Bricker, 2010).

Second, more longitudinal studies of feedback in SLW are needed. As noted by Ferris (2010), recent "compositionist" studies of feedback in SLW have sought to explore whether written feedback helps improve the overall texts and writing skills of student writers in non-experimental, classroom contexts (Chandler, 2003; Ferris, 1995, 2006; Foin & Lange, 2007). However, only a few of these studies would be considered "longitudinal" in any sense of the term, and the study of feedback beyond one course or semester is rare (Ellis, 2009; Ferris, 2010).

Third, the growing prevalence of electronic feedback increases the importance of understanding how effective feedback in a CALL environment is on SLW development. The features of electronically provided feedback are largely assumed to be the same as those of handwritten feedback, but a focused analysis has not been performed, in particular one involving teacher e-feedback on essay drafts. As Ware and Warschauer (2006) note, "As teachers turn to research-based evidence for answers about how best to use technology for providing feedback, they deserve a critically informed, empirically based inquiry that makes explicit how electronic feedback was used, and the criteria that were applied to evaluate its effectiveness" (p. 105-106).

The purpose of this study is to look more closely at both the kinds of electronic feedback students receive and how they respond (if they do) to that feedback in writing courses where papers are submitted and evaluated in an electronic environment, and to compare the results with what we know about the influence of handwritten feedback on SLW development. The study

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addresses the following questions: (1) What kind of teacher feedback do ESL learners in a university context receive on writing assignments that have been submitted and returned electronically? (2) What is the relationship between teacher electronic feedback (TEF) and student uptake?

3. Method

To answer the above research questions, the study takes a comprehensive, longitudinal look at naturally occurring, asynchronous, text-based teacher e-feedback (TEF) and the resulting student uptake in college-level ESL composition courses. The study is an observational, correlational cohort study that observes a group of participants, without manipulating the variables, over a period of time in multiple waves of data collection (time-series). Ortega and Iberri-Shea (2005) note that longitudinal SLA studies sometimes span shorter periods of time (meaning, not years or decades) due to institutional constraints, such as the length of a program. In this study, the SLW course sequence at the participating institution only lasts two semesters. Consequently, this study falls in the category of "programmatic longitudinal studies" (Ortega & Iberri-Shea, 2005, p.5). The sections below provide information about the participants, materials, tools, and procedures used.

3.1. Participants

The participants were 12 non-native English speakers who had matriculated into undergraduate engineering programs in a Midwestern U.S. university, and who had placed through an entrance exam into credit-bearing courses in the English for Academic Purposes (EAP) Program (housed in the department of English) that they took concurrently with other first-year courses. Six students were from China and six were from Saudi Arabia. One Chinese and three Saudi students had been enrolled in a local intensive English program for at least a

semester prior to the EAP Program, and four Saudi students had taken a basic integrated skills EAP course before starting their writing courses. None of the participants had experience taking online language courses; all had emailed writing assignments before, but had usually received handwritten feedback on them. All of the participants were in their early twenties, and all were males. The participants represented the two primary cultural groups in the program and met the conditions necessary for the study: (a) they were enrolled in two consecutive semesters of EAP writing courses taught by the participating instructors, and (b) they submitted essay drafts in the two courses that could be analyzed for teacher feedback and student uptake.

The three teachers who taught the participating students were females between 35-52 years old. They have MA degrees in TESOL/applied linguistics and an average of 10 years of experience teaching ESL composition. The general approach to teaching composition in the EAP Program is genre-based and process-oriented, with teachers guiding students in examining authentic texts in search of the underlying structure, discussing genre-related norms and rhetorical choices, and then applying their findings to the students' own compositions based on current event topics discussed in class. The development of all papers involved multiple drafts with peer and teacher feedback. Like most college-level writing courses in the U.S., the primary attention of instructors for these courses focused on idea development and discourse structure over grammatical accuracy.

3.2. Materials

The study examined essay drafts of two major assignments with teacher feedback submitted by the participants enrolled in two consecutive semesters of composition – a basic/developmental writing course (W1 hereafter) and a university-required first-year composition course (W2 hereafter). In both of the composition courses, students wrote three

essays over the course of several weeks. The writing process included a sequence of three drafts before the submission of the final version of each essay, and students received teacher feedback on each draft. All submissions were made electronically via the course management system (CMS) in use at the participating institution. The teachers downloaded the student drafts submitted through the CMS as Microsoft Word documents, typed in their feedback using the review function in Word to insert comments and suggested changes tracked by the software on the drafts, resaved each individual document with their feedback, and electronically returned the drafts with feedback to students through the CMS.

All the materials collected for this study were drawn from standard student assignments and reflected natural teacher feedback; that is, teachers were not prompted to modify their assignments or the type or amount of feedback they offered to students. The drafts of the first essay analyzed in this study were written in W1; the assignment was to summarize a text and respond persuasively to its central argument. Drafts of the second essay were collected from W2; for that essay, the students were asked to summarize a text, analyze its rhetorical strategies, and compose a persuasive personal response to its main claim.

The data collected for this study included: (a) two drafts, with teacher feedback, of the first essay assignment from W1; (b) the final version of the first essay from W1; (c) one or two drafts, with teacher feedback, of the second essay assignment from W2, as available; and (d) the final version of the second essay from W2. Figure 1 provides a visual representation of the writing process used in W1 and W2 and what data were collected.

[Insert Figure 1 About Here]

Table 1 provides summary information of the data collected from each class for each student, including number of preliminary drafts, number of words in drafts, final grade for the

assignment, and the teacher for the class. For the W1 essay, drafts two and three with teacher feedback were available from all the participating students. For the W2 essay, drafts two and three with teacher feedback were available for two students, but only draft three was available for the other 10 students. Since the goal of this study is simply to look at what kind of feedback teachers provided and how students responded to that feedback, whether the feedback being analyzed was provided on the second or third draft, or both, was not considered relevant.

[Insert Table 1 About Here]

3.3. Tools

In a pilot study, a coding sheet was developed that describes the types of written electronic feedback offered by the teachers. Drawing on the studies of (hand)written teacher feedback by Ferris *et al.* (1997), Dekhinet (2008), and Baker and Bricker (2010), TEF in this study was classified based on the topic/focus of the comment (i.e., organization of ideas, grammar, vocabulary, mechanics, writing process) as well as the manner in which the comment was given (i.e., corrective or negative vs. non-corrective, direct vs. indirect, and explicit vs. implicit). Appendix A describes in detail the coding categories used.

A second coding sheet was designed for categorizing student uptake. Uptake is operationalized as any revisions made in response to feedback and is considered a measure of feedback effectiveness (Lyster & Ranta, 1997; Santos, López-Serrano, & Manchón, 2010; Storch & Wiggleswoth, 2010). Following Storch and Wigglesworth (2010), the uptake of teacher feedback on earlier drafts of papers was coded in terms of the characteristics of the students' responses to that feedback in later drafts: successful, unsuccessful, unattempted, or unverifiable (see Table 2). Appendix B provides examples of how teacher feedback and student uptake were coded.

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[Insert Table 2 About Here]

3.4. Procedures

The two researchers and an assistant coded each instance of TEF given on the preliminary drafts of student essays included in the study. Student revisions, if any, were then located in the ensuing drafts and analyzed to categorize student uptake. All TEF, including corrections (e.g., underlining, circling, highlighting, crossing out, coding, or correcting), marginal comments, insertions, praises, etc., was coded in terms of both feedback type and uptake results. After calibrating on a practice subset, the researchers obtained an agreement coefficient of 89% coding the feedback in the data set. They then discussed the codes on which they disagreed in a coding session and came to agreement on the final classification.

Any TEF consisting of multiple statements was broken down into individual ideas and each was coded separately; the boundaries of a TEF with multiple ideas were determined based on where the focus or characteristic of the feedback shifted (see Example 1 in Appendix B for an example). When coding uptake, modifications students made to their drafts that were deemed as not being in response to any TEF were not coded, even if they significantly changed the paper.

For the quantitative data analysis, the data from all students and course levels were grouped together. Then, mean averages were calculated for each feedback and uptake subcategory. Paired t-tests were used to determine statistically significant trends.

4. Results

This section first presents a summary of the results of the analysis of teacher e-feedback and learner uptake. The results are then presented in sections organized according to the categories of e-feedback and uptake that were coded. TEF and uptake of TEF are reported based on the location and target of the TEF (content, organization, grammar, etc.), as well as on direct/indirect and implicit/explicit distinctions.

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4.1. Overview of feedback and uptake

There was no significant correlation between the length of the students' papers and the amount of feedback received (c = 0.08). There also was no significant correlation between the number of teacher comments made and essay grade (A, B, or C) (c = 0.03), although this may have been an artifact of the data set, which contained more papers with grades of A or B than with grades of C. As shown in Table 3, although the average amount of feedback offered in W1 was higher (12.2 instances of feedback per W1 paper versus 8.1 instances per W2 paper), the difference was not statistically significant. In keeping with the process-oriented writing approach of the instructors, almost all of the feedback offered (96%) was "negative," reflecting that the intent of the teacher was to elicit a correction or modification of the text. "Negative" feedback simply means feedback focused on error correction or suggestions for improvement, and does not have the sense of being "bad" (Long, 1996). Only 4% of TEF consisted of praise, encouragement, or other acknowledgements of the good qualities of the students' drafts.

Overall, students showed successful uptake with their revisions 62.3% of the time across both W1 and W2 combined. In W1, the students were successful in their attempts to implement the teachers' feedback at an impressive rate of 69.6%. The amount of successful uptake in W2, 49.3% was significantly lower than in W1 ($p = .01$), indicating a complex relationship between successful uptake and course level. While one would expect that the students increase the amount of uptake after learning how to interpret and respond to teacher feedback in W1, this was not the case, possibly due to the increased complexity of the writing assignments and teacher expectations. While the combined rate for unsuccessful, unattempted, and unverifiable uptake for W2 together was significantly higher than the combined rate of these three categories for W1 ($p = .02$), there were no significant differences individually in the rate of unsuccessful or

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unattempted uptake between W1 and W2. The amount of unverifiable uptake – mostly in response to teacher requests to refer to a specific course material, use the Writing Center, or *keep up the good work* – did decrease significantly from W1 to W2 ($p = .04$), as the teachers provided fewer such comments in writing in W2.

[Insert Table 3 About Here]

4.2. Analysis of teacher feedback and uptake by feedback location

The vast majority of the time (84.1%), the teachers in this study placed their feedback in comment bubbles in the margins of the student papers using the review tool of the Microsoft Word software. Very little feedback was provided as end- or in-text comments; in fact, only one teacher (T2) provided in-text grammatical and lexical corrections to students in W1. Because most feedback occurred in marginal comments, most of the uptake also occurred in response to this category of comments. Additionally, significantly more successful uptake of marginal comments occurred in W1 than in W2 ($p = .002$); the sources of this variation are discussed below.

4.3. Analysis of feedback and uptake by feedback target

Teacher feedback was directed at a variety of targets, including content, organization, vocabulary, grammar, mechanics, or writing process. Overall, when considering both courses and all students, the largest percentage (42.6%) of the teachers' comments focused on content. Discourse organization and grammar were each the target of 15.8% of the feedback, vocabulary and mechanics were the target of 9% and 10% (respectively), and process was the focus of less than 2% of teacher comments. The teachers' primary focus on content is consistent with the process-oriented approach to composition in which content is prioritized as a higher order concern over grammatical accuracy and mechanics, though the latter are not ignored (Ferris *et*

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al., 2011; Keh, 1990). Interestingly, however, in this study, discourse organization and grammar received the same amount of attention (15.8%), indicating that the teachers valued grammatical accuracy as much as other, higher-order concerns such as discourse organization.

[Insert Table 4 About Here]

5.3.1. Content

Even though the amount of feedback on organization, vocabulary, grammar, and mechanics varied as a proportion of the feedback offered in each course, the variations were not statistically significant. Only the amount of feedback on content (including clarity, development, overall quality, and accuracy; see Appendix A) was significantly lower in W2, dropping from 43.4% of all W1 feedback, to 40.7% of all W2 feedback ($p = .04$).

The proportion of successful student uptake in both courses was encouragingly high. The only significant change from W1 to W2 was that the rate of successful uptake of feedback on all areas of content diminished significantly from W1 to W2 ($p = .01$); in W1, 70.3% of teacher feedback on content resulted in successful uptake, while in W2, 53.1% was successfully implemented. This trend parallels the drop in teacher feedback on content from W1 to W2 noted above, and suggests the possibility that when teachers provide less feedback on a certain aspect, especially a complex one like content, the quality of the students' overall response may decline.

Looking further into the subcategories of feedback on content, idea development was the focus of most of the teachers' comments related to content in both courses. The amount of feedback the teachers offered in W1 and W2 about content clarity, development, and accuracy, remained constant. Only the comments about the overall quality of the content of a student paper, almost as frequent as comments on the development of ideas in W1, disappeared entirely from W2 papers; the difference was statistically significant ($p = .01$).

Consistent with the teachers' concentration on idea development, most of the uptake occurred in this subcategory as well. Significant changes occurred in the amount of successful uptake of feedback on content development, dropping from 15.6% in W1 to 11.1% in W2, and content accuracy, dropping from 5.7% to 2.5% (although the average occurrence for uptake on feedback focused on content accuracy was less than one instance per paper at both levels).

5.3.2. Organization

Feedback rates on aspects related to organization remained essentially unchanged across the two courses. Paragraph order and the organization of introductions received no attention, whereas overall quality, idea placement within body paragraphs and topic sentences received comparatively more attention. Similarly, the rate of uptake, successful or otherwise, of feedback on all aspects of organization was not significantly different across the two courses, with overall successful uptake occurring on average 43.8% of the time.

5.3.3. Grammar

No changes occurred in the amount of teacher feedback focused on grammar from W1 to W2. The feedback addressed several grammatical issues, seemingly according to student need. Sentence structure received comparatively (but not significantly) more attention in both courses than verb tenses, articles, subject-verb agreement, and prepositions. The amount of feedback on the overall quality of the students' grammar remained constant in both courses, and was higher than the amount of feedback on the overall quality of content, organization, and vocabulary. This indicates that these teachers value grammatical accuracy and bring it to the attention of their students even when they refrain from commenting on the overall quality of other aspects of their writing. It is possible that grammar may be easier to comment on as a whole, and it is also easier

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for the students to study independently in order to improve their accuracy, whereas it is more difficult to improve one's ideas about a topic.

As shown in Table 5, with the two courses considered together, the rate of successful uptake of the feedback on grammar (see Appendix A for sub-categories) was a high 75%. In W1, 95% of grammar-focused feedback resulted in successful uptake, but this rate dropped significantly ($p = .03$) in W2 to 41.7%, while the proportion of unsuccessful attempts rose in W2 from W1. Additionally, the students seemed willing to take on all of the feedback on grammar, whether successfully or unsuccessfully. There was no unattempted or unverifiable uptake of feedback on grammar in either course.

[Insert Table 5 About Here]

The highest amount of successful student uptake occurred in the subcategory of feedback on sentence structure, and it followed the patterns noted above about other uptake subcategories, in that it decreased in W2 compared to W1, though not significantly. This was paralleled by an increase in unsuccessful attempts to implement feedback on sentence structure. Most of the feedback on verbs and articles was also implemented successfully in both courses, and more so in W1 than in W2, without being accompanied by an increase in the rate of unsuccessful or ignored feedback.

5.3.4. Vocabulary, mechanics, and process

As shown in Table 4, the rate of teacher feedback on vocabulary and mechanics each averaged only about one comment per paper across both courses, reflecting the teachers' primary focus instead on the writers' development of content and organization, which together averaged about five comments per paper. When teachers did provide comments on vocabulary, the feedback typically focused on word choice and phrasing; the main focus of feedback on

mechanics dealt primarily with documentation of sources followed by comments on punctuation and formatting. Teacher feedback on the writing process was fairly rare, averaging just one comment per every five papers evaluated. Uptake patterns were similar to the ones discussed above, with most of the feedback being implemented successfully; due to the low incidence of feedback on vocabulary, mechanics, and process, uptake in these areas was not analyzed in further detail.

4.4. Analysis of direct feedback, indirect feedback, and uptake of direct and indirect feedback

In both courses and for both groups of students, all of the participating teachers provided overwhelmingly direct feedback (74.3%), consisting of directives or instructions to execute a certain change (mostly at content-level), praise and statements of agreement with content or correct use forms, corrections of incorrect interpretations or forms, and statements that something was wrong and explanations of rules accompanied by examples of correct usage. The use of direct and indirect feedback was not significantly different between W1 and W2.

In W1, the subcategory of direct feedback most frequently used consisted of directives or requests to change something in the draft (26.8%). Another 23% of the direct feedback consisted of rules and explanations about how a revision should be done, without the revision or an example being provided. An additional 23% of the direct feedback simply stated that something was wrong or incorrect in the text. Finally, 18% of the direct feedback consisted of explicit corrections while 9.4% consisted of statements that praised an aspect of the paper or expressed agreement with a train of thought expressed in it.

In W2, more of the direct feedback (51.7%) included rule explanations; 20% of the direct feedback included statements indicating that something in the text was wrong, and directives continued to be present, but significantly less than in W1 (16.8%; $p = .04$). The amount of direct

corrections decreased in W2, but the significance of this change is doubtful as it was clearly a teacher effect; T2 used in-text corrections of grammar and lexical choice much more than the other two participating teachers. The amount of praise or agreement was less frequent in W2 as well, though not significantly so (3.4%).

As shown in Table 6, successful uptake of direct feedback was significantly higher in W1 than in W2 ($p = .01$). In W1, 66.3% of the direct feedback resulted in successful uptake, while in W2, only 46.2% did. Although not significant differences, the decrease in successful uptake from W1 to W2 coincided both with an increase from W1 to W2 in unsuccessful uptake, from 12% to 38.5%, as well as an increase in unattempted uptake, from 10.9% to 12.3%. The amount of unverifiable uptake on direct feedback (including comments like, "Go to the Writing Center" and "Great!") dropped significantly from W1 (10.8%) to W2 (3.1%). The occurrence of indirect feedback was infrequent compared to that of direct feedback, and there were no significant shifts in its use or in student uptake when comparing W1 to W2.

[Insert Table 6 About Here]

4.5. Analysis of implicit feedback, explicit feedback, and uptake of implicit and explicit feedback

As with direct feedback, the vast majority of feedback provided by all the teachers across both courses was explicit feedback (79%). Explicit feedback was given through corrections of forms or content, directives (requests) to execute a change, the use of codes and other explanations to indicate what aspect of a form was incorrect, and statements that something was wrong in the text. Overall, most of the explicit feedback (59.5%) was implemented successfully by the students, while 25.3% resulted in unsuccessful uptake and 10.1% was not addressed by students in the ensuing draft. As with direct feedback, significantly more explicit feedback

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resulted in successful uptake in W1 than in W2 ($p = .05$). The focus of explicit feedback, as well as the resulting uptake rates, aligned closely with the results discussed above with regard to direct feedback, suggesting that the distinction between direct and explicit feedback is not particularly useful in discussions of written feedback.

5. Conclusions and discussion

In sum, the current study found the following with regard to teacher e-feedback (TEF):

- the amount of TEF did not depend on the length of the students' papers;
- TEF was almost always placed in marginal comment bubbles in Microsoft Word (84.1%);
- TEF was predominantly corrective/negative (96%);
- the largest percentage (42.6%) of TEF focused on content, with organization (especially idea development) and grammar being the next most important areas of focus (about 15% each);
- significantly more content-focused TEF occurred in W1;
- TEF was overwhelmingly direct (including directives/requests for changes, rule explanations, and corrections) (74.3%);
- TEF in W1 was significantly more often given as a directive.

With regard to student uptake of TEF, the current study found the following:

- the overall rate of successful uptake was high (62.3%), with the highest rate being in response to TEF focused on grammar (75%);
- significantly more successful uptake occurred in W1, especially following direct TEF and TEF on content;

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- no significant difference emerged between explicit and direct TEF and their uptake.

Notably, the TEF analyzed here shares many of the characteristics of handwritten feedback described in previous studies: (1) Ferris *et al.* (1997) found that most written feedback given by teachers consisted of marginal comments; similarly, most of the TEF analyzed in this study was placed in marginal comment bubbles in Microsoft Word. (2) Ferris *et al.* (1997; see also Connors & Lunsford, 1993; Sommers, 1982) found that most written teacher feedback was directive, often taking the form of statements and imperatives, and sometimes consisting of requests for information or revisions, findings that parallel the results in this study. (3) In this study, TEF was primarily content and meaning-oriented, which is in keeping with the results in Ferris *et al.* (1997, 2011) and, in CALL, Samburskiy and Quah (2014) and Ware and O'Dowd (2008) (cf. Montgomery & Baker, 2007). (4) In keeping with current SLW scholarship (e.g., Beason, 2004; Evans *et al.*, 2010; Ferris, 2006, 2011; Hinkel, 2004), higher-order concerns (Keh, 1990) focused the teachers' response in this study, though lower-order concerns were not neglected. (5) The present study confirms previous observations that students tend to make revisions where they receive feedback (electronic or written) (Ferris, 2006; Martin-Beltran & Chen, 2013; Tuzi, 2005), as TEF successfully elicited appropriate revisions on a variety of aspects of the student essays, although somewhat surprisingly the overall amount of successful uptake in W1 was significantly higher than in W2. (6) Direct, explicit e-feedback, which is preferred by both teachers and students, is effective whether it is handwritten or electronic, as it results in more successful student uptake than indirect, implicit e-feedback (Baker and Bricker, 2010; Bitchener, 2008; Bitchener & Knoch, 2008 a and b; Ellis, N., 1993; Ellis, Loewen, & Erlam, 2006; Ellis *et al.*, 2008; Ellis, 2009; Sheen, 2007).

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The study has pedagogical and theoretical implications regarding SLW and SLA. It confirms the value of not only direct but also specific feedback, be it electronic or handwritten. The teachers in this study provided very little general e-feedback about the overall quality of the students' papers and few generalized end comments. The results validate for e-feedback the findings on handwritten feedback of Ferris *et al.* (1997), who found that students tend to make the most substantial revisions in response to text-specific teacher comments rather than general or positive (i.e., praising) comments. Some CALL studies also have shown that e-feedback leads to uptake (Schultz, 2000; Tuzi, 2005). Some have shown that specific metalinguistic feedback (the equivalent of rule explanations in the current study) is particularly effective (Heift, 2004; Sauro, 2009), especially with less proficient language learners (Heift, 2010). This suggests that teachers, tutors, and even peers should be trained to use specific feedback.

The distribution and characteristics of teacher feedback and student uptake offer a window into the relative difficulty and complexity of various aspects of the writing process, as well as the SLA process. The students' general success with uptake shows that, for the most part, the feedback was noticed (Schmidt, 1990). The students' attempts to implement the teacher feedback also indicates the presence of pushed output (Swain, 1985, 1995). However, the fact that the amount of successful uptake decreased in W2 suggests that, as the writing tasks became more complex, students found it more challenging to implement teacher feedback, which tended to focus on rhetorical, higher-order issues rather than simply lexico-grammatical, lower-order issues. Because most of the feedback and uptake were related to essay content, it seems that content remains the most challenging for the students across proficiency levels, or at least that the teachers in this study perceived it to be so.

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This study further confirms that teachers can be reassured of the usefulness of the feedback they provide on SLW assignments, but they should expect uptake to fluctuate as content and tasks becomes more complex. In fact, teachers can expect the nature of their own feedback to change as the writing tasks change. Like Ferris *et al.* (1997) and studies quoted therein, this study found that the amount of teacher feedback decreased as student proficiency level increased (in this case, from W1 to W2). Tuzi (2005) found a similar pattern in peer e-feedback. This trend is not unexpected as less advanced writers and drafts likely need more feedback. In our study, an interesting fact is that the largest drop in TEF from W1 to W2 also occurred in the category of idea development and content. The reason may be that as students' proficiency levels and writing abilities improve, they are better able to understand and respond, so need less feedback on basic ideas and content in their drafts. In addition, it appears that the TEF that is given on content in more advanced stages of writing is also more complex, making it harder for students to implement the feedback, as suggested by the fact that there was less successful uptake of TEF about content in W2.

A limitation of this study is the relatively small number of participating students and teachers, which limits the broader generalizability of the results. As a first attempt to describe the previously unexplored characteristics of TEF, this study took a predominantly quantitative approach and isolated TEF from other kinds of feedback the students might have received in class, peer reviews, teacher conferences, or the writing center. Aside from a replication with a higher number of participants, it would be useful to conduct an exploration into how TEF complements other sources of feedback and over a longer period of time. In addition, exploring student and teacher perspectives of e-feedback would help clarify some of the decisions made with regard to offering and responding to feedback. More than anything, the field of SLW would

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benefit from more studies of TEF. So far, the merits of peer and tutor e-feedback have been studied more than TEF, even though teachers likely provide feedback more frequently and effectively, and are expected to do so by students ((Ferris *et al.*, 1997; Guénette, 2007; Hedgecock & Lefkowitz, 1994; Hyland & Hyland, 2001; Leki, 1990). The research developing at the intersection of SLW and CALL should develop a thorough understanding of TEF as a whole before narrowing down its focus to specific feedback strategies, in order to maximize its pedagogical relevance. A typology of TEF should also further clarify the role of praise, possibly in relation to the learners' first language and culture. Although Hyland and Hyland (2001) observed that students find positive remarks motivating even when they understand that it often is a mere preamble to criticism, Baker and Bricker (2010) have hypothesized that teachers may refrain from giving praise because students often fail to interpret positive and indirect feedback as corrective. Why teachers offer little praise of student writing and whether more of it would result in more uptake remain questions for future research.

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Appendix A

Teacher Feedback: Coding Categories and Brief Examples

1. Target of Teacher Feedback

General

Q = Overall quality of essay in all its aspects. Ex: "Excellent" or "This paper/paragraph needs much work in several areas." on an entire paragraph or larger part of a paper.

Discourse level

C = Content

Cc = Clarity or understandability. Ex: “What do you mean here?” “This is not clear.” “Clarify.”

Cd = Development or lack of development. Ex: “These are the same ideas as in the summary.” “You are repeating points made earlier.”

Cq = Overall quality of content. Ex: "Excellent ideas!" about a whole paragraph or essay.

Ca = Accuracy of information, truth value of a claim, accuracy of interpretation Ex: "This is a misinterpretation of the text." "The author does not say that." "You misunderstood the idea."

O = Organization, coherence, cohesion

Otr = Transitions. Ex: “You need transitions between the ideas in this paragraph.”

Oth = Thesis statement. Ex: “Excellent thesis statement!” “I can’t find your thesis.”

Oto = Topic sentence. Ex: “Is this your topic sentence?”

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Oq = Overall quality of organization. Ex: “Your paper is (not) well organized.”

Och = Coherence, cohesion. Ex: “Connect these ideas to convince the reader.”

Op = Idea placement. Ex: “This belongs at the end of the paragraph.”

Oo = Paragraph order. Ex: “The rhetorical analysis paragraph is missing/should be first.”

Form level

V = Vocabulary

Vw = Word choice, collocations, phrasing. Ex: “This is not the right word for what I think you’re trying to say. Look it up.” “The author shows ~~researches~~ evidence…”

Vq = Overall quality of vocabulary “In your revision, please pay attention to word choice.”

G = Grammar/Syntax and morphology

Gs = Sentence structure

Go = Ommission (e.g., subject)

Gw = Word order

Gv = Verb tense or form

Gn = Noun form

Gart = Article

Gagr = Agreement (e.g., s-v, pronoun)

Gp = Prepositions

Gpron = Pronoun

Gq = Overall quality of grammar

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M = Mechanics

Mp = Punctuation

Ms = Spelling

Md = Documentation or attribution

Mf = Formatting and style

Mq = Overall quality of mechanics

P = Writing process

Pr = Revision. Ex: “You need to revise this paragraph carefully.”

Pw = Writing Center assistance. Ex: “I encourage you to make an appointment with the Writing Center.”

Wq = Overall quality of revisions. Ex: “This draft is (not) much improved.”

2. Directness/Indirectness of corrective feedback (related to how the target form is provided)

Direct feedback

Dc = Correction (correct form provided; replacement, reformulation, insertion)

Ds = Explicit statement that something is wrong or problematic. Ex: “This explanation does not work.” “The word should not be capitalized.”

Dr = Rule or explanation is provided. Ex: “In English, each sentence must have a subject.” (Rule); “This is a fragment because the sentence doesn't have a verb.” (Explanation); “The author made several important claims, and all of those claims should be included in the summary.” (Explanation)

Dd = Directive. Ex: “Use the SVO word order here.” “You have to use quotation marks around this phrase.” “Avoid the passive voice.”

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De = Example is provided. Ex: “This is not the only consequence of the conflict. For example, they are not allowed to pray there, either.”

Du = Incorrect form is crossed out.

Da = Acknowledgement of correct language usage; agreement with content. “Yes! Well said!”

Indirect feedback

Ig = Error is graphically marked or enhanced: underlining, highlighting, circling

It = Error count is provided

Ict = Error codes are used (wc for word choice, wo for word order, etc.)

3. Implicitness/Explicitness of corrective feedback (related to how the learner is being let know that his/her usage differs from the target)

Explicit feedback

Ec = Correction or evaluative comment

Ed = Directive (“Do it” type of statements. May also offer the specific structure to use. Ex: “Use either…or.”)

Ect = Error codes

Ep = Explanations/statements that something is wrong.

Ew = Examples.

Implicit feedback

Icc = Confirmation check. Ex: “Do you mean they were persecuted?”

Icr = Clarification request. Ex: “What do you mean here?”

Ip = Explanation without correction. Ex: “I would like to see more variety in the way each paragraph begins.”

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Iw = Indicates something is wrong but does not provide a correction. Ex: “No, not ‘also’.”/”You haven't quoted this correctly.”

4. Feedback Charge

Rs = Praise; encouragement; acknowledgement of something positive.

Rn = All feedback that is not Rs.

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Appendix B

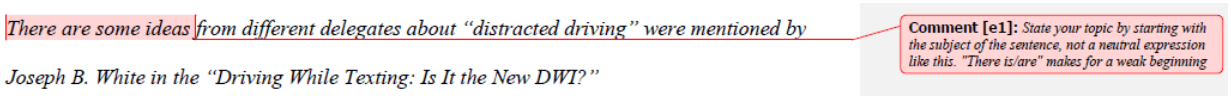
Expanded Examples of Feedback, Uptake, and Coding

Example 1.

Student text in Draft 2:

There are some ideas from different delegates about "distracted driving" were mentioned by Joseph B. White in the "Driving While Texting: Is It the New DWI?"

Student text with teacher's electronic feedback:



Student revision in Draft 3 and final submission:

Some public issues about "distracted driving" were mentioned by Joseph B. White in the "Driving While Texting: Is It the New DWI?"

Code for teacher feedback:

Part 1: *State your topic by starting with the subject of the sentence, not a neutral expression like this.* Code: Vw Dd Ep Rn

Part 2: *"There is/are" makes for a weak beginning*. Code: Vw Ds Ew Rn

Code for revision/uptake:

successful (S)

Example 2:

Student text in Draft 2:

According to the article, the reason they did that is because mercy hospital sees at least four Hmong people and their belief caused a conflict with doctors belief. Therefore[teacher comment

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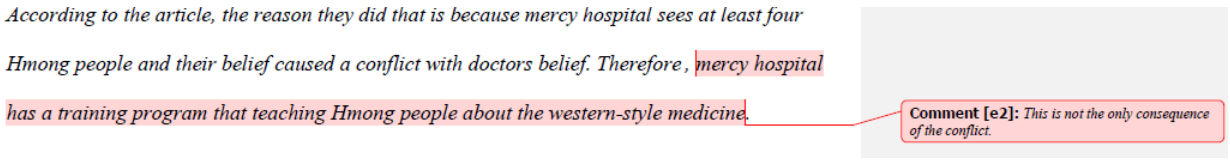
2] *, mercy hospital has a training program that teaching Hmong people about the western-style medicine.*

Student text with teacher's electronic feedback:



Student revision in Draft 3:

According to the article, the reason they did that is because Mercy Hospital sees at least four Hmong people daily, and their beliefs have caused conflicts with the doctors' beliefs. Therefore, Mercy Hospital has a training program to teach Hmong people about the western-style medicine.

Code for teacher feedback:

Cd Ds Ew Rn

Code for revision/uptake:

Unsuccessful (U)

Example 3:

Student text in Draft 2:

The first reason that the international community doesn't cooperate because it is a Muslim community and usually the religious hard to convinced to change their religion; as a result, only Muslim country such as Saudi Arabia offer a big amount of money to help Pakistanis recover from their catastrophe.

Student text with teacher's electronic feedback:

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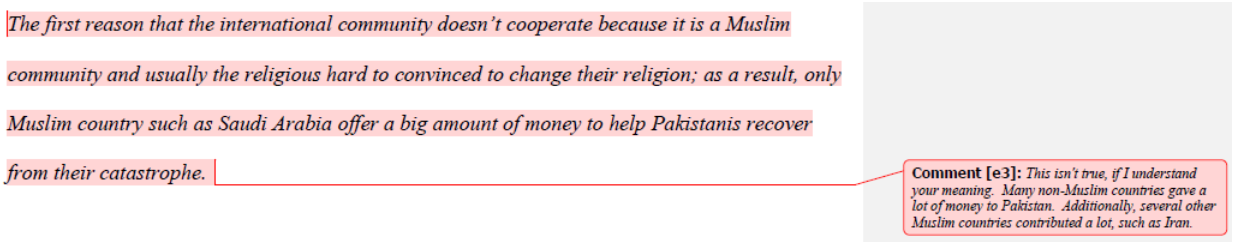

Student revision in Draft 3:

The international community doesn't know how bad the situation is in the Pakistan since the media doesn't show the situation clearly. Moreover, the author doesn't include any emotional images to his article since he is an encomiast. If the world could see the pictures that show people who are fighting to get some food, a picture of big crowd of people including a lot of children, all religions such as Muslims, Christian, and Catholic etc, would move quickly to help the people there because of humanity.

Code for teacher feedback:

Ca Ds Ep Rn

Code for revision/uptake:

Successful

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