

Running Head: IMPACTS OF TEACHER FEEDBACK ON ESL/EFL STUDENTS' WRITING

Impacts of Different Types of Teacher Corrective Feedback in Reducing Grammatical Errors
on ESL/EFL Students' Writing

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ABSTRACT

The study investigated the impacts of different strategies of providing teacher written corrective feedback on first semester ESL/EFL students' writing accuracy and writing quality. Four feedback strategies (indirect feedback, direct feedback, indirect feedback followed by direct feedback with explicit corrective comments, and no feedback) were employed in this study. One hundred twenty-one EFL freshman university students were randomly assigned into four feedback groups (IF, DF, IDECC, NF). Students in each group produced two narrative essays. Teacher feedback was provided in two segments for the first essay and students made two revisions based on the feedback. The errors on each stage of students' writing were marked and counted to be compared among each stage of the writing and between groups. The results of data analysis showed that the mean number of errors in all three treatment groups decreased in each writing stage. All three treatment groups outperformed the no-feedback control group in each stage of writing in terms of grammatical accuracy and writing quality. There was no difference in the mean number of errors among three treatment groups in the first and second revisions. However, the IDECC group, who received indirect feedback followed by direct feedback with explicit corrective comments, outperformed all other groups in the second revision and in the new essay. The results also showed that the mean number of errors of all three treatment groups decreased in the new essay indicating that there was a long-term effect of teacher corrective

feedback on the new essay. The results of the study suggest that providing teacher corrective feedback was effective in reducing students' grammatical errors on their essays. All three treatment groups also gained in writing quality scores in the new essay indicating that, to a certain extent, there was an effect of teacher corrective feedback on writing quality. The findings are discussed in the context of the related literature. Areas of future research are discussed and practical implications are suggested.

Dedication

To all my beloveds who have made me who I am now.

Three most important women in my life:

Ibu Ati Wiparti, Yeti Lismanasari, and Mimi Uweh.

Three most influential men in my life:

Mbah Oom, Apih Eka, Bapak Dadang

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Chapter 1: Introduction

Background and Statement of the Problem

Feedback is considered an inherent part and an important element in instructional design and it has a strong foundation in major learning theories. The practice of instructional design has been influenced by major learning theories such as behavioral learning theory, cognitive information processing theory, and Gagné's theory of instruction, and all these theories regard feedback as a crucial part in learning and instruction, including language learning and language instruction.

In language learning and language instruction, including writing in English as a Second or Foreign Language context, the vital role of feedback in students' learning is evident. Student writers gain benefits from sufficient writing practice and revisions on their drafts to produce a final piece of writing. In these processes, student writers often rely on feedback either from a teacher, peer, or self. Feedback that students receive from a source, or a combination of sources, provides them with information about what is good and what needs to be improved so that they can incorporate and use the feedback in their revisions and in the final product of their writing.

A large number of studies have examined the effectiveness of corrective feedback on student writing although agreement on research findings to date is still inconclusive. Most of the studies found that feedback are helpful and effective in improving student writing. However, there have been controversies on the effectiveness of feedback on student writing (e.g. Chandler, 2003; Ferris, 1999, 2004; Ferris & Roberts, 2001; Truscott, 1996, 1999, 2004, 2007) and conflicting findings in different areas of feedback such as feedback focus and strategy (Ashwell, 2000; Bitchener, 2008; Bitchener, Young, & Cameron, 2005; Chandler, 2003; Ferris & Roberts, 2001; Jacobs, Curtis, Braine, & Huang, 1998; Lalande, 1982; Robb, Ross, & Shortreed, 1986).

Reviews on previous research reveal that disagreement on the findings on the effectiveness of corrective feedback on student writing may be due to design flaws in those studies as highlighted by Bitchener (2008), Ellis, Sheen, Murakami, and Takashima, (2008), and Gueñette (2007). Such flaws may include, but not be limited to, the absence of a control group, too many areas of errors addressed in the studies, and failure to compare corrected texts with a new piece of writing.

In attempt to provide more definitive answers to the controversies surrounding the effectiveness of feedback on ESL/EFL student writing, recent studies have been conducted which attempt to “fill in” the gaps that seem to have been overlooked in previous studies. Such studies (e.g. Bitchener, 2008; Ellis, et al., 2008; Sheen, 2007) included a control group, addressed only one error category, and required a new piece of writing as a post-test. The findings of these studies indicate that all treatment groups receiving teacher written corrective feedback outperformed non-feedback control groups. However, these studies used direct feedback only and none of these studies used indirect feedback as a treatment. Direct feedback, as referred to in this context, is “the provision of the correct linguistic form or structure above or near the linguistic error” (Bitchener, 2008) while indirect feedback is the situation where an error is indicated but the correct form is not provided (Ferris & Roberts, 2001). In addition, none of the studies above involved, or at least did not mention to have used, electronic technologies for writing, such as word processing software, or email as electronic delivery media. Consequently, these studies did not provide answers to questions of effectiveness of indirect teacher electronic written corrective feedback on student writing.

Regardless of recent research findings that found evidence in support of written corrective feedback (Bitchener, 2008; Ellis, et al., 2008), some questions still remain to be answered: 1) Provided that flaws in the design referred to above have been minimized to the

lowest extent possible, will teacher written corrective feedback still be effective in improving student writing in ESL/EFL context? 2) Will providing indirect teacher written corrective feedback followed by direct teacher written corrective feedback with explicit corrective comments facilitate ESL/EFL student writing improvement as measured in the production of a new piece of text?

Purpose of the Study

This study is aimed at contributing to the body of research on writing in English as a second or foreign language by investigating the effects of combining indirect and direct teacher written corrective feedback with explicit corrective comments on three common grammatical errors on students' narrative texts. More specifically, this study will focus on investigating indirect and direct teacher written corrective feedback on ESL/EFL students' narrative essays word-processed electronically using Microsoft Word and delivered through email as an attachment. The focus of target structures of written corrective feedback in this study are the three most frequently made grammatical errors by ESL/EFL student writers: prepositions, articles, and past tense verbs (Bitchener et al., 2005; Ellis et al., 2008; Sheen, 2007).

Previous studies on feedback and writing have dealt with the relationships between feedback, either from a teacher, a peer, or from oneself, and ESL/EFL student writing. Many of those studies looked at the effectiveness of feedback as measured in students' revised texts, the process of text revision by the students, and attitude of teachers and students toward feedback. Many previous studies also tried to compare the effects of teacher feedback with peer feedback on student writing. This study will focus only on teacher feedback and its effectiveness on ESL/EFL student writing since in actual classrooms the primary feedback is provided by teachers.

While previous studies may have addressed questions regarding how much feedback was used by students during revision stages, many of them put direct and indirect feedback in isolation from each other or put them against each other. This study, on the other hand, will approach both direct and indirect feedbacks as a synergy or as a complement to each other accompanied with explicit corrective comments.

As mentioned above, several previous studies have approached direct and indirect feedback from an “either or” point of view. This approach implies that writing teachers should choose only one feedback strategy. This approach also carries a comparison of which strategy is superior over the other. Rather than adopting this common approach, this study will endeavor to treat direct and indirect feedback strategies as complements to each other by incorporating the two strategies together. Therefore, this study will employ both feedback strategies in writing activities although in terms of order one strategy will follow the other for the purpose of clarity of use and effect during revision stages.

Unlike most previously conducted studies, this study will attempt to determine the influence of the combination of indirect and direct corrective feedback provided to students during the revision stages on a new piece of writing. Most studies (e.g. Ashwell, 2000; Conrad & Goldstein, 1999; De Guerrero & Villamil, 2000; Fathman & Whalley, 1990) conducted in past years did not measure the influence of feedback on a new piece of writing. Instead, they only measured the influence of feedback on the immediate revised texts or only measured the influence of one feedback strategy on a new text. In addition, when metalinguistic explanation was provided, most of the previous studies only compared feedback with metalinguistic explanation against feedback without metalinguistic explanation on immediate revised texts. This study will extend the investigation on the effectiveness of both indirect and direct feedback

strategies with explicit corrective comments on a new piece of text in order to obtain more measurable evidence of learning as a carry-over effect of feedback.

Based on the aforementioned points, this study has multiple purposes: 1) to examine the effects of different strategies of teacher written corrective feedback on student writing, 2) to determine the consistency of these effects across different times, 3) to measure the teacher written corrective feedback on student production of a new piece of written text in terms of number of errors on grammatical items, and 4) to determine the difference in essay quality ratings given by independent raters on the first and a new essay.

Significance of the Study

Much research has been conducted on feedback in relation to ESL/EFL student writing improvement. Different studies put different emphasis on different aspects of feedback and from different perspectives toward feedback on student writing. The most obvious focus of previously published studies on feedback and student writing in ESL/EFL context are the effects of feedback focus and feedback strategies. For example, several studies attempted to unveil the effects of written corrective form-focused feedback and content-focused feedback (e.g. Ashwell, 2000; Ferris & Robert, 2001; Hyland, 2003; Semke, 1984) or the effects of focused versus unfocused feedback on student writing (e.g. Ellis et al., 2008, Sheen, 2007). Other previous studies investigated the effects of different feedback strategies on student writing such as some studies that compared the effects of direct vs. indirect feedback (e.g. Bitchener, 2008, Chandler, 2003; Conrad & Goldstein, 1999; Frantzen, 1995; Robb et al., 1986) or compared direct corrective feedback with explanation vs. the absence of explanation (e.g. Bitchener, 2008; Sheen, 2007).

However, little is known from previous studies regarding the effects of a combination of two feedback strategies, indirect and direct written corrective feedback, on student writing both in immediate revised texts as well as in a new piece of writing. The provision of teacher written indirect and direct feedback can be useful for students as the combination of the two may help them better understand the feedback to correct an error. Teacher written indirect feedback followed by direct feedback with explicit corrective comment may provide scaffolding of feedback information to guide students to understand the errors they made and how to correct them appropriately. Findings of this study will contribute to the discussion to answer fundamental questions which sparked the debate such as the one initiated by Truscott (1996) and Ferris (1999) on whether or not corrective feedback is effective and helpful for student writing.

Based on previous studies on the effects of various types of corrective feedback, feedback focus, and feedback strategies on student writing improvement, further research incorporating effective approaches in those studies and minimizing drawbacks of existing studies (Gu nette, 2007) are needed to provide empirical evidence that written corrective feedback is effective and influential in improving student writing. Such studies may prove the effectiveness of corrective feedback as advocated by most writing researchers or prove otherwise that corrective feedback is ineffective and counterproductive as indicated by some researchers who are against the practice of feedback provision. In response to this recommendation, this study will attempt to prove the hypothesis that indirect teacher written corrective feedback followed with direct corrective feedback with explicit corrective comment is effective and helpful in improving student writing.

Unlike many previous studies which did not have a control group, this study will involve a treatment group receiving both teacher written indirect and direct corrective feedback with explicit corrective comments and a control group receiving no corrective feedback. This study

will also focus on three grammatical errors frequently made by ESL/EFL students which is different from several previous studies that were either too broad by addressing too many areas of error or too specific by focusing only on one error. While some studies tried to contrast different delivery media when investigating the effects of feedback on student writing, this study will only investigate the effects of corrective feedback in an environment where electronic technology and electronic delivery media are concerned. Last but not least, different from other studies which looked at the effects of written corrective feedback on revised texts only, this study will investigate the effects of teacher written corrective feedback on both the revised texts and a new piece of text.

The study is expected to enrich the growing body of research in the area of feedback on student writing in ESL/EFL context through an experiment employing a combination of two written corrective feedback strategies to three experimental groups with one control group receiving no corrective feedback. Indirect teacher written feedback followed by direct teacher written feedback with explicit corrective comments will be the choice of feedback strategies limited to three areas of errors most frequently made by ESL/EFL students (i.e. English articles, prepositions, and the simple past tense) in multiple-draft narrative writing activities followed by a posttest in the form of a new piece of narrative text. The study will also utilize the Microsoft Word "Comment and Track Changes" tool for feedback provision and revision and electronic mail as delivery media. These factors are expected to fill the gaps that have not been well addressed in previously published research.

The study will also contribute to the practice of teaching writing in ESL/EFL context in English speaking environment as well as in environments where English is not the language of instruction. Findings of this study will be of interest to second language and foreign language

writing teachers and researchers not only in traditional classroom settings but also in other settings where electronic technology and online environments are involved, especially when feedback is considered as part of instructional activities.

Organization of Document

This document is divided into five chapters. Chapter 1 presents the background and statement of the problem, purpose of the study, and significance of the study. Chapter 2 provides the literature review relevant to feedback in learning theory and instructional design, feedback in the teaching of ESL/EFL writing, debate on the effectiveness of feedback, teacher feedback which consists of corrective feedback and error correction, roles of teacher in providing feedback on student writing, multiple-draft revisions, focused and unfocused feedback, indirect feedback, direct feedback, and written feedback with explicit corrective comments. Chapter 3 discusses the methodology of this study including study design and variables, participants, research instrument and materials, pilot study, procedures, and implementation and challenges of the study. Chapter 4 presents the results of data analysis in the order of each research question. Chapter 5 is a discussion of the results, implications of the study, and recommendations for future research.

Chapter 2: Literature Review

Introduction

The purpose of this study is to investigate the effects of different strategies of teacher written corrective feedback on student writing in terms of grammatical accuracy and writing quality in ESL/EFL contexts. This chapter discusses several areas in the literature and previous studies related to feedback and student writing in second and foreign language settings. This literature review begins with the overview of feedback in learning theory and instructional design. Following that are topics on research on feedback in the teaching of ESL/EFL writing, controversies surrounding feedback provision in writing instruction, corrective feedback, and roles of teacher in providing feedback on student writing. Next, the discussion continues with focus and different feedback strategies such as multiple-draft revisions, indirect feedback, direct feedback, and written feedback with explicit corrective comments.

Overview of Feedback in Learning Theory and Instructional Design

Feedback is an inherent and important part of an instructional design model. Reigeluth (1999) affirms that feedback is a method of instruction that can foster cognitive learning. Reigeluth furthermore cites an example of instructional design theory called "Theory One" that was described by Perkins (1992) in his book "Smart Schools: Better Thinking and Learning for Every Child" and explains that an instruction should include informative feedback as well as other methods such as clear information, thoughtful practice, and strong motivation. Merrill (1994) corroborates that feedback holds a vital position within an instructional design theory. Merrill's Component Display Theory verifies feedback as the most important part in Secondary Presentation Forms which are "information added to the Primary Presentation Forms to enhance the learning that occurs" (p. 150) in an instructional activity. In his theory, feedback may take

place during practice and/or elaboration stages. Feedback has also been long acknowledged as the most essential form of learner guidance (Merrill, 2002). To confirm further of the important position of feedback, Andrews and Goodson (1980) state that feedback is included in one of the purposes of systematic instructional design that is to improve evaluation process “by means of the designated components and sequence of events, including feedback and revision events, inherent in models of systematic instructional design” (p. 4).

The practice of instructional design has been influenced by major learning theories such as behavioral learning theory, cognitive information processing theory, and Gagné’s theory of instruction. All of these theories value feedback as an important part in learning and instruction. Driscoll (2002) summarizes that these major theories of learning and instruction have provided strong foundations for current practices of instructional design. She describes further that these theories have contributed various concepts that become significant foundations in instructional design. Such concepts are, for example, reinforcement and feedback as contributed by Skinner’s behavioral learning theory as introduced in Skinner’s (1958) *Teaching Machines*. Based on behavioral view of learning, reinforcement and feedback can have important instructional effects on student learning as reinforcement and feedback can modify or shape learner behavior by reinforcing correct responses or providing corrective feedback for incorrect responses. In behavioral learning theory, learner's behavior is observed before and after an instruction. An instruction cannot be regarded as effective if the expected behavioral changes that are related to instruction do not take place. In the field of ID, as stated by Driscoll (2007), “these observations are part of formative evaluation, which is conducted to collect information about whether instruction resulted in learning and how it might be improved to result in even better learner performance” (p. 38). Information from these observations can be used in providing

reinforcement and feedback. As Lockee, Larson, Burton, and Moore (2007) affirm, the idea of “reinforcement through evaluation and feedback” (p. 192) in systematic instructional design is markedly based on Skinnerian theory and despite trends in learning theory shifted toward cognitive and constructivist approaches, the origins of behavioral learning theory is still evident in existing instructional design and technology trends and practices (Lockee et al., 2007) and the roots of behaviorism extend profoundly into IDT practices (Jonassen, 1991).

Viewed from cognitive information processing theory, feedback is also considered to have a significant value in instructional design. Information processing theory assumes that learning is an internal process within the learner (Driscoll, 2007) where the learner processes inputs from the environment to become desirable outputs as results of learning. Two of the proponents of cognitive information processing theory are Atkinson and Shrifin (1968) who proposed a multistage theory of memory which categorizes human memory into three memory systems: sensory memory, short-term memory, and long-term memory. Based on their model, learners process input from the environment through sensory memory and store it in short-term memory for a limited time. Through several processes including rehearsal, coding, and retrieval strategies, learner produce response output or store the information in long-term memory (Atkinson & Shrifin, 1968; 1971). According to Driscoll (2007), feedback serves two functions during learning process. First, feedback provides learners with information about the correctness of their response or performance. Second, feedback provides corrective information that can be used by the learners to modify their performance. Learners use information from feedback and store it in short-term and long-term memory. In the field of instructional design, practitioners incorporated various strategies to assist learners in processing information, directing attention, facilitating encoding and retrieval strategies, and providing feedback and practices.

Feedback is an inherent part of Gagne's systematic instructional design model. Gagné's (1985) model of instructional design known as the "Events of Instruction" which includes gaining attention, informing learner of the objective, stimulating recall of prerequisite learning, presenting the stimulus material, providing learning guidance, eliciting performance, providing feedback, assessing performance, and enhancing retention and transfer. Gagné, Briggs, and Wager (1992) reaffirm the important function of feedback in an instructional program and emphasize that one important characteristic of feedback is its function, which is to provide information to the learners of the correctness of their performance. Smith and Ragan (2000) cited one experimental study examining the effectiveness of Gagné's "Events of Instruction" and how practice and feedback influence learners' performance. For example, results of the study on the use of quotation marks, conducted by Coats (1986), show that low ability learners performed better when they received elaborate feedback and more practice.

Driscoll (2007) adds that, different from other learning theorists who emphasize on learning, Gagné puts his primary concern on how to facilitate learning to systematically take place with instruction in his instructional design. In order for learning to happen, instructional designers need to pay attention to conditions of learning which facilitate the process of learning. Gagné categorizes these conditions into internal conditions such as previously learned capabilities (Gagné et al., 1992), previously encoded information (Driscoll, 2005), attention, encoding, and retrieval (Driscoll, 2007), and external conditions which, in Merrill's (1994) term in Component Display Theory, are called as "primary presentation forms" and "secondary presentation forms. These external conditions include content and approach (as primary forms) and context, prerequisite, mnemonic, representation, and feedback (as secondary presentation forms or elaborations) (Smith and Ragan (2000), or methods of elaboration to facilitate encoding

(Driscoll, 2005). Implications of Gagné's theory for the field of instructional design and technology can be identified in requirement analysis, media selection, and in designing instructional events.

Based on the discussion on feedback in relation to major learning theories and the field of instructional design, it can be concluded that feedback has been an important aspect in learning theories and the literature suggests that existing practices of instructional design and technology embrace feedback as an inherent element in learning and instruction.

Feedback in the Teaching of ESL/EFL Writing

The role, importance, and effect of feedback in English as a Second Language (ESL) or English as a Foreign Language (EFL) have been key issues in several studies in the teaching of writing (Paltridge, 2004; Reichelt, 1999). The large number of research studies focusing on different types of feedback and their impacts on student writing is evidence that many scholars and researchers believe that feedback plays influential roles in the writing process. Feedback on student writing can make learning more effective, as noted by Cardelle and Corno (1981), the more feedback students receive of their performance the better they understand what they need to do to correct their mistakes. The understanding of why they made mistakes and how to correct such mistakes helps students correct their mistakes and increase their achievement (Kulhavy, 1977). Student writers who receive feedback will have information about which parts of their texts need to be corrected and improved. Carless (2006) confirms that students who receive feedback during the writing process have a clearer sense of how well they are performing and what they need to do to improve. Feedback can also modify students' thinking or behavior toward their work and focus their attention on the purpose of writing. Furthermore, feedback can provide assessment on how well the students perform their work or their accomplishment of a

given task (Schwartz & White, 2000) as feedback is meant for helping students narrow or close the gap between their actual ability and the desired performance (Brookhart, 2003). Teachers are responsible for helping students develop their ability to reach their learning goals through teachers' feedback.

Feedback raises students' awareness of the informational, rhetorical, linguistic expectations of the reader (Hedgcock & Lefkowitz, 1994). As Williams (2005) suggests, feedback in writing can stimulate explicit knowledge of student writers. Williams (2005) describes explicit knowledge as the knowledge of language rules that students can articulate and provide reasons that certain rules should be applied. Students who receive feedback will resort to their prior knowledge about language and writing rules that they have learned. In writing, student writers will apply explicit knowledge as stimulated by the feedback on their writing.

Feedback can increase students' attention on the subject they are writing. Students who receive feedback will pay more attention to what they have written that, beyond their knowledge or awareness, their work does not meet certain standards. The feedback that they receive draws students' attention to those aspects of their writing that need remediation, and by doing so, they learn how to improve their performance. The increase of attention will lead to writing improvement which can be defined as a gain in accuracy in both form and content of writing as indicated by Ashwell (2000) and Lamberg (1980).

A large number of studies have been conducted to investigate the effects of feedback on student writing. Studies on feedback in relation to writing performance and accuracy have ranged from feedback source, function, focus, strategy, to feedback media. Examples of studies on feedback source, which include teacher, peer, and self, were conducted by Jacobs et al. (1998); Keh (1990); Min (2006); Tsui and Ng (2000); and Zhang (1995). Studies on feedback function,

which include informative and corrective feedback, were conducted by, among others, Fazio, (2001); Ferris and Roberts (2001); Frantzen, (1995); and Hyland and Hyland (2001). Other studies were conducted on feedback strategy such as direct and indirect feedback such as those conducted by Ashwell (2000); Bitchener (2008); Bitchener et al. (2005); Chandler (2003); Ferris and Roberts (2001); Lalande (1982); Robb et al. (1986). Studies on feedback media including written, oral, and electronic were conducted by Bitchener et al. (2005); Goldstein (2004); Buck (2008); Greenfield (2003); Honeycutt (2001); Hyland (1998); Liu and Sadler (2003); Matsumura and Hann (2004); and Tuzi (2004) among others. The many studies on feedback in its many forms and its efficacy on student writing demonstrate the paramount place of feedback in the teaching and learning of writing.

Effectiveness or Ineffectiveness of Feedback: A Debate

Despite much research conducted on feedback in relation to student writing and the strong belief that feedback is important and influential on student writing, interpretations of the research findings on the effectiveness of feedback are not decisive. There have been several ongoing debates among writing researchers in the last 15 years on whether or not students benefit from written corrective feedback on their writing (see Chandler, 2003; Ferris, 1999, 2004; Ferris & Roberts, 2001; Truscott, 1996, 1999, 2004, 2007).

Truscott (1996) adamantly holds that feedback, in the form of grammatical error correction, is neither effective nor useful. In fact, Truscott argues that error correction is not only ineffective in improving student writing, he believes that it is significantly harmful. Therefore, he suggests that grammar correction should be avoided or abandoned. Truscott (1996) bases his rejection of error feedback on his review of the research findings (e.g. Kepner, 1991; Robb et al., 1986; Semke, 1984; Sheppard, 1992) which show that feedback had very little or no impact on

student writing improvement. Thus, in Truscott's view, feedback is ineffective and unhelpful. Conversely, Ferris (1999) argues that Truscott (1996) failed to separate poorly done error corrections from effective ones, has ignored positive evidence of previous research findings on the effects of error correction only to support his thesis, and that he overstated his claims. In addition, in contrast to Truscott's claim that error correction can interrupt communicative activities and therefore is ineffective, Lyster, Lightbown, and Spada (1999) argue that some studies have shown that corrective feedback can be integrated in ways that do not rupture the flow of interaction. Furthermore, Ferris (1999) argues that research on feedback should be continued until feedback is conclusively proven ineffective or harmful.

The controversy over error feedback continued as Truscott (1999) reaffirmed his claim that error correction is a bad idea because any beneficial effects that may be claimed cannot adequately justify the perceived negative effects. Therefore, he insists that grammar correction in writing should be avoided until convincing evidence that it is not harmful can be made. Joining the debate, Chandler (2003) pointed out that Truscott (1999) at times drew conclusions without considering statistical evidence in the original studies that are in favor of effectiveness of feedback. Chandler (2003) also suggested that the harmful effect of feedback alleged by Truscott (1996) are aspects of writing fluency which can actually be measured by different approaches (e.g. by the number of words written or the amount of time it takes to complete an assignment). Truscott (2007) reaffirmed that although several studies showed that error feedback can improve writing accuracy, the perceived gains made by students could possibly be attributed to other factors such external exposures. Truscott (2007) also suggested that the fewer errors made by the students may be due to students avoiding correction by writing less or not writing certain constructions.

As the debate on the effectiveness of feedback on errors in writing continues, a conclusive agreement on the interpretations of the research findings is yet to be reached. In the meantime, several more recent studies have been conducted with evidence in support of written corrective feedback (Bitchener, 2008; Bitchener et al., 2005; Ellis et al., 2008; Poulos & Mahony, 2008).

In light of the above disputes regarding feedback on student writing, Guénette (2007) reviewed previous studies that became the basis of arguments in the grammar error correction debate among Chandler, Ferris, and Truscott. Guénette (2007) proposed a different perspective on the findings of the research rather than getting involved in the debate. She suggested that different findings which led to conflicting interpretations of former studies can be attributed to several different factors such as research design and methodology flaws and external variables uncontrolled by the researchers. Until these factors are well covered in studies on feedback in relation to student writing, a decisive conclusion will remain undetermined and need further researching.

Teacher Feedback, Corrective Feedback and Error Correction

An area of concern in the research on teacher feedback in second or foreign language is error correction or corrective feedback and its effects on student writing accuracy. In this context, the errors are grammatical errors committed by ESL/EFL students on their written texts.

Corrective feedback is a type of feedback with the purpose to correct any errors committed by students. Corrective feedback which informs students of the correct response assists error correction (Dempsey, Driscoll, & Swindell, 1993). Corrective feedback may take different forms of teacher response to students' texts that contain errors. Ellis, Loewen, and Erlam (2006)

categorize responses from teachers to students' error into three forms or strategies: (a) teacher feedback that indicates that an error has been committed, (b) teacher feedback that provides the correct form of the target language, and (c) teacher feedback that provides a type of metalinguistic information about the nature of the error. In addition to those three categories, in this study, the combination these forms or strategies in error correction are also discussed.

In addressing grammatical errors on students' writing, teacher can use different feedback strategies such as direct or indirect feedback. Direct feedback, as referred to in this context, is the provision of the correct linguistic form or structure above or near the linguistic error (Bitchener, 2008) or the provision of correct answers in response to student errors (Lee, 2008) while indirect feedback is the situation where an error is indicated but the correct form is not provided (Ferris & Roberts, 2001). Both direct feedback and indirect feedback in correcting student errors are commonly practiced by writing teachers and teachers are free to use one or a combination of them. However, teachers need to pay attention to several principles of corrective feedback that are largely acknowledged in recent literature as pointed out by Lee (2008). First, in terms of long-term writing development, indirect feedback is regarded as more beneficial to student writers than direct feedback (Ferris, 2003; Ferris & Roberts, 2001; Frantzen, 1995; Lalande, 1982). Second, when codes are used in indirect feedback, teachers are recommended to use consistent coded feedback that is supported by systematic grammar instruction as codes in feedback provision can be confusing for both teachers and students (Ferris, 2002; Robb et al., 1986). Third, corrective feedback should be specific on limited significant structures (Montello, 1997) and focusing on selective errors is generally more productive than correcting all errors because comprehensive error correction can be exhausting and overwhelming for both teachers and students (Lee, 2008).

In addition to the principles regarding corrective feedback presented above, there are several contextual variables that need to be considered when providing corrective feedback on student writing. Evans, Hartshorn, McCollum, and Wolfersberger (2010) lay out three contextual variables such as learner variables, situational variables, and methodological variables. Learner variables are everything brought by the students to the learning experience and may affect student learning. These variables may include students' first language (L1), culture and nationality, learning style, values and beliefs, socioeconomic background, motivation and future goals, and other additional factors. Learner variables are usually very influential on the learning context (Evans et al., 2010). In this context, Guénette (2007) emphasizes the importance of learner variables, such as motivation, in relation to the effectiveness of corrective feedback and students' success in improving their writing. She asserts that students need to be provided with appropriate feedback which is given at the right time and at the right context. In addition, students have to attend to the provided feedback and apply it to correct their errors. However, any type of corrective feedback will fail if the students are not committed, or are not motivated, to improve their writing skills (Guénette, 2007).

Situational variables are everything that can form the context of learning outside learner variables or methodological variables (Evans et al., 2010). Situational variables may include several factors such as the teacher, the learning atmosphere, or the physical environment. Evans et al. (2010) reveal that although situational variables in some occasions may have a negligible effect on learning, they may also have great influence that may surpass the potential effects of learner and instructional methodology variables. An example of this can be a situation in which learner motivation is high and instructional methodology is effective but if the physical environment is not conducive (e.g. noise level is too high that impedes hearing or too many

distractions in the classroom) learning may be weakened due this unfavorable situational variable. Ferris (2006) also suggests that teacher factors (e.g. teacher differences or consistency in marking or coding an error) may affect students' performance.

Methodological variables or instructional methodologies are also important in facilitating learning. According to Evans et al. (2010), "methodological variables consist of the features of the specific design of instruction and include what is taught and how it is taught" (p. 450). These features may include appropriate sequencing of instructional material, sufficient practice, effective pacing, and repetition. Students may not obtain the potential benefits of teacher feedback if an instructional methodology lacks such factors. Also, notwithstanding how highly motivated the students are, if the amount of feedback is so overwhelming, students may have difficulties in processing the information or learning from the feedback provided during the instruction. Therefore, teachers must pay attention to the above principles and contexts when providing corrective feedback for their students.

Roles of teacher in providing feedback on student writing

Keh (1990) and Hedgcock and Leftkowitz (1996) suggest at least four roles that writing teachers play while providing written feedback to students: a reader or respondent, a writing teacher or guide, a grammarian, and an evaluator or judge. First, teacher as a reader or as a respondent interacting with a writer. In this role, teachers respond to the content and they may show agreement about an idea or content of the text. Teachers may provide positive feedback such as "You made a good point" or "I agree with you" without giving any suggestion or correction. Second, as a writing teacher or as a guide. That is, teachers may show their concern about certain points or confusing or illogical ideas in students' text. In this case, teachers still maintain their role as a reader by only asking for clarification or expressing concerns and

questions about certain points in the text without giving any correction. They may, however, refer students to strategies for revision such as choices of problem solving or providing a possible example. Third, as a grammarian. Teachers write comments or corrective feedback with reference to grammatical mistakes and relevant grammatical rules. Teachers may provide a reason as to why a particular grammatical form is not correct or not suitable for a certain context such as choice of tense, use of article, or preposition. In this case, teachers may also give elaborate explanation of grammatical rules to help students improve their text. Fourth, as an evaluator or judge. It is very common that many writing teachers may act only as an evaluator whose main role is to evaluate the quality of students' writing as an end product of a writing process (Arndt, 1992) and grade students' writing based on their evaluation.

Multiple-draft revisions

Most writing teachers and researchers in the area of second or foreign language agree that teacher feedback is most effective when it is provided during the intermediate stages of the writing process (Ferris, 2003a). During this process, students can respond to teacher feedback when they make subsequent revisions. To facilitate this process, writing teachers encourage students to practice writing several times of the same papers through multiple-draft revisions. In this way, teachers can provide various types of feedback between the drafts and focus on different issues of students' writing. Meanwhile, students can have ample opportunities to experience the process of discovering what they want to express through writing (Zamel, 1982), to receive feedback and revise their writing based on teacher feedback. Multiple-draft writing emphasizes on revision so that students' incorrect use of grammatical items or inappropriate word choices will not be regarded as errors as they are judged in a single-draft assignment or a final product. Rather, as Brannon and Knoblauch (1982) and McGarrell and Verbeem (2007)

suggest, multiple-draft writing provides an opportunity to clarify and refine between intended meanings and what is written. Writing multiple drafts, along with other strategies such as discovery strategies and formative feedback from teachers and peers, becomes an important part in second language writing (Matsuda, 2003).

Several studies have been carried out to examine the effects of multiple-draft revisions on student writing. Hedgcock and Lefkowitz (1994) conducted a survey to 247 L2 writers on students' perception of helpfulness of teachers' comments regarding their writing, including grammatical accuracy. Results of their study show that students preferred teachers' feedback on grammatical errors. Students also preferred that teacher feedback with grammatical correction be given on both students' first and final drafts. Ferris (1995) conducted a study on the effects of a multiple-draft composition setting on student reactions to teacher feedback which involved 155 university ESL students. Results of her study show that students reread their papers more often, paid more attention to teacher feedback on earlier drafts than final drafts, paid attention more on teachers' comments on grammar than other aspects, and felt that teachers' feedback had helped them to improve their writing.

In another study to examine the influence of teacher feedback on student revision in a multiple-draft composition setting of 47 advanced university ESL students, Ferris (1997) found that a significant proportion of teacher feedback appeared to be used by students in their revisions. Similarly, the study conducted by Paulus (1999), involving 11 undergraduate ESL students in the United States, found that multiple-draft revisions resulted in overall essay improvement. Her study was supported by the results of Sengupta's (2000) study on revision instruction involving 100 secondary ESL students in Hong Kong showing that students in the revision groups made more improvement than students in the group with no revision. Results of

these studies are confirmed by the more recent study on multiple-draft revisions conducted by Ferris (2006) which involved 92 ESL university students in the United States. Her study found that students were able to make effective revisions in response to teacher feedback and that students made significant improvement in grammatical accuracy both in the short run (from one draft to the next) and in the long run (from the first draft to the final draft at the end of the writing course). Results of her study also support Chandler's (2003) findings that ESL students' writing accuracy increased significantly in subsequent drafts in groups that received either direct feedback or indirect feedback.

Focused and unfocused feedback

Ideally, teacher feedback should address all aspects of student texts such as content, ideas, organization, rhetorical structure, grammar, and mechanics. Ferris (2003b) notes that teachers' priorities for student writing as well as feedback provision have changed over time from focusing mostly on sentence-level correction as reported in the 1980s (Cumming, 1985; Kassen, 1988; Sommers, 1982; Zamel, 1985) to more aspects of student writing including ideas, organization, grammar, and mechanics in the 1990s (Ferris, 1995, 1997; Ferris, Pezone, Tade, & Tinti, 1997; Kepner, 1991, Hedgcock & Lefkowitz, 1994;). As teachers provide feedback on many aspects of student writing, there is a tendency for student writers to value feedback and pay attention to teacher feedback on all aspects of their writing (Ferris, 2003b; Hedgcock & Lefkowitz, 1994). It is also suggested that teachers should provide feedback for students on a variety of writing problems and focus on specific issues depending on the need of individual students (Ferris, 2003b).

However, providing comprehensive or unfocused feedback on all errors on students' writing can be time-consuming and exhaustive for both teachers and students because it corrects

all of the errors in students' work and can be considered extensive (Ellis, Sheen, Murakami, & Takashima, 2008). Bitchener and Knoch (2009) point out that unfocused corrective feedback may have been one of the causes that earlier studies on corrective feedback failed to produce a conclusive answer to the effectiveness of feedback which may have triggered the debate on corrective feedback between Truscott and Ferris, Chandler, and Gu enette. Further, Bitchener and Knoch (2009) explain that unfocused feedback in previous studies covered up to 15 different linguistic categories and "it was likely to produce too much of cognitive overload for learners to attend to" (p. 204) and therefore it needs to be more text-specific and focused (Ferris, 1997).

Focused corrective feedback usually opts for certain specific errors to be corrected while ignoring other errors (Ellis et al., 2008). For example, teachers may decide to focus on common grammatical errors made by ESL students such as articles, prepositions, and past tense verbs, and ignoring errors on adjectives, adverbs, or pronouns. Highly focused corrective feedback (Ellis et al., 2008) usually focuses on a single error type or category (Bitchener & Knoch, 2009) or a single linguistic feature (Sheen, Wright, & Moldawa, 2009) such as errors in the use of prepositions; while less focused corrective feedback may concentrate on more than one type of error but correction is still restricted to a limited number of error categories (Ellis et al., 2008) such as articles, prepositions, and past tense verbs. Ellis et al. (2008) furthermore state that the theoretical ground for the efficacy of focused corrective feedback to be higher than unfocused corrective feedback in that focused corrective feedback is more likely to direct students' attention to a single error or a limited number of error types and that the students are "more likely to develop a clearer understanding of the nature of the error and the correction needed" (Ellis et al., 2008, p. 356).

Only several studies on focused and unfocused corrective feedback have been conducted in recent years (Bitchener, 2008; Bitchener & Knoch, 2009; Ellis et al., 2008; Sheen, 2007; Sheen et al., 2009). All of these studies show positive evidence of the effectiveness of focused corrective feedback over unfocused corrective feedback or no feedback. Bitchener's (2008) study examined the efficacy of focused written corrective feedback to 75 low intermediate ESL students in New Zealand. The study employed three types of written direct corrective feedback and a no-feedback treatment focusing on the use indefinite article "a" and definite article "the". His study found that the accuracy of students in the groups receiving written focused corrective feedback outperformed students who did not receive any feedback. His study yielded similar results with the study conducted by Sheen (2007) on the use of English articles by 91 adult ESL community college students in the United States with two treatment groups (direct correction only, direct metalinguistic correction groups, and a control group). The results of her study show that students in the treatment groups receiving focused corrective feedback performed better than the control group. The study conducted by Bitchener and Knoch (2009) found similar results. Their study investigated the use of indefinite and definite English articles by 52 ESL low-intermediate students. Their study found that students in the groups receiving focused corrective feedback outperformed the control group in all four post-tests.

Another study on the effectiveness of focused and unfocused corrective feedback was conducted by Ellis et al. (2008). Their study involved 49 EFL university students in Japan with two treatment groups (focused corrective feedback on articles only and unfocused corrective feedback on articles and other errors) and one control group with no feedback. Both groups receiving corrective feedback outperformed the control group and the corrective feedback was equally effective for both the focused and unfocused groups with significant difference. Results

of their study were different compared to those of Sheen et al. (2009) who investigated the effects of focused and unfocused written correction on four grammatical items. The study conducted by Sheen et al. (2009) involved 80 adult ESL students in the United States grouped into focused group, unfocused group, written practice group, and control group. All the treatment groups gained in grammatical accuracy over time and outperformed the control group with the focused group achieved the highest accuracy gain scores.

Indirect feedback

Indirect feedback is a strategy of providing feedback commonly used by teachers to help students correct their errors by indicating an error without providing the correct form (Ferris & Roberts, 2001). Indirect feedback takes place when teachers only provide indications which in some way makes students aware that an error exists but they do not provide the students with the correction. In doing so, teachers can provide general clues regarding the location and nature or type of an error by providing an underline, a circle, a code, a mark, or a highlight on the error, and ask the students to correct the error themselves (Lee, 2008; O'Sullivan & Chambers, 2006). Through indirect feedback, students are cognitively challenged to reflect upon the clues given by the teacher, who acts as a 'reflective agent' (Pollard, 1990) providing meaningful and appropriate guidance to students' cognitive structuring skills arising from students' prior experience. Students can then relate these clues to the context where an error exists, determine the area of the error, and correct the error based on their informed knowledge. Indeed, facilitating students with indirect feedback to discover the correct form can be very instructive to students (Lalande, 1982). It increases students' engagement and attention to forms and allow them to problem-solve which many researchers agree to be beneficial for long term learning improvement (Ferris, 2003a; Lalande, 1982).

Research on second language acquisition shows that indirect feedback is viewed as more preferable to direct feedback (Chandler, 2003; Ferris & Roberts, 2001; Sheen et al., 2009) because it engages students in the correction activity and helps them reflect to upon it (Ferris & Roberts, 2001) which may help students foster their long-term acquisition of the target language (O'Sullivan & Chambers, 2006) and make them engaged in “guided learning and problem-solving” (Lalande, 1982) in correcting their errors. In addition, many experts agree that indirect feedback has the most potential for helping students in developing their second language proficiency and metalinguistic knowledge (Ferris & Hedgcock, 2005) and has more benefits than direct feedback on students' long-term development (Ferris, 2003a), especially for more advanced students (O'Sullivan & Chambers, 2006). When asked about their preference for corrective feedback, students also admitted that they realize that they may learn more from indirect feedback (Ferris & Hedgcock, 2005; Ferris & Roberts, 2001; Leki, 1991).

Lalande's (1982) study, which involved 60 German foreign language learners, compared two different treatments of error correction: direct correction in a traditional manner by providing correct forms to be incorporated by students into their written text, and indirect correction in the form of “guided learning strategies” by providing students with systematic marking using an error correction code. Students were asked to interpret these codes, correct their mistakes, and rewrite the entire essay upon corrective feedback. Results of his study showed that students receiving indirect corrective feedback made significantly greater gains as compared to students who received direct corrective feedback from the teacher. Chandler's (2003) study involving 31 ESL university undergraduate students shows that indirect feedback with underlining on students' errors is a preferred alternative to direct correction in a multiple-draft setting as indirect feedback engages the students in the correction process and engages them

more cognitively during the process. It is important to note that, in her study where students were required to make corrections, both direct feedback and indirect feedback with underlining of errors resulted in significant increase in accuracy and fluency in subsequent writing over the semester. An additional finding of Chandler's study is that if students did not revise their writing based on teacher feedback about their errors, getting their errors marked was comparable to receiving no feedback as their correctness did not increase. Similarly, the study conducted by Ferris (2006), involving 92 ESL students in the United States receiving several types of direct feedback and indirect feedback, shows that there was a strong relationship between teacher's indirect feedback and successful student revisions on the subsequent drafts of their essays.

Direct feedback

Another feedback strategy commonly used by teachers is direct feedback. Direct feedback is a strategy of providing feedback to students to help them correct their errors by providing the correct linguistic form (Ferris, 2006) or linguistic structure of the target language. Direct feedback is usually given by teachers, upon noticing a grammatical mistake, by providing the correct answer or the expected response above or near the linguistic or grammatical error (Bitchener et al., 2005; Ferris, 2003a). Direct feedback may be done in various ways such as by striking out an incorrect or unnecessary word, phrase, or morpheme; inserting a missing or expected word, phrase, or morpheme; and by providing the correct linguistic form above or near the erroneous form (Ellis, 2008; Ferris, 2006), usually above it or in the margin. Direct feedback has the advantage that it provides explicit information about the correct form (Ellis, 2008). Lee (2003) adds that direct feedback may be appropriate for beginner students, or in a situation when errors are 'untreatable' that are not susceptible to self-correction such as sentence structure and

word choice, and when teachers want to direct student attention to error patterns that require student correction.

Several studies employing the use of direct feedback on student errors have been conducted to determine its effect on student writing accuracy with variable results. Robb et al. (1986) conducted a study involving 134 Japanese EFL students using direct feedback and three types of indirect feedback strategies. Results of their study showed no significant differences across different types of feedback but the results suggested that direct feedback was less time-consuming on directing students' attention to surface errors. The study conducted by Semke (1984) involving 141 university students of German as a foreign language in the United States using different feedback strategies (writing comments and questions rather than corrections, marking all errors and supplying the correct forms, combining positive comments and corrections, and indicating errors by means of a code and requiring students to find corrections and then rewrite the assignment) and found that student progress was increased by writing practice alone rather than by error correction. She also found that there was no significant difference among the treatment groups.

On the other hand, Chandler (2003) reported the results of her study involving 31 ESL students on the effects of direct and indirect feedback strategies on students' revisions. She found that direct feedback was best for producing accurate revisions and was preferred by the students as it was the fastest and easiest way for them to make revisions. The most recent study on the effects of direct corrective feedback involving 52 ESL students in New Zealand was conducted by Bitchener and Knoch (2010) where they compared three different types of direct feedback (direct corrective feedback, written, and oral metalinguistic explanation; direct corrective feedback and written metalinguistic explanation; direct corrective feedback only) with a control

group. They found that each treatment group outperformed the control group and there was no significant difference in effectiveness among the variations of direct feedback in the treatment groups.

Written feedback with explicit corrective comments

When providing written corrective feedback, teachers need to be clear and concrete to assist students with revisions (Ferris, 2003a). Teachers must be clear about what students need to do, which part of students' text needs correction or revision, and how to do it. As feedback is meant to help students understand that there is a problem in their text which requires their action to address the problem, teachers should provide clear and meaningful information in regards to the location of the error, type of error, and how to correct it or otherwise students may have trouble understanding teacher feedback and will not be able to fix the error properly. In other words, it is hypothesized that the more explicit the information given by teachers when providing feedback, the easier it should be for students to follow teacher suggestion to perform error correction and make revision of their works. Explicit corrective feedback, however, needs time and be provided with repetition until before it can help students to notice the correct forms of the target language (Hyland & Hyland, 2006).

Explicit corrective comment occurs when a teacher provides feedback to students by not only indicating that an error exists but also providing explicit grammatical explanation or negative evidence in the form of corrective feedback (Sanz & Morgan-Short, 2004) or additional information that may raise their metalinguistic consciousness (Nagata, 1997; Nagata & Swisher, 1993) such as providing an explanation of a grammatical rule or linguistic feature and examples of correct usage (Bitchener & Knoch, 2010). Ellis et al. (2006) suggest that explicit corrective comments can take two forms: (a) *explicit correction* in which teacher response clearly indicates

what is incorrect and provides the correct form, or (b) *metalinguistic feedback* which explains grammatical or linguistic rules. Lyster and Ranta (1997) define metalinguistic feedback as “comments, information, or questions related to the well-formedness of the learner’s utterance without explicitly providing the correct form” (p. 47). In general, metalinguistic comments indicate that an error exists somewhere in students’ text and provides grammatical rules related to the nature of the error or provide a definition of a word when it deals with lexical problems. Thus, for the purpose of this discussion, feedback with explicit corrective comments may be defined as explicit corrective feedback indicating the location and nature of an error accompanied with teacher’s comments explaining grammatical rules or linguistic features related to the error with or without providing the correct form.

There is evidence that the explicitness of written feedback may play a role in the success of student revision (Goldstein, 2006). She states that students may not attempt to make revision when teacher feedback lacks clarity or, when they revise, they may revise it unsuccessfully. In their study, Conrad and Goldstein (1999) found that students often had difficulty to react to comments that did not explicitly state that a revision was needed. As a result, students either did not attempt to revise their text or, if they did, they revised it unsuccessfully. Similar findings are shown in the studies conducted by Ferris and Roberts (2001), Nagata and Hawisher (1995), and Nagata (1997). In their study involving 72 university ESL students, Ferris and Roberts (2001) found that the clarity of teacher written feedback and the nature of errors to be corrected in students’ text helped students in revising their texts successfully. Students in two treatment groups receiving explicit feedback outperformed the students in the no-feedback group on self-editing tasks whilst there were no significant differences between the feedback groups with codes and no-codes.

The study conducted by Nagata and Swisher (1995) that involved 32 university students studying Japanese as a foreign language in the United States investigated the effectiveness of intelligent computer feedback accompanied with explicit corrective comments about the nature of students' errors in the form of metalinguistic rules. The study found that feedback provision with metalinguistic explanations was more effective in improving grammatical proficiency than traditional computer feedback. A similar study by Nagata (1997) involving 14 university students in a course of Japanese as FL employing computer feedback with metalinguistic rules shows similar results. Students in the metalinguistic feedback group performed significantly better than those in translation feedback group in terms of using complex grammatical structures. The results also suggested that providing feedback with explicit corrective comments increased students' tendency to resort to metalinguistic information in writing in the target language.

Another study investigating the effectiveness of providing explicit corrective comments was conducted by Ellis et al. (2006). Their study, involving 34 ESL students in New Zealand, compared two types of corrective feedback (explicit feedback in the form of metalinguistic explanation and implicit feedback in the form recast) with a control group receiving no feedback. Results of their study show that there was a clear advantage for the explicit feedback with metalinguistic information and it also resulted in learning that generalized some grammatical forms not included in the treatment, which suggests that learning took place. Findings of their study reinforce Bitchener et al.'s (2005) findings that the provision of full, explicit written corrective, with conference feedback, was responsible for significantly greater accuracy in the use of some grammatical areas in a new piece of writing in an experiment involving 53 adult migrant ESL learners.

Their findings are supported by more recent studies by Bitchener (2008), Varnosfadrani and Basturkmen (2009), Bitchener and Knoch (2010), and Rassaei and Moinzadeh (2011). The study by Bitchener (2008) which involved 75 ESL students found that written corrective feedback with explicit explanation of metalinguistic rules improved students' grammatical accuracy in the immediate revised text as well as in the delayed post-treatment text. Similarly, the study by Varnosfadrani & Basturkmen (2009) involving 56 EFL students in Iran revealed that providing explicit corrective feedback with metalinguistic information was more effective in raising grammatical awareness than implicit feedback resulting in a better performance on the target structures. In the study involving 52 low-intermediate ESL students, Bitchener and Knoch (2010) reported that all treatment groups receiving different strategies of direct feedback with explicit metalinguistic comments outperformed the control group on all post-tests in terms of grammatical accuracy in using the target structures. Another study with similar findings of effectiveness of feedback with explicit corrective comments was conducted by Rassaei and Moinzadeh (2011) involving 134 Iranian EFL students which found that corrective feedback with metalinguistic explanations were effective in improving students' accuracy in using target structures in both immediate and delayed post-tests. In summary, several studies discussed above show that providing teacher corrective feedback with explicit corrective comments was more advantageous than implicit or no corrective feedback.

Summary and Conclusions

Feedback is an inherent and crucial part of an instructional design model and has a strong foundation in major learning theories. The practice of instructional design has been strongly influenced by major learning theories such as behavioral learning theory, cognitive information processing theory, and Gagné's theory of instruction, and these theories value feedback as a vital

part in learning and instruction. In behavioral view of learning, feedback is believed to have important instructional effects on student learning as it can modify or shape learner behavior by reinforcing correct responses and providing correction for incorrect responses. Cognitive information processing theory equally considers feedback as having a significant value in instructional design. In this view, feedback serves two critical functions during learning processes: providing learners with information about the correctness of their performance and providing corrective information that learners can use to modify their performance. In instructional design practices, feedback is incorporated into instructional strategies to assist learners in learning processing including in processing information, directing attention, and encoding and retrieval strategies. Feedback is also an inherent part Gagné's systematic instructional design model. In Gagné's "Event of Instruction", feedback is included as one of the events acknowledging the important role that feedback plays in instruction and learning.

The role of feedback in instruction and learning, including writing instruction in English as second or foreign language, is undeniably important. The importance of feedback in ESL/EFL can be seen from the many studies conducted on feedback and its impacts on student writing. The literature review shows that there have been a large number of studies focusing on different types of feedback and their impacts on student writing, writing instruction, and writing process. Results of many studies found in the literature suggest that feedback on student writing can make learning more effective as the more feedback students receive regarding their performance the better they understand what they need to do to avoid or correct their mistakes which result in more effective writing. Studies also suggest that feedback raises students' awareness of the informational and linguistic expectation of readers, increase students' attention on the subject they write, modify students' thinking behavior toward their work, and focus their attention on the

purpose of writing. Studies on feedback have also been focused various aspects of feedback such as feedback functions, media, focus, source, and strategy.

Teacher is one of the sources of feedback. In providing feedback, writing teachers have at least four roles: as a reader or respondent, as a writing teacher or guide, as a grammarian, and as an evaluator. As a grammarian, teacher can provide different function and strategies of feedback. One of the functions of feedback is to provide error correction or corrective feedback. Corrective feedback is a type of feedback with the purpose to correct any errors on students' writing. Corrective feedback generally aims at addressing grammatical errors on students' writing. In addressing grammatical errors on students' writing, teachers can employ different strategies of providing feedback such as direct feedback, indirect feedback, explicit feedback with explanation of rules, or engaging students in multiple-draft writing activities. In multiple-draft writing processes, teachers usually provide feedback that students need to incorporate in subsequent drafts. In this case, students are encouraged to practice writing several times of the same essay with feedback from teachers to be used in their revision. Indirect feedback is a strategy of providing feedback that teachers use to help correct the errors on students' writing by indicating an error without providing the correct form. Another strategy of providing teacher feedback is direct feedback which is a strategy to help students correct their errors by providing the correct form of the target language. Teacher feedback can also be provided with explicit corrective comments, that is, by not only indicating an error but also providing the correct form with explicit grammatical explanation or linguistic rules of the target language. Regardless of feedback strategies used to help students, studies suggest that feedback should be focused on specific or some aspects of students' writing, or some grammatical items rather than unfocused, comprehensive feedback. Focused corrective feedback is more likely to direct students' attention

to specific error types that may help students develop better understanding of the nature of the errors and make corrective feedback more effective.

The effectiveness of corrective feedback has been a primary focus of research on feedback. Findings of many studies suggest that teacher corrective feedback is effective in reducing errors on students' essays and in improving students' writing accuracy. However, there are also some studies that show otherwise. Discrepancies in findings, or in interpreting these findings, have sparked a debate in the last 15 years on whether corrective feedback is effective or ineffective. The debate was initiated by Truscott (1996) who unalterably holds that feedback, in the form of grammatical error correction, is neither effective nor useful, and even harmful for student learning. Therefore, he suggests that corrective feedback should be abandoned. In contrary, Chandler (2003) and Ferris (1999) argue that corrective feedback is effective and helpful in reducing the errors on students' essays. More recent studies also lend support, providing evidence in favor of corrective feedback (Bitchener, 2008; Bitchener et al., 2005; Ellis et al., 2008). Based on the findings of their studies, they maintain that teacher corrective feedback is effective and helpful for students in improving grammatical accuracy in writing their essays. However, Truscott (1999, 2004, 2007) and Truscott and Hsu (2008) insist that feedback is ineffective and unhelpful. In the midst of this dispute, Guénette (2007) suggests that different findings which led to conflicting interpretations of previous studies can be attributed to several factors such as flaws in research design and methodology. Such flaws may include the absence of a control group in a study or other external factors uncontrolled by the researchers.

Based on this literature review on feedback in relation to learning theory and instructional design, with different types of feedback strategies and different interpretations of study findings on the effectiveness of corrective feedback in reducing the errors on students' essays and in

improving students' writing accuracy, there are four research questions that need to be answered and supported with empirical evidence to fill a gap in the existing literature.

Research Questions:

This study is aimed at investigating the following research questions:

Question 1: Does number of errors on student essay drafts vary by type of teacher corrective feedback (indirect, direct, indirect followed by direct with explicit corrective comments, or no feedback)?

Question 2: Are these differences in errors by feedback group consistent across essay drafts?

Question 3: Is there a difference by type of teacher feedback in the number of errors between a beginning written product (Essay 1) and a written product in response to a new prompt (Essay 2)?

Question 4: Is there a difference by type of teacher written feedback in terms of essay quality ratings given by independent raters to Essay 1 and Essay 2?

Chapter 3: Methodology

This chapter describes the design, participants, instruments, and procedures used to answer the research questions in the study. The chapter is organized into six sections. Section one discusses the design of the study. Section two discusses the students who participated in the experiment. Section three describes the instrument and materials used in the experiment, and section four discusses the procedures of the experiment as well as how the data was analyzed. The last two sections discuss the implementation of the study and the plan for data analysis respectively.

The purpose of this study was to determine the impacts of four different strategies of providing teacher written corrective feedback on first semester ESL/EFL students' writing accuracy and writing quality using a design which compared: indirect teacher feedback only, direct teacher feedback only, indirect teacher feedback followed by direct teacher feedback with explicit corrective comments, and no feedback conditions. The writing accuracy investigated in this study covered three types of most common grammatical errors made by ESL/EFL student writers, namely: the English articles, prepositions, and past tense verbs. To compare student's writing accuracy, students produced two essays; the first essay at the beginning of the study which then underwent two feedback and two revision segments and the second essay which was a new text at the end of the study. The second essay (which was not given any corrective feedback) was compared with the first draft of the first essay to determine the impacts of different feedback strategies and the degree of transfer effect of different feedback conditions on a new piece of text.

Study design and variables

This was an experimental study using a repeated measures design with one independent variable and two dependent variables. The repeated measures design was best utilized in this study “in which the experimental units are measured under different treatment conditions or at different times” (Tamhane, 2009, p. 536). The independent variable in this study was the teacher written corrective feedback strategy. This variable comprised four levels namely, indirect feedback (IF), direct feedback (DF), indirect feedback followed by direct feedback with explicit corrective comments (IDECC), and no feedback (NF). The dependent variables in this study were number of errors on draft (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2) and essay quality scores on Essay1 and Essay 2.

The first dependent variable was participant's writing accuracy as measured by the number of errors on students' essays. The number of errors on students' essays was measured four times: one time before the treatment, two times during the treatment, and one time after the treatment.

The second dependent variable was the scores of students' essay quality as measured by the *ESL Composition Profile* developed by Jacobs, Zinkgraf, Wormuth, Hartfel, & Hughey (1981). The *ESL Composition Profile* was used to determine the quality of students' first essay and the new essay based on their scores on the content, organization, vocabulary, language use, and mechanics aspects of the essay. The maximum total score of an essay is 100. The profile categorizes students' essays into four criteria, very poor (34-46), fair to poor (47-67), good to average (68-85), and excellent to very good (86-100). The scores of students' essay quality were measured two times: before the treatment (Essay1) and after the treatment (Essay2).

The independent variable consisted of four levels according to the type corrective feedback treatment (i.e. IF, DF, IDECC, and NF). Corrective feedback from a teacher was provided for the students in three treatment groups on their first essay (Essay 1) and the revised draft 1 (Revised 1) which students could use in the subsequent revised drafts. Feedback from the teacher was provided electronically for the students using Microsoft Word's *comments and track changes* editing features. Electronic mail was used as a delivery medium in this study to enable students' essays and teacher feedback to be communicated asynchronously. Students were notified that corrections from the teacher were advisable, but not compulsory, to use. Students in the fourth group, the control group, did not receive any corrective feedback. However, for ethical purposes, students in the control group were provided with general comments about their essay, such as, "your essay is very interesting" or "please keep up the good work."

The design of the experiment and division of feedback treatment are outlined below in

Table 1

Design of the Experiment

Groups	Stages			
	Essay1	Revised Draft1	Revised Draft2	Essay2
IF	IF	IF	X	X
DF	DF	DF	X	X
IDECC	IF	DECC*	X	X
NF	X	X	X	X

Note. * Direct feedback with explicit corrective comments

X No feedback treatment provided

Participants

The target population of this study was Indonesian freshmen undergraduate students enrolled in the Department of English Education at Universitas Pendidikan Indonesia (Indonesia University of Education – IUE) in Bandung, Indonesia. The study was conducted in Indonesia, albeit, the researcher was in the United States. The researcher was assisted by one instructor at Indonesia University of Education in Bandung who recruited students for this study. In the second week of April 2010, several copies of recruitment flyers were posted on announcement boards in the English Department office and classrooms. The recruitment flyers included general information about the study to be conducted, criteria of eligibility, how to participate in the study, and instructor's contact information. To obtain adequate number of participants for the study, the contact instructor coordinated with four other instructors who taught Writing courses. They provided a list of freshmen students enrolled in their classes. By the third week of April 2010, as many as 170 students were identified and were interested in participating in the study.

Participants of the study were drawn from the total population of 170 freshmen students in the Department of English Education. Participants of this study were students who were taking "Writing for General Communications" or "Writing in Professional Context" courses in the Department of English Education in Bandung, Indonesia during the second semester of the 2009/2010 academic year. On April 21, 2010, the researcher sent the first email invitation to 170 first semester student participants with attached direction to write Essay 1. Students who volunteered in this study were asked to electronically fill out the Informed Consent form on Virginia Tech survey web site (<https://survey.vt.edu/survey/>) starting date April 21, 2010. The study was approved by Virginia Tech's Institutional Review Board. The IRB approval letter is included in Appendix A.

The total number of students who responded to the invitation by submitting their Essay 1 via email was 136. The researcher assigned four classroom instructors to read their own students' essays and to indicate grammatical errors on three most common areas of errors made ESL/EFL students (articles, prepositions, and past tense verbs). Next, the instructors sent all the essays to the researcher for random assignment and group division purposes.

To enhance the equivalence of student starting performance level of writing among the groups at the beginning of this study, the students were asked to write a narrative essay of the same topic to be used as Essay1. Four instructors participated as feedback providers for the students in this study. The four instructors read the electronic version of students' Essay1 and indicated errors by highlighting the three most common errors they found on students' Essay1. This study used three different highlight colors to distinguish different types of errors (yellow for errors on articles, bright green for errors on prepositions, and turquoise for errors on the past tense verbs). Based on the performance level on this Essay 1, (i.e. number of errors made), the students were classified according to low to moderate and moderate to high grammatical proficiency groups. To do so, the researcher created a list of the 136 students based on the number of errors in a descending order from the highest to the lowest number of errors. The highest number of error was 82 and the lowest number of error was 6. The average number of error was 26.10 and the median was 25. The first group of sixty-eight students with number of errors between 82 and 25 was classified as low to moderate grammatical proficiency group while the second group of sixty-eight students with number of errors between 25 and 6 was classified as moderate to high grammatical proficiency level group.

Students were then randomly assigned in four different feedback treatment groups (IF, DF, IDECC, NF) using a stratified random sampling technique by drawing students' names from

the pool of the low to moderate grammatical proficiency level group and from the pool of the moderate to high grammatical proficiency level group. As a result of this stratified random assignment, each treatment group had thirty-four students consisting of sixteen students drawn from the low to moderate grammatical proficiency level group and sixteen students from the moderate to high proficiency level group. These steps are outlined in Figure 1. In this way, it was expected that each treatment group would have similar compositions of students with similar levels of English grammatical proficiency as shown in the number of errors made by the students, with 50% students made more errors and 50% students made fewer errors.

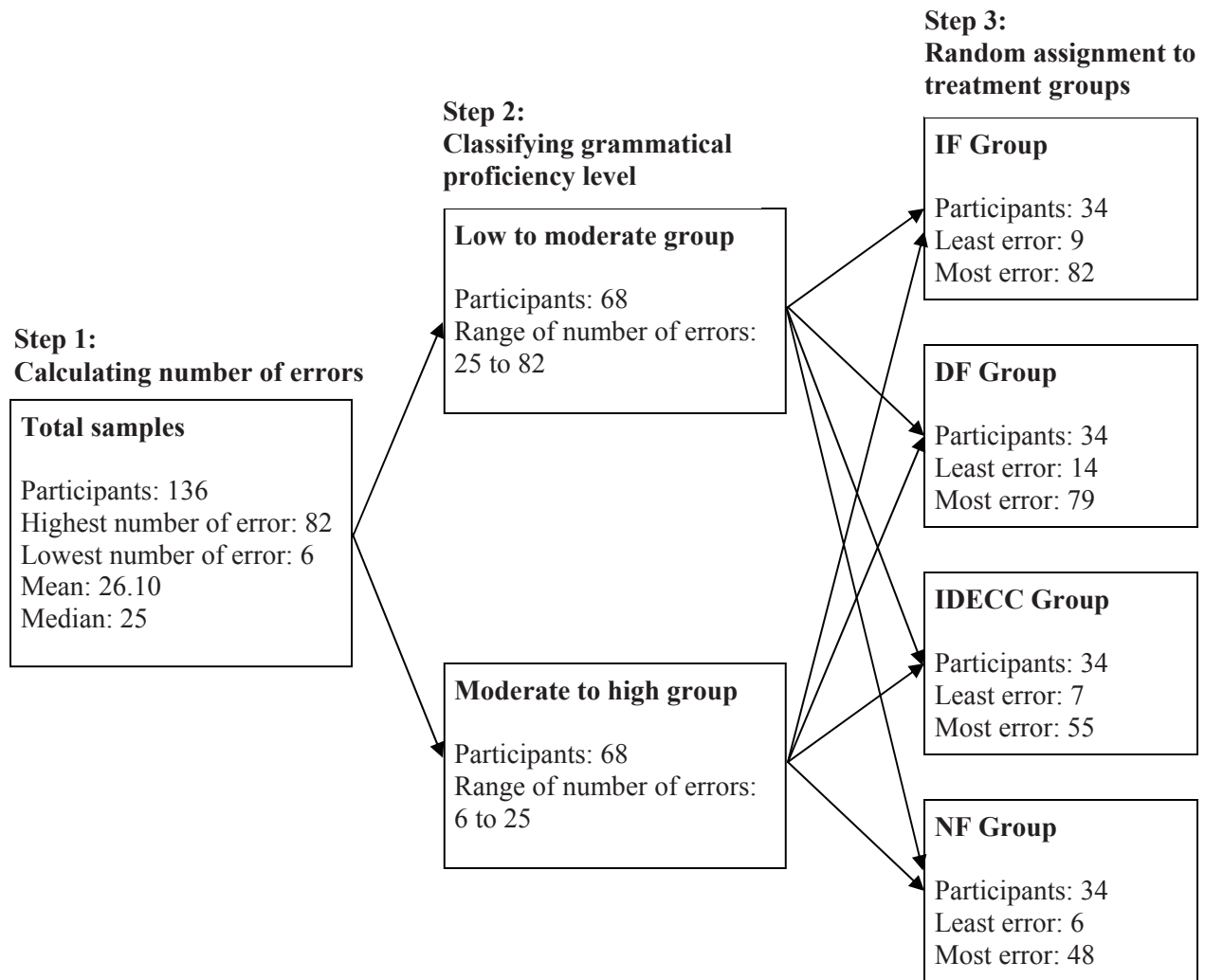


Figure 1. Steps in stratified random assignment in four treatment groups

Three groups served as experimental groups receiving teacher written corrective feedback. The first experimental group received indirect teacher feedback only, the second experimental group received direct teacher feedback only, and the third experimental group received a combination of both teacher indirect and direct feedback treatment with explicit corrective comments. There was one control group with no corrective feedback at all. Employing a control group is crucial in an experimental research as Fraenkel and Wallen (2000) emphasize that “it enables the researcher to determine whether the treatment has had an effect or whether one treatment is more effective than another” (p. 284). At the end of the study, only 121 of the total 136 students completed the experiment by submitting Essay1, Revised Draft1, Revised Draft2, and Essay2. Fifteen other students were disqualified from the study due to their failure to submit revised drafts and/or Essay2. These 121 students, consisting of 87 females and 34 males, were included as participants of this study for data analysis.

Research instruments and materials

Three instruments were used in this study. The first two instruments were writing prompts to assign participating students to write the essays. These prompts were the Directions to write Essay1 (Appendix B) and the Directions to write Essay2 (Appendix C). These writing prompts were attached to the email sent to the participants during the treatment stage. These writing prompts were consulted with a native speaker of English at the Writing Center at Virginia Tech and were tested in a pilot study involving 12 ESL/EFL students prior to the actual study. The third instrument used in this study was the *ESL Composition Profile* (Appendix D) developed by Jacobs, Zinkgraf, Wormuth, Hartfel, & Hughey (1981, p. 101). The *ESL Composition Profile* was used in this study for independent raters to grade students' Essay1 and Essay2 and to determine the quality of the essays based on their scores on the content,

organization, vocabulary, language use, and mechanics aspects of the essay. Two independent raters read, and graded, students' Essay 1 and the new text (Essay 2) using the *ESL Composition Profile*. The raters were provided with ample time to read and practice to use the profile to ensure that they were familiar with, and had equal understanding of, the scoring rubric in order to warrant the assumption of inter-rater reliability. The ESL Composition Profile was chosen to be used in this study because it has been around since 1981 and has been widely used by many ESL/EFL teachers to grade students' essays (Meisuo, 2000; Porter & O'Sullivan, 1999).

The study also used four additional materials to help the researcher organize four different sets of data as reflected in the research questions. First, a comparison table of errors was used to measure the effect of teacher written corrective feedback on student writing. This table was used to record the mean number of errors for each group on the original Essay 1, Revised Draft 1, and Revised Draft 2. This table was used to find any discrepancies as well as whether there was an increase or a decrease in the number of errors across the three treatment groups with the lower number of errors in the subsequent revised drafts being the better. Lower numbers of errors on Revised Draft1 and Revised Draft2 as compared to the original Essay1 would reflect a positive effect of teacher feedback. The number of errors on Revised Draft2 of the treatment groups was then compared to the number of errors on Revised Draft 2 of the control group. The results of the comparison between the treatment groups and the control group were used to interpret whether or not a significant effect of teacher feedback existed.

To measure if differences in errors by feedback group were consistent across essay drafts, another comparison table was used. The table was used to record the number of total errors in all the four groups in the study. The table was used to compare the total number of errors and differences of errors across the four writing stages. In other words, this table was used to

examine whether time effects and interaction effects existed. If differences of errors were consistent across essay draft, it may mean that there was no significant effect of treatment across times and there was no interaction between treatment and time.

To answer the third research question on the effects of teacher written corrective feedback on student production of a new piece of written text in terms of grammatical accuracy in response to a new prompt, a comparison table of errors on the original essay (Essay 1) and the new essay (Essay 2) was used. This table was used to record the mean number of errors on the two essays of each of the four groups and the differences in the mean of errors between the two essays. The purpose of this step was to compare the effects of the three different strategies of teacher written corrective feedback and no feedback at all on the new essay. The number of errors on Essay 1 (before receiving any corrective feedback) was compared to the number of errors on Essay 2 (after the feedback treatment was completed). Furthermore, this step was to verify if the effects of feedback were carried over to the production of a new piece of text in the long term.

To answer the fourth research question to determine the quality of students' essays, another table was used to compare the mean of writing quality scores of each of the four groups in two essays (Essay 1 and Essay 2). The difference in the mean of writing quality scores can be regarded as a gain or improvement in writing quality. The researcher was interested to find out whether the process of teacher feedback in general carries an influence on the quality of student writing as measured through the scores given by two independent raters who evaluated Essay 1 and Essay 2 of each participant in each group using the *ESL Composition Profile*. The difference in the mean of both scores can be regarded as quality improvement or decline as a result of the treatment in the study.

Pilot Study

The researcher conducted a pilot study to test instruments and procedures to ensure that the actual study would run as expected. The pilot study took six weeks, beginning from the fourth week of September 2009 through the second week of November 2009. Twelve adult ESL students who were attending an ESL course in Blacksburg, Virginia volunteered to participate in the pilot study. However, four participants withdrew from the pilot study because of scheduling conflicts. Due to the limited number of available participants, the remaining eight participants were asked to write two different narrative essays in two rounds and were randomly assigned to represent four different treatment groups. In each round, each participant was asked to write two different original essays, approximately 300 words within a 30-minute time frame, about their experience in studying English. In the first round, participants wrote the first essay (Essay 1) on their laptop and one day later each received a different feedback treatment (IF, DF, IDECC, or NF). They submitted two revisions (Revised Draft 1 and Revised Draft 2) after receiving two segments of feedback via email from the researcher. A week later, they were asked to write a new essay (Essay 2) but they were not given any feedback. In the second round, participants repeated the same procedures. In this round, each participant received a feedback treatment different from what they received during the first round. Students were asked to write two essays (Essay 1 and Essay 2) of the same topic with a different emphasis from the first round.

The results of the analysis from the pilot study showed that Results of the pilot study show that participants in the three treatment groups in general outperformed the no-feedback control group in terms of writing accuracy on the use of English articles, prepositions, and the past tense verbs on the revised drafts compared to the original drafts. Subjects in all three treatment groups made fewer errors upon receiving teacher feedback. Compared to Essay 1, the

average number of errors in the IF group decreased by 76.7% in Revised Draft 2 and decreased by 24.3% in Essay 2. The number of errors in the DF group decreased by 76.2% in Revised Draft 2 but increased by 27.6% in Essay 2. In the IDECC group, the number of errors decreased by 88.9% in Revised Draft 1 and 44.4% in Essay 2. The NF control group decreased the number of errors by 62.5% in Revised Draft 2 but in Essay 2 the number of errors increased by 25.6% in Essay 2. These results may be interpreted that there was a tendency that teacher written corrective feedback provision on students' essays helped improve their writing accuracy, especially in subsequent revisions.

Observations made from this pilot study provided the researcher with some useful information that could be used to improve the procedures to be applied in the actual experiment. For example, the use of Microsoft Word's track changes features caused some technical confusion for the participants and needed to be activated only during the correction by the teacher. As there were three grammatical errors observed in the study, the use of a different color of highlight for each grammatical item would help teachers and participants to identify the category of the errors. Instead of replacing the erroneous word with the suggested corrections from the teacher, some participants added a new, different word. Therefore, participants needed to be given a clear and more detailed instruction that they were expected to use the suggested correction or to not use it at all and not add a new word. Information from this pilot study was used by the researcher to improve the procedure of the experiment in the actual study.

Procedures

Each group received a different treatment in four stages. The three treatment groups underwent two segments of feedback where they received a form of teacher written corrective feedback. Both segments of feedback were conducted electronically via email. The control group

also underwent the same feedback segments. However, instead of receiving a form of teacher feedback, they were asked to provide themselves with self-correction. The first treatment group received Indirect Feedback (IF) only both on the draft of their first essay (Essay 1) and their Revised Draft 1. Students were expected to apply teacher feedback when they revised Essay 1 into Revised Draft 1 and to apply teacher feedback on their Revised Draft 1 into Revised Draft 2. Next, after the two segments of feedback were completed, students in this group wrote a new essay (Essay 2).

The second treatment group received Direct Feedback (DF) only both on the draft of the first essay (Essay 1) and Revised Draft 1. Students used teacher feedback in revising the first original essay (Essay 1) into Revised Draft 1 and then used the feedback they received on Revised Draft 1 to be applied to Revised Draft 2. Next, students wrote a new essay (Essay 2).

Different from the first and the second treatment groups, the third treatment group received two different types of teacher feedback. During the first feedback segment, students in the third treatment group received Indirect Feedback (IF) only. They were able to use this type of feedback on their Essay 1 to revise it into Revised Draft 1. In the second feedback segment, students in this group received another feedback strategy, which was Direct Feedback with Explicit Corrective Comment (DECC), on their Revised Draft 1 that they used to revise their essay into Revised Draft 2. The combination of two different feedback strategies in two feedback segments in this study is called Indirect Feedback followed by Direct Feedback with Explicit Corrective Comments (IDECC). The addition of teacher's explicit corrective comments in the second feedback is what makes the third treatment group different from all other groups in this study to reveal that if providing explanations on grammatical rules is more beneficial for student writers. Next, students in this treatment group wrote a new essay (Essay2).

The fourth group was a control group with no feedback treatment (NF). Students in this group wrote a draft of their first essay (Essay 1). They received no corrective feedback at all, but, they were asked to perform self-correction and were asked to rewrite their Essay 1 into Revised Draft 1 during the first segment of feedback of the study. They were also asked to perform self-correction for Revised Draft 2 during the second feedback segment. Next, participants in this group were asked to write a new essay (Essay 2).

To summarize, in general, each group went through four stages of activities which consisted of writing two different essays. The first three stages involved writing the draft of the first essay (Essay 1), revising draft 1 (Revised Draft 1), and revising draft 2 (Revised Draft 2). Teacher feedback was applied to the draft of the first essay (Essay 1) and Revised Draft 1. Theoretically, the Revised Draft 1 would consist of a certain number of corrections as a result of teacher feedback on the original draft of Essay 1 resulting in fewer errors on Revised Draft 1. The Revised Draft 2 would consist of a certain number of corrections used by the students based on teacher feedback on Revised Draft 1 which resulted in fewer numbers of errors on Revised Draft 2. The fourth stage was writing a new essay (Essay 2). At this stage, the teacher did not provide any feedback to any group. Figure 2 lays out the four essay writing stages and the two feedback segments.

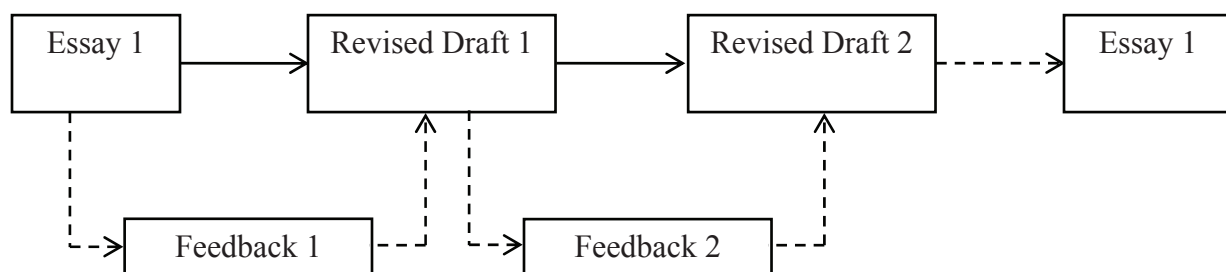


Figure 2. Essay writing and feedback stages

In providing corrective feedback, each of the four participating teachers was assigned to provide one type of feedback strategy only and each was responsible for one feedback group only (IF, DF, IDECC, NF). One month prior to the experiment, the researcher provided the teachers with directions about the procedure of providing teacher written corrective feedback. The teachers were provided with information that in this study they needed to provide feedback on the errors on three grammatical items only (English articles, prepositions, and past tense verbs) and to disregard other errors. Teachers were also provided with directions on how to provide feedback using Microsoft Word's *comments and track changes* features. The researcher learned that the teachers had been familiar with the use of these features.

Implementation and challenges of the study

The study took place at Indonesia University of Education in Bandung, Indonesia for nine months. As the researcher was thousands of miles geographically separated from the participants, the only way for the researcher to contact the students and teachers participating in his study was by email and or international calls. Chronologically, the steps of the study can be seen in Table 8.

As soon as the IRB approval to conduct the study was obtained, the researcher contacted his colleague instructors in the Department of English Education at Indonesia University of Education to recruit research participants. Five instructors posted several copies of recruitment flyers in several classrooms in the second week of April. By the third week of April, 170 students contacted the instructors to indicate their interest to participate in the study.

The researcher created four Gmail accounts to be used during this experiment. Each email account was assigned for each feedback group. Only the researcher and the teachers had the password to these email addresses. Participants received feedback via an email address corresponding with their group and sent their revision to the same email address. For example,

participants in the IF group sent their Essay, Revised Draft 1, Revised Draft 2, and Essay 2 to the email address assigned for the IF group only. Participants in the IF group also received Feedback 1 and Feedback 2 from this email address only. Gmail accounts were chosen because they were free and they offered almost unlimited storage for email attachments.

On April 21, 2010, the researcher sent out an email to all the students who were interested in participating in the study. This email contained the link to the *Participant Informed Consent* and the direction to write Essay 1. Due to the slow rate of response from the students, the invitation was kept open for two months. Students started to respond to the invitation by submitting their Essay 1 on April 26, 2010. As the number of responses in the first month did not meet the initial expectation, the researcher decided to allow students to submit their Essay 1 by June 2, 2010. By that time, of 170 students contacted by email, only 136 students submitted their Essay 1 and thus included as participants in this study.

After all the essays were received and all errors were marked by the instructors, participants were randomly assigned into three treatment groups and one control group. The first feedback segment took place from May 30 till June 7, 2010. An email containing Feedback 1 from the instructors was sent to each participant in each group. To accommodate some participants who experienced technical difficulties in using email that made them unable to submit their Essay 1 by June 2, 2010, another batch of Feedback 1 was sent from October 17 to October 25, 2010. Table 2 lays out the complete schedule of the study.

The extension of the study from three months to six months was deemed necessary to obtain adequate number of students' Essay 1 and to give teachers adequate time provide the first feedback for the participants. The teachers and the researcher consulted with the chairperson of the Department of English Education about the extension of the data collection. Based on the

advice from the Department, the teachers agreed to give students who fully participated in the study by submitting all the essay drafts and the new essay extra credits in their writing course.

Table 2

Schedule of the Study

Step	Time
IRB approval	March 2010
Recruitment flyer at Indonesia University of Education	2 nd week of April
Interested research participants identified	3 rd week of April
Informed Consent sent to participants	April 21
Invitation email to participate in the research (with directions to write Essay 1) sent	April 21
Essay 1 received from participants	April 26 – June 2
Feedback 1 sent	May 30 – June 7
Feedback 1 for late submitters sent	October 17 – 25
Revised Draft 1 received from participants	May 30 – July 3
Revised Draft 1 received from late submitters	October 3 – November 7
Feedback 2 sent	June 2 – July 15
Feedback 2 for late submitters	October 25 – December 14
Revised Draft 2 received	November 8 – December 16
Direction to write Essay 2 (New Essay) sent	December 17
Essay 2 received	December 17, 2010 – January 19, 2011

Teachers who were assigned to each group in this study informed the participants in their group that the deadline for Essay 1 submission was extended to June 2, 2010 and that the first feedback for late submitters would be sent in October 2010. To accommodate participants who were unable to submit Revised Draft 1 by July 3, the deadline was extended to November 7, 2010. To allow late submitters of Revised Draft 2, the deadline was extended from October 25, 2010 to December 16, 2010. The last submission date for Essay 2 was set to January 19, 2011 resulting in the total extension of the study from three to nine months.

As the study was extended from the initial plan of three months, started in April 2010, to nine months, marked with the receipt of the Essay 2 submitted by the last participant on January 19, 2011, the process of the treatment took place in two academic semesters. There was a long semester break between July and September 2010 and most of the participants were not available. The researcher and the teachers focused on correcting participants' first revision (Revised Draft 1). The second feedback was sent to the participants during the break period but the participants did not submit the second revision (Revised Draft 2) until November 2010 which was the middle of the Fall semester. One of the reasons that the participants did not submit the second revision on time was because they were busy with new courses they took at the beginning of the Fall semester and that many of the participants were no longer in the class taught by the teachers who provided feedback in this study.

To avoid missing data from the participants on the second revision, the researcher coordinated with the Chair of the Department and the participating teachers to contact all the participants and to encourage them to submit their Revised Draft 2. The researcher also coordinated with two classroom teachers, who were not involved in providing feedback, whose courses were attended by many of the participants in the Fall semester. These teachers clearly

informed their students that participating in the study was not mandatory in their class but they encouraged the participants to submit Revised Draft 2 and Essay 2 and these teachers would give extra credits to those who continued participating in the study. Most of the participants submitted their Revised Draft 2 and Essay 2 to complete their participation in the study.

In the Fall semester the participants took a writing course different from the course they took in the Spring semester. The researcher continued the study and the feedback treatment with the help of the four participating teachers. As the study was focused on the use of the English articles, prepositions, and the past tense verbs, while the courses the participants took in the Fall semester did not focus on teaching these grammatical items, it was considered that the new course would not interfere with the feedback treatment processes. The second essay was in fact written by the participants within the new semester. However, the new essay was not part of the course in the new semester and the grammatical items observed in the study were not parts of the items specifically taught in the courses in the new semester. In addition, the topic of the new essay (Essay 2) was similar to the topic of Essay 1 and the focus of the correction was on the same as the focus in Essay 1. The teachers who taught the course in the Fall semester helped the researcher to coordinate the participants and encourage their students to submit their Essay 2.

To make sure that each teacher who provided feedback addressed the three grammatical items focused in the study and responded to each of students' errors accordingly by providing appropriate highlights, correct responses, and or comments, the researcher read through each essay that each teacher had marked for feedback. When there were items that had been incorrectly highlighted or when some errors were left not highlighted, the researcher contacted the teachers for clarification and made some adjustments accordingly. The researcher was also involved in highlighting the errors on students' essays, especially in Essay 2, when the teachers

were overwhelmed with the amount of students' essays while at the same time they had to carry out their daily tasks at the university.

Participants submitted their Revised Draft1 as soon as May 30 till July 3, 2010.

Participants who were unable to submit their Revised Draft 1 by July 3 were still allowed to submit their revision until November 7, 2010. Upon receiving participants' Revised Draft 1, the instructors began working on providing the second feedback. Feedback 2 was sent through email to each student in each group from June 2 to July 15. However, to accommodate participants who were unable to submit their revision early, the Feedback 2 was sent to them between October 25 and December 14, 2010.

Participants submitted their Revised Draft2 from November 8 through December 16, 2010. The researcher allowed participants to submit their second revision late in December because he wanted to make sure that he gathered enough data for analysis. Additionally, most participants were also unavailable between July and September as they were off during the semester break.

After all the participants submitted their Revised Draft2, the researcher sent out another email to each participant. This email contained the direction to write Essay2, the new essay, on December 17, 2010. Based on the information from the Department of English Education, participants would be on a long break between December 23, 2010 and January 2, 2011 followed by examination weeks from January 4 through January 17, 2011. Therefore, the researcher decided to send out the direction to write Essay2 no later than December 17, 2010.

As the emphasis of the study was the change in the number of errors from Essay 1 to Revised Draft 1 after receiving Feedback 1, and the change in the number of errors from Essay 1 to Revised Draft 2 after receiving Feedback 2, the fact that some participants submitted Revised

Draft 1 and Revised Draft 2 much later in the study than other students, it was considered acceptable in this study. The emphasis of the study was not the length of time between draft submissions but the amount of changes in the number of error between drafts. In addition, the study was also limited to three aspects of grammatical items only (articles, prepositions, and past tense verbs) which were not affected by other courses taken by the participants during the span of the study as other courses did not specifically address these items. The extension of the time to submit essays drafts was tolerated in this study to accommodate more participants and to obtain more information necessary for the study.

Some participants submitted their Essay 2 immediately on December 17, 2010. However, most of them emailed their Essay 2 between December 23, 2010 and January 19, 2011. Of 136 participants who were involved from the beginning of the study, only 121 participants completed all the stages of the study by submitting their Essay 1 followed by Revised Draft 1 and Revised Draft 2 upon receiving two segments of teacher feedback, and concluded with the submission of Essay 2 by January 19, 2011. These essays were included in data analysis. As mentioned earlier, the writing and submission of Essay 2 were conducted in the second semester when the participants took a new course. However, as the emphasis of the study was on the three grammatical items measured in Essay 1 and that the topic in Essay 2 was similar to that in Essay 1, the content of the new course did not interfere with the focus of the study and the writing of Essay 2.

It is also important to note that the changes in terms of submission time and extension of the study were not systematic. There was no pattern that a certain group was earlier or later in terms of submission of each essay draft. Participants who submitted their drafts later than other participants happened at random without any relation to the groups they were associated with.

Therefore, when the extension for submission period was given, it was given to all the four groups in this study.

The researcher was confronted with several challenges during the span of this study. Mainly, the challenges were related to factors caused by the distance, time difference, and geographical separation between the researcher and the participants that made him difficult to have full control of the flow of the study. Email and telephone communications between the researcher, participating instructors, student leaders of each group to coordinate their classmates and to maintain the flow of the study were not always effective. However, without their help, this study might have taken much longer to be completed. The internet connection on campus in Bandung, Indonesia, was not always reliable, especially during peak hours. This has caused some participants and participating instructors to have difficulties in assessing emails, uploading or downloading essays or feedback.

Another challenge faced by the researcher was to make sure that participants submitted their essays on time. Some participants responded immediately during each stage of the study. However, many participants did not check their email regularly or were too busy with other assignments from other classes. The researcher often had to contact the instructors at Indonesia University of Education to motivate or remind the participants to check their email and submit their essays or revisions. The researcher was also assisted by the Department Chair in coordinating with the instructors and student representatives of each group to remind their classmates to submit their essays.

In addition to those challenges, the researcher was faced with some facts that participating instructors were occupied with their daily teaching activities and additional assignments from the university. This has made it difficult for them to provide feedback as

quickly as possible. Participants were also busy with their own class schedules and assignments and did not always have time to respond to teacher feedback immediately. Moreover, during school break periods, many of the participants left campus and did not check their email until they returned from their break for the new semester. However, some participating instructors worked with student representatives in each group to send short messages via mobile phones to remind some participants who were late to submit their essays. This has helped the researcher to obtain most of the essays in each stage of the study.

Data collection and analysis

The whole data collection process was completed in nine months beginning from the recruitment of participants to the reception of all Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2 from the participants. The researcher collected the total of 484 essays from 121 participants who completed all four stages of the experiment. Upon the completion of data collection, quantitative analysis was conducted. First, all errors were counted and entered into the comparison tables prepared by the researcher using Microsoft Word. These tables recorded all errors on student's essays in all the four stages and all four groups. Second, all records from these tables were transferred to Microsoft Excel for easier calculation before further statistical tests. Raw data at this stage was grouped into four different Excel files according to the number of research questions in this study.

The first file contained information on total errors made by all participants in all four groups and four stages of the experiment to answer the first research question. This was done to determine if there was a significant difference among all four groups and different feedback stages. The second file recorded information on the total number of errors and differences in the number of errors between each draft. This was used to supply data to answer the second research

question whether the differences of errors were consistent among the four feedback groups across four drafts. The third file contained information on the total number of errors in Essay 1 and Essay 2 for each group. This was to answer the third research question if there were any differences among the four groups in Essay 1 and Essay 2 and to determine if the effect of teacher feedback was carried over to the production of the new essay. In other words, the data was meant to prove whether or not teacher feedback is beneficial to improve student's writing accuracy in the long run. The fourth file contained data on the scores of the Essay 1 and Essay 2 as given by two independent raters to determine the quality of students' essays. This was to address the research question if providing multiple feedback and multiple revisions could improve students' writing quality.

The third step in data analysis was to conduct statistical tests. The researcher ran one two-way repeated-measures ANOVA tests using SPSS 19 statistical software. In doing so, he obtained some assistance from the EDRE Research and Consultation Lab to run the software. The two-way repeated-measures ANOVA was used to analyze data to answer the first and second research questions. The use of a two-way repeated-measures ANOVA test was necessary to determine significant differences among group means and across time. The use of repeated-measures ANOVA also accommodated the needs to compare four groups using four different feedback strategies (IF, DF, IDECC, and NF) and number of errors from four different writing stages (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2) for each group to determine differences in the mean number of errors among different groups (between-subject) and across time (within-subject). The alpha level for these analyses in this study was set at $p \leq .05$. To determine differences in number of errors between groups on each stage of the four writing stages, a one-way ANOVA test was performed. This step was meant to compare how each group

was different from each other on each stage of the writing. To answer the third research question, a four paired-samples T-Test was used. This test was used to compare the number of errors of each of the four groups in two essays (Essay 1 and Essay 2). Differences in the mean number of errors between the two essays indicated an increase or decrease in writing accuracy. To answer the fourth research question, another four paired-samples T-Test was used. This test was used to compare the mean of writing quality scores of the four groups in two essays (Essay 1 and Essay 2). The scores were obtained from two independent raters. As there were two independent raters, to measure the reliability and agreement between the two raters on the scores given independently, an inter-rater reliability test was performed before running the paired-sample T-Test. Details of the results and data analysis will be discussed in the next chapter.

Chapter 4: Results and Data Analysis

This study investigated the impacts of different strategies of providing teacher written corrective feedback on first semester ESL/EFL student writing accuracy and writing quality. Teacher feedback was provided using Microsoft Word's *comments and track changes* features and was delivered electronically via email. There were four different feedback strategies employed in this experiment, namely indirect feedback only, direct feedback only, indirect feedback followed by direct feedback with explicit corrective comments, and no feedback at all. These different feedback strategies were provided by writing instructors for ESL/EFL students in two episodes and the students revised their narrative essays through a multiple-draft writing technique. At the end of the experiment, students wrote a new essay which was not part of the essay they previously received feedback from their instructors. This study examined whether there were any effects of these feedback strategies on student writing accuracy and quality on both the immediate revised texts and the new essay. More specifically, this study was primarily conducted to address the following research questions:

1. Does number of errors on student essay drafts vary by type of teacher written corrective feedback (indirect, direct, indirect followed by direct with explicit corrective comments, or no feedback)?
2. Are these differences in errors by feedback group consistent across essay drafts?
3. Is there a difference by type of teacher feedback in the number of errors between a beginning written product (Essay 1) and a written product in response to a new prompt (Essay 2)?
4. Is there a difference by type of teacher written feedback in terms of essay quality ratings given by independent raters to Essay 1 and Essay 2?

Results of Analysis

The experiment in this study comprised four stages beginning from the writing of the first essay by the students (Essay1), the provision of the first feedback from the teacher to be used in students' essay revision (Revised Draft1), the provision of the second feedback to be used in the second revision (Revised Draft2), to the final stage of the writing of the new essay (Essay2). The total number of participants at the beginning of this study was 136 students who were randomly assigned and evenly distributed in four groups. However, only 121 participants completed the experiment. Of the 121 participants, each submitted four pieces of essays during the experiment thus the total essays collected in this study were 484 pieces of essays.

All the 484 essays were included in the analysis to answer the first and the second research questions to determine the effects of teacher written electronic corrective feedback on student writing in all four groups, including the control no feedback group, and four stages of the experiment. To answer the third research question, to find out if the effects of different strategies of teacher corrective feedback were carried over during the production of a new text, 242 essays were included in the analysis. These essays are the Essay 1 written by participants before they received any feedback and the Essay 2 written by the participants after the treatment period ended. To answer the last research question, to find out if there was an effect of different strategies of teacher corrective feedback on the quality of a new piece of text, 242 essays were included in the analysis.

Data collected from the four stages of the experiment are presented in the following section accompanied with the results of the analysis corresponding with the research questions.

Descriptive statistics and assumptions

In order to answer the research questions in this study, the raw data on the number of errors for all writing stages (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2) were obtained. The descriptive statistics of the study is displayed in Table 9. The Mean column represents the mean errors that each group made at each stage of the writing process. Number of errors was based on the total number of feedback (highlights, provision of correct forms, explicit corrective comments) given by teachers. Groups are based on three treatment groups corresponding with the type of teacher feedback: indirect feedback (IF), direct feedback (DF), indirect feedback followed by direct feedback with explicit corrective comments (IDECC), and control group with no feedback (NF).

As shown in Table 3, the mean of number of errors in the treatment groups (e.g. IF group) drops considerably from 27.97 (Essay 1, before any feedback) to 9.48 (Revised Draft 1, after the first feedback) and drops again to 4.55 (Revised Draft 2, after the second feedback). The number of errors increases to 13.12 in Essay 2 written by students approximately 2 months after the second feedback but this number is noticeably lower than the number of errors in Essay 1 prior to any feedback treatment. On the other hand, the number of errors in the control group with no teacher feedback only slightly decreases from 23.72 (Essay 1) to 21.62 (Revised Draft 1) and to 19.03 (Revised Draft 2). The number of errors increases to 21.45, which is similar to the amount of errors after the students performed the first self-correction and is only slightly different from their Essay 1. As illustrated in Figure 3, it can easily be seen that the mean of number of errors in all the three treatment groups receiving different types of feedback strategies drops significantly lower than the mean of number of errors of the control no-feedback group in both the immediate revised drafts and the new essay.

Table 3

Mean Number of Errors and Standard Deviations per Feedback Group and Essay

Group	N	Mean and Standard. Deviation							
		Essay 1		Revised Draft 1		Revised Draft 2		Essay 2	
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
IF	33	27.97	13.94	9.48	7.23	4.55	5.55	13.12	6.23
DF	29	28.03	12.83	11.66	10.75	2.38	3.95	17.17	8.36
IDECC	30	24.47	10.24	14.20	10.74	1.60	3.07	8.40	5.33
NF	29	23.72	11.35	21.62	9.88	19.03	9.87	21.45	10.84
Total	121	26.10	12.23	14.08	10.61	6.77	9.27	14.92	9.17

The design of this study employed a two-way repeated-measures analysis of variance (ANOVA) to compare the relationships between different strategies of teacher written corrective feedback (IF, DF, IDECC) and no feedback (NF) on subsequent revised essay drafts (Revised Draft 1 and Revised Draft 2) and the new essay (Essay 2). In this design, there is one independent variable which is feedback strategy with four levels (IF, DF, IDECC, and no feedback). This independent variable is a between-subject factor. There is one dependent variable which is number of error with four levels (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2). This dependent variable is a within-subject factor and the repeated factor is the writing stage. A one-way ANOVA was performed to examine if differences in the mean of errors among each of the groups existed across each of the four writing stages.

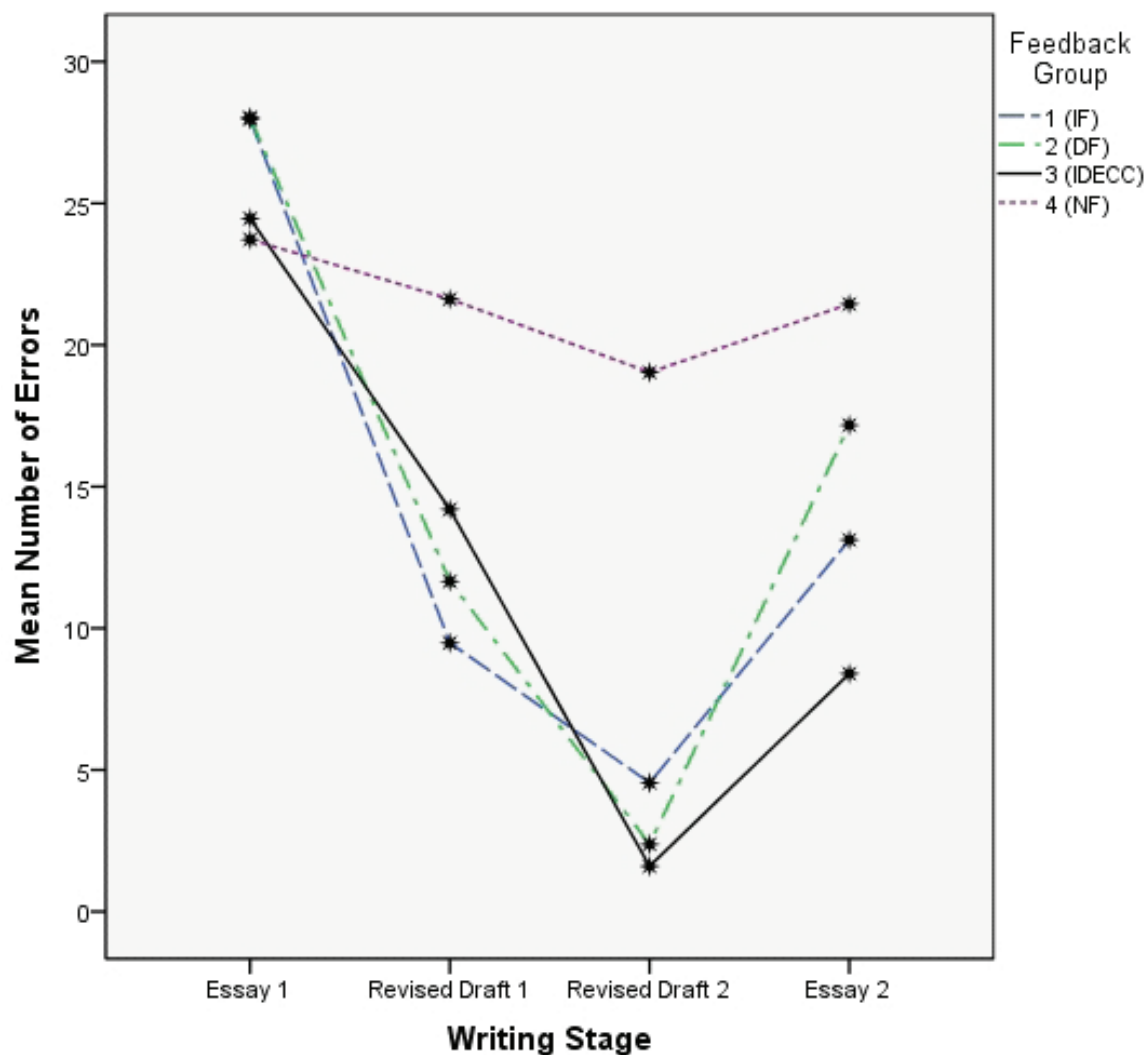


Figure 3. Mean number of errors of each group in each essay writing stage

To examine the long-term effects of providing different strategies of teacher feedback on grammatical accuracy and writing quality, two Paired Samples T-Tests were conducted. These tests were conducted to compare the number of errors on Essay 1 and Essay 2, and to compare the writing quality scores given by teachers on Essay 1 and Essay 2. As the writing quality scores were given by two different, independent teachers (raters), an inter-rater reliability analysis was conducted prior to comparing the scores of Essay 1 and Essay 2. The inter-rater reliability test was conducted to determine the correlation and agreement between the two independent raters on the scores given independently to Essay 1 and Essay 2.

As repeated-measures ANOVA tests require that the data meet specific assumptions such as homogeneity of variance and sphericity (Howell, 2002), assumptions are made with regard to the number of errors in response to teacher feedback on students' essays and ANOVA was performed to determine any difference among the groups before the treatments. The Levene's test shows no significant difference among the four groups for Essay 1 before the study ($p = .80$) indicating that each group had similar variance before the treatment. While Levene's test measures the similarity of variance for between-subject design, Mauchly's test of sphericity measures the equality of variance across different levels of the repeated measures (Meyers, Gamst, & Guarino, 2006). In this case, Mauchly is significant ($p < .05$) and suggests that we should review these results with some caution. However, the ANOVA is robust in regard to violations of these assumptions. Field (2009) states "If data violate the sphericity assumption there are several corrections that can be applied to produce a valid F -ratio. SPSS produces three corrections based upon the estimates of sphericity advocated by Greenhouse and Geisser and Huynh and Feldt" (p. 461). The Greenhouse-Geisser's correction is .791 which suggests that data meets the assumption of sphericity. In addition, participants were chosen from a population of the same characteristics such as being first-year students at the Department of English Education and taking the same writing course when the study was conducted. Prior to being randomly assigned to four different groups, participants were classified into two levels of grammatical ability with regards to the number of errors on the English articles, prepositions, and past tense verbs in their first essay. In this way, each group was expected to have equal number of participants with high to moderate number of errors and moderate to low number of errors before the start of the study. When an ANOVA was significant, post hoc analyses were performed. For this study, an alpha level of .05 was set and SPSS 19 was used to perform statistical analyses.

Does number of errors on student essay drafts vary by type of teacher corrective feedback?

Research Question 1 asked whether there were significant differences in the number of errors on student essay drafts among different feedback groups. In other words, the question asked whether there was a significant effect of teacher written corrective feedback on student writing. This question was answered using a two-way repeated-measures ANOVA. At this point, the researcher was interested to find out the significance of treatment effect and time effect. As there were four levels of independent variables (feedback strategies, i.e. IF, DF, IDECC, NF) and four levels of dependent measures (number of errors at Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2), the between-subject and within-subject methods were used.

The tests of within-subject effects showed that there was a significant difference for writing stages, as shown by the result of the Greenhouse-Geisser test, $F(2.37, 117) = 154.00, p = .00$ and that there was a significant interaction of writing stage*feedback strategy, $F(7.12, 117) = 13.05, p = .00$. This may mean that the whole model was significant at $p < .05$ level which indicates that there were significant differences in the means of the errors between the experimental groups and the control group and also within each group across different times. Results of a Tukey post hoc test showed that there were significant differences in the mean of the errors between Essay 1, immediate revised texts (Revised Draft 1 and Revised Draft 2), and the new essay (Essay 2) as shown in Table 4.

To examine significant differences among groups on each of the writing stage, a one-way ANOVA was performed. No significant difference was observed among each group for the Essay 1 before any feedback treatment. The results of one-way ANOVA revealed significant differences among groups on each writing stage after the provision of feedback (Revised Draft 1, $F(3, 117) = 8.94, p = .00$; Revised Draft 2, $F(3, 117) = 51, p = .00$; and Essay 2, $F(3, 117) =$

14.74, $p = .00$). The results of Tukey post hoc comparison for the subsequent revisions after teacher feedback (Revised Draft 1 and Revised Draft 2) revealed statistically significant difference between treatment groups receiving teacher written corrective feedback (IF, DF, IDECC) and the NF control group but yielded no significant difference among treatment groups receiving teacher feedback. For the delayed post test after feedback treatment (Essay 2), the results of Tukey post hoc comparison revealed statistically significant difference between all the three treatment groups (IF, DF, IDECC) and the NF control group, no significant difference between the IF and both the DF and IDECC groups but there was a statistically significant difference between the IDECC and the DF groups ($p = .00$) as shown in Table 5.

Table 4

Tukey Post Hoc Test on Writing Stages

Writing Stages		Mean Difference	Std. Error	Sig.
Revised Draft 1	Essay 1	-11.81*	1.08	.00
	Revised Draft 2	7.35*	.75	.00
	Essay 2	-.80	.92	.39
Revised Draft 2	Essay 1	-19.16*	1.05	.00
	Revised Draft 1	-7.35*	.75	.00
	Essay 2	-8.15	.65	.00
Essay 2	Essay 1	-11.01*	.88	.00
	Revised Draft 1	.80	.92	.39
	Revised Draft 2	8.15*	.65	.00

Note. $p < .05$

Table 5

Difference in the Mean of Errors of Each Group in Essay 2

Feedback Group		Mean Difference	Std. Error	Sig.
IDECC	IF	-4.72	1.99	.09
	DF	-8.77*	2.06	.00
	NF	-13.05*	2.06	.00

*Note. p < .05***Are differences in errors by feedback group consistent across essay drafts?**

Research Question 2 asked if differences in errors by feedback group were consistent across essay drafts. In other words, this study examined whether time effects and interaction effects existed. Consistent difference across essay draft may mean that there was no significant effect of treatment across times and there was no interaction between treatment and time. To answer Research Question 2, a two-way repeated-measures ANOVA was used to determine the level of significance of the means of between-subject and within-subject differences for each treatment group and each writing stage. The effect of Essay*Feedback Strategy shown in Table 6 indicates that each treatment group receiving teacher corrective feedback shows significant improvement in terms of grammatical accuracy in subsequent immediate revised texts and the new essay ($p = .00$). This signifies that differences in errors by feedback group are inconsistent which may also mean that there was a significant interaction of writing stage and feedback strategy as can be seen in Table 7. As shown in Figure 4, the mean difference of errors in each group is not the same across each writing stage.

Table 6

Repeated-Measures ANOVA across the Four Treatments and the Four Writing Stages

	Source	df	F	Sig.
Within-subjects	Essay	2.37	154.00	.00
	Essay*Feedback Strategy	7.12	13.05	.00
	Error	277.77		
Between-subjects	Feedback Strategy	3.00	9.97	.00
	Error	117.00		

Note. p < .05

Table 7

Mean Difference of Errors across Writing Stages

Group	Mean Difference		
	Essay 1 – Rev. Draft1	Essay 1 – Rev. Draft 2	Essay 1 – Essay 2
IF	18.49	23.42	14.85
DF	16.37	25.65	10.86
IDECC	10.27	22.87	16.07
NF	2.10	4.69	2.27

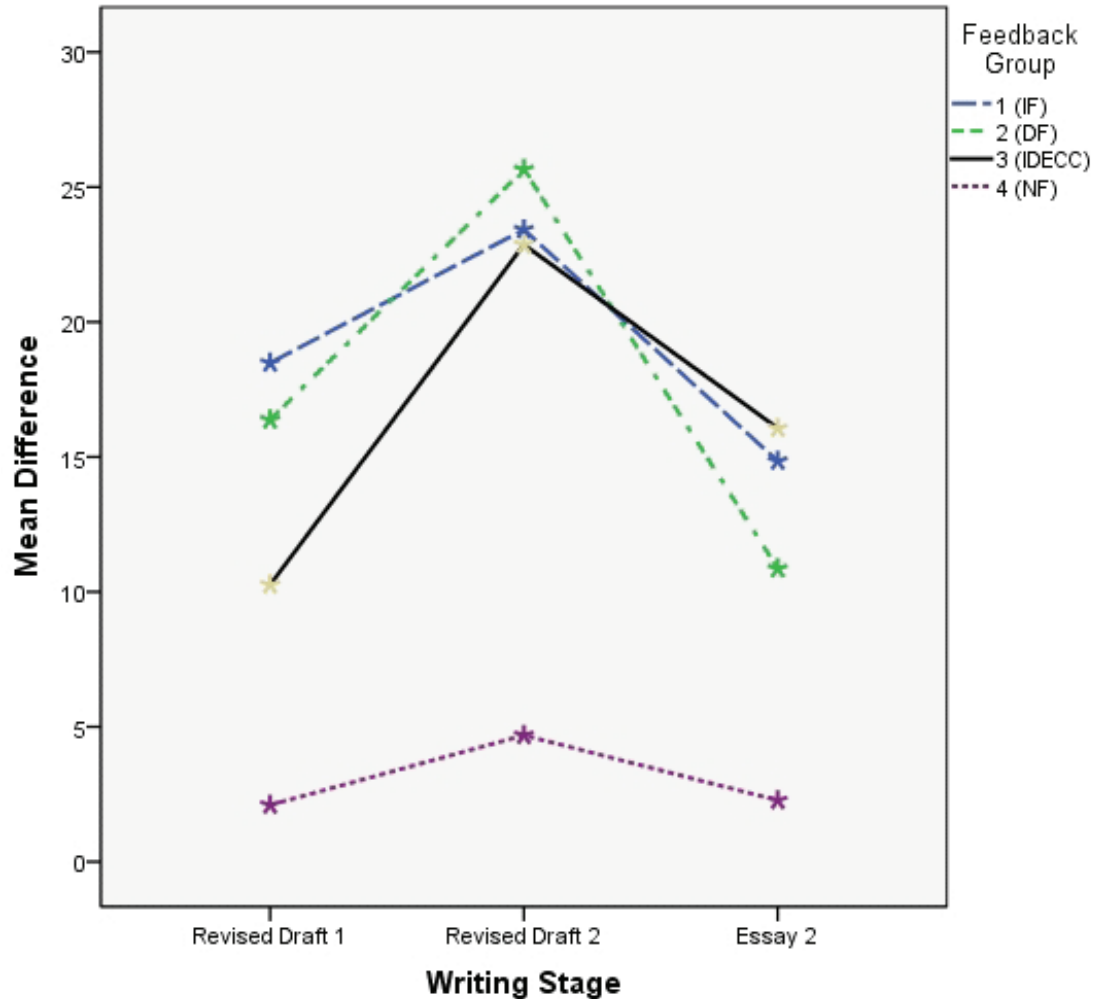


Figure 4. Mean difference of errors of each group in each essay writing stage

Is there a difference by type of teacher feedback in the number of errors between Essay 1 and Essay2?

Research question 3 was to examine the effects of teacher written corrective feedback on student production of a new piece of written text in terms of grammatical accuracy in response to a new prompt. This examination compared the effects of the three different strategies of teacher written corrective feedback and no feedback at all. The number of errors on Essay 1 (before receiving any corrective feedback) was compared to the number of errors on Essay 2 (upon receiving a new prompt approximately two months after the feedback treatment). In other words,

this examination was to verify if the effects of feedback were carried over to the production of a new piece of text in the long term.

To answer Research Question 3, four Paired Samples T-Tests were performed. To find out the long term effects or the degree of transfer effects of teacher written corrective feedback on the production of a new piece of text, the number of errors on Essay1 was compared to the number of errors on Essay2 of the four treatment type groups: IF, DF, IDECC, and NF groups. As there were four paired t-tests, to control for experiment-wise error, the alpha level was set to $p < .0125$. This step involved 121 participants in four groups and 242 observations. Results of the Paired Samples T-Tests revealed that number of errors made by participants on Essay 2 decreased significantly from Essay 1 in all the three treatment groups while there was no significant decrease in the no-feedback group. The decrease in the number of errors was significant for the IF group from Essay 1 ($M = 27.97$, $SD = 13.94$) to Essay 2 ($M = 13.12$, $SD = 6.23$); $t(32) = 6.92$, $p = .00$ (two-tailed) and was significant for the DF group from Essay 1 ($M = 28.03$, $SD = 12.83$) to Essay 2 ($M = 17.17$, $SD = 8.36$); $t(28) = 6.89$, $p = 0.00$ (two-tailed). The decrease in the number of error was also significant for the IDECC group from Essay 1 ($M = 24.47$, $SD = 10.24$) to Essay 2 ($M = 8.40$, $SD = 5.33$); $t(29) = 9.47$, $p = 0.00$ (two-tailed). However, there was no significant difference for the control NF group in the decrease of number of errors from Essay 1 ($M = 23.72$, $SD = 11.35$) to Essay 2 ($M = 21.45$, $SD = 10.84$); $t(28) = 1.62$, $p = .12$ (two-tailed). Further analysis of participants' Essay 1 and Essay 2 in all three treatment groups shows that effects of teacher corrective feedback were carried over to the new essay as evident in the decrease of the number of errors in the new essay when it was compared to that of the original essay. Figure 5 illustrates the decrease in the number of errors in each group from Essay 1 to Essay 2.

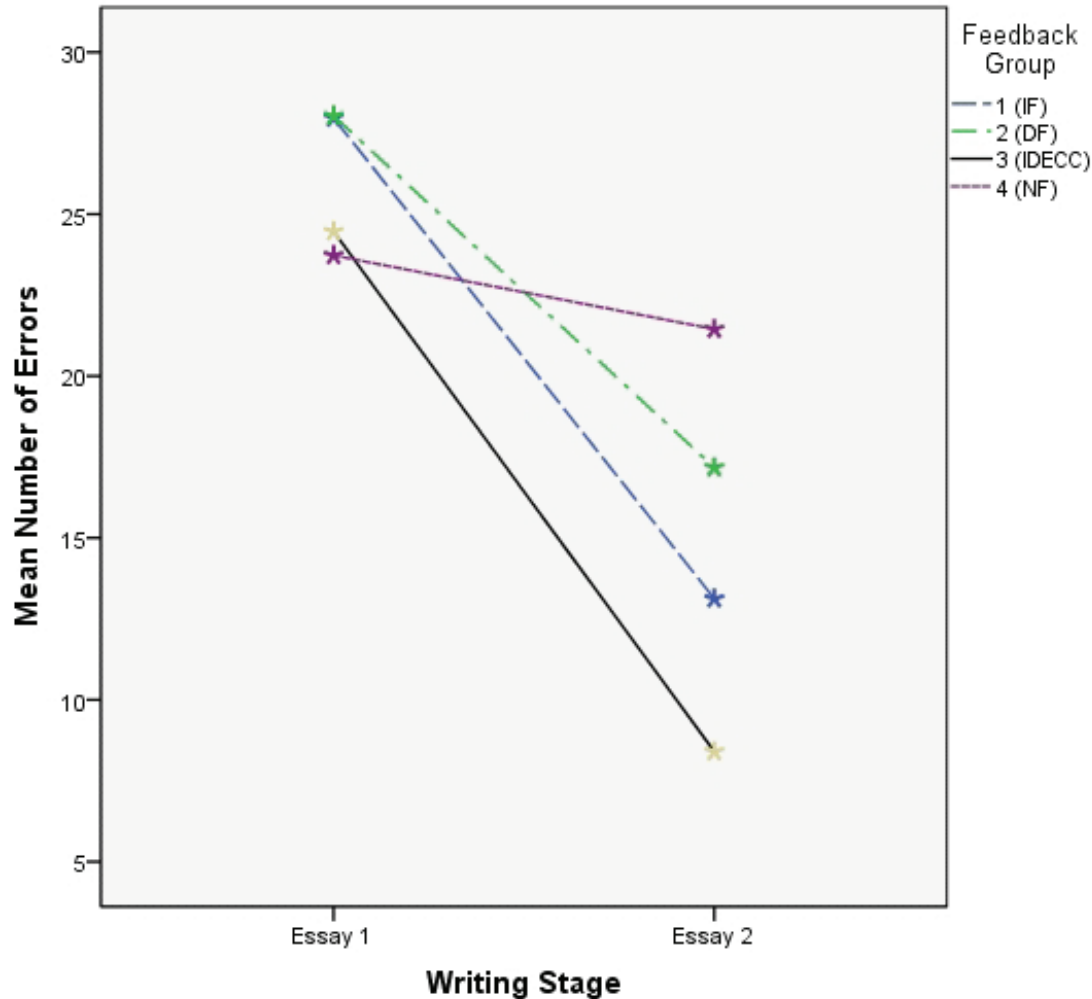


Figure 5. Mean number of errors of each group in Essay 1 and Essay 2

Is there a difference by type of teacher corrective feedback in terms of essay quality ratings given by independent raters to Essay 1 and Essay 2?

Research Question 4 was to determine the quality of students' essays. The researcher was interested to find out whether the process of teacher feedback in general influenced the quality of student writing as measured through the scores given by two independent raters who evaluated Essay1 and Essay2 of each participant in each group. The independent raters graded participants' essays using the *ESL Composition Profile* which the researcher used to compare and determine the quality of each essay and if improvement in the quality of essays existed and which group

experienced the highest rate of improvement. However, as this step involved two different graders who scored participants' essays independently, an inter-rater reliability test was performed before proceeding to further statistical tests. Inter-rater reliability provides a measure of agreement between the two teacher ratings. Tinsley and Brown (2000) state that "a high inter-rater reliability means that relation of one rated object to other rated objects is the same across judges, even though the absolute numbers used to express this relation may differ from judge to judge" (p. 98). The results of Cronbach's alpha show that the inter-rater reliability coefficient was .781 for Essay 1 and .733 for Essay 2.

To answer Research Question 4, four Paired Samples T-Tests were performed. This step involved 121 participants in four groups and 242 observations. Results of the Paired Samples T-Tests revealed that essay scores given by two independent raters on Essay 2 increased significantly from Essay 1 in all the three treatment groups while there was no significant increase in the no-feedback group. As there were four Paired T-Tests, to control for experiment-wise error, the alpha level was set to $p < .0125$. The increase in the essay scores was significant for the IF group from Essay 1 ($M = 70.61$, $SD = 9.81$) to Essay 2 ($M = 74.53$, $SD = 8.35$); $t(32) = 2.93$, $p = .006$ (two-tailed) and for the DF group from Essay 1 ($M = 69.43$, $SD = 7.68$) to Essay 2 ($M = 72.86$, $SD = 7.48$); $t(28) = 4.48$, $p = 0.00$ (two-tailed). The increase in the essay scores was found to be significant for the IDECC group from Essay 1 ($M = 72.42$, $SD = 8.38$) to Essay 2 ($M = 77.52$, $SD = 7.04$); $t(29) = 4.57$, $p = 0.00$ (two-tailed). There was, however, no significant difference in the increase of essay scores for the control NF group from Essay 1 ($M = 71.93$, $SD = 8.48$) to Essay 2 ($M = 72.38$, $SD = 8.08$); $t(28) = .36$, $p = .73$ (two-tailed). The increase in the mean scores of essay quality ratings of each group from Essay 1 to Essay 2 is illustrated in Figure 6.

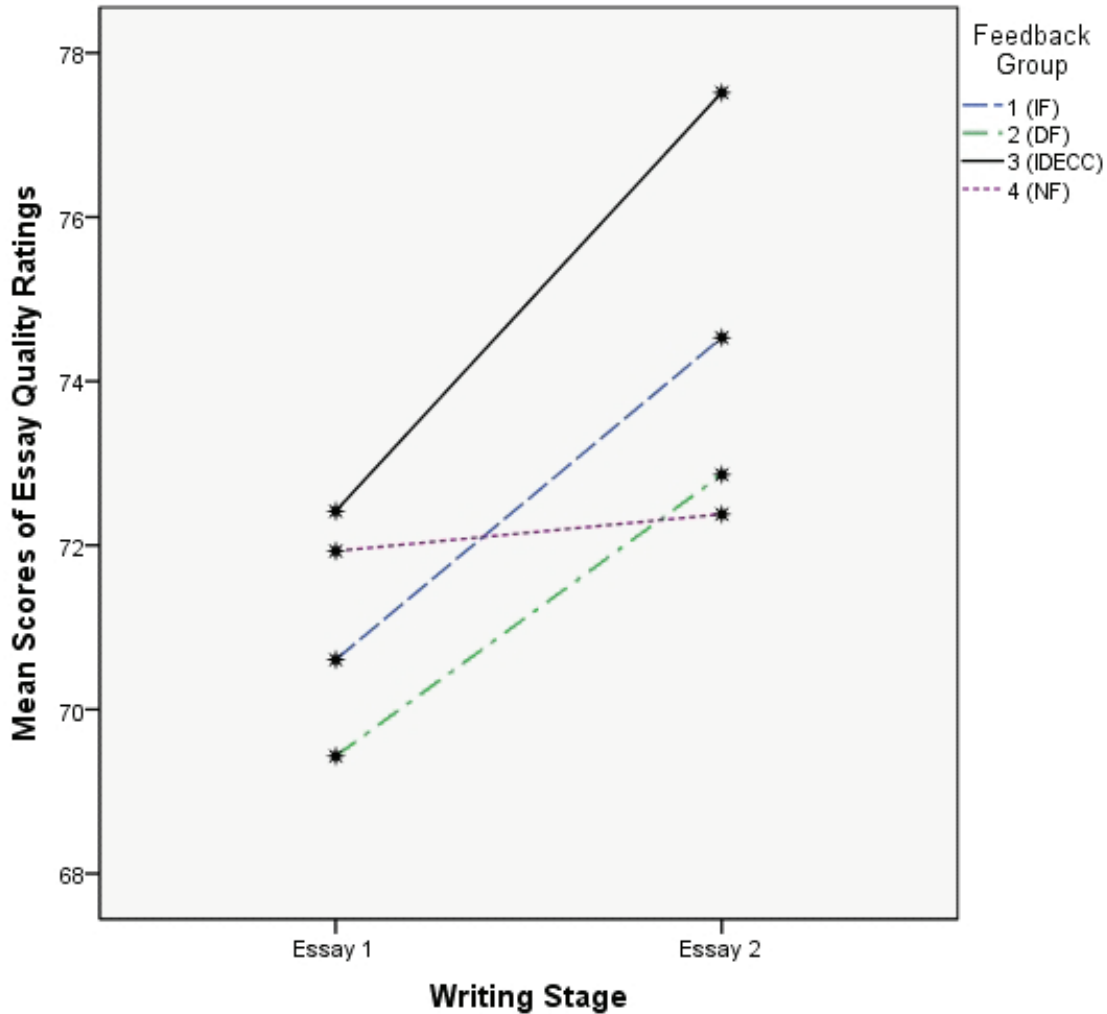


Figure 6. Mean scores of essay quality ratings of each group in Essay 1 and Essay 2

Summary

The following results were summarized from the data analysis:

The analysis of descriptive statistics showed that there was a significant decrease in the number of errors in the treatment groups on subsequent revised drafts and the new essay while there was no significant decrease in the control no-feedback group.

The analysis of within-subject effects and between-subject effects revealed a significant difference across writing stages (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2) and among different feedback strategies (IF, DF, IDECC, and NF). Significant differences were also

observed between the beginning essay before any treatment (Essay 1) and the new essay after all stages of feedback treatment were completed (Essay 2).

The results of the two-way Repeated-Measures ANOVA revealed a significant effect of interaction between different types of feedback strategies (IF, DF, IDECC, NF) and the writing stages (Essay 1, Revised Draft 1, Revised Draft 2, Essay 2). The descriptive statistics as shown in Table 3 reveals that students in the group receiving IDECC performed significantly better that they made the fewest errors in the Revised Draft 2 after two revisions and in the Essay 2 after the completion of the treatment than students in the group receiving DF and those in the NF group who did not receive any feedback at all. Students in the treatment groups (IF, DF, EDECC) outperformed the students in the NF control group in both the revision stages and the new essay.

The results of Paired Samples T-Tests revealed that there was a significant difference between the number of errors on Essay 1 and Essay 2 for all the three treatment groups receiving teacher written corrective feedback except the NF control group. It was also revealed that there was a significant difference between writing quality ratings on Essay 1 and Essay 2 given by two independent raters for all the three treatment groups that received teacher feedback except the control group receiving no feedback at all.

Chapter 5: Discussion

This study was conducted to fill a gap in the existing literature on the impacts of teacher written corrective feedback on ESL/EFL student writing accuracy and writing quality. More specifically, this study involved the provision of different types of teacher written corrective feedback strategies focusing on the English articles, prepositions, and past tense verbs. Teacher feedback was provided using Microsoft Word's *comments and track changes* features and was delivered electronically via email. One hundred-twenty one first-year students taking *Writing for General Communications* or *Writing in Professional Context* courses in the English Education Department at Indonesia University of Education participated in this study. They participated in four stages of the experiment: writing the first draft (Essay 1), making the two revisions (Revised Draft 1 and Revised Draft 2), and writing the new essay (Essay 2). For Essay 1, participants were assigned to write a narrative essay about their past experience in learning English. After randomly assigning the participants into three treatment groups receiving a different type of feedback strategy and one control group receiving no feedback, teachers marked all errors on English articles, prepositions, and past tense verbs and provided the first written corrective feedback via email. Participants made some revisions based on teacher feedback and sent their Revised Draft 1 through email to their teachers. After the second feedback from the teachers, participants sent their Revised Draft 2 to their teachers. Approximately two months after the second feedback, participants were assigned to write a new narrative essay (Essay 2) on a similar topic and sent it electronically to the teachers. The teachers then marked the errors on the articles, prepositions, and past tense verbs but did not send the essays back to the participants.

Differences in the number of errors of on the essays produced by participants in each group and

across writing stages were investigated. In addition, two independent raters rated the essays to provide essay quality ratings on Essay 1 and Essay 2 using the *ESL Composition Profile*.

Impacts of Teacher Corrective Feedback on Student Writing

The first research question was whether there were differences in the mean number of errors among four feedback groups and across four writing stages. The results of data analysis revealed that there were differences in the mean number of errors between the three treatment groups receiving teacher written corrective feedback and the control group receiving no feedback. Differences in the mean number of errors were also observed across different stages of writing between Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2. From these results, it can be inferred that the provision of teacher written corrective feedback in this study was effective in reducing grammatical errors in subsequent revised drafts. The decrease in the mean number of errors in Revised Draft 1 and Revised Draft 2 may be associated with the provision of teacher written corrective feedback while the decrease in the mean number of errors in the new essay (Essay 2) indicates that teacher feedback may have a long-term impact on student writing.

Further analysis of students' essays revealed that participants in all three treatment groups had a decrease in the mean number of errors in immediate revised texts after receiving two segments of teacher written corrective feedback while participants in the control group, who performed two segments of self-correction, only made a slight decrease. After going through two segments of feedback, participants in the IDECC group who received indirect feedback in the first segment of teacher feedback followed by direct feedback with explicit corrective comments in the second feedback, performed better than the other two treatment groups. The IDECC group reduced their errors by 93.46% in Revised Draft 2 as compared to the IF group (83.73%), the DF group (91.51%), and the NF control group (20%). In this study, the percentage of error reduction

can be interpreted as the percentage of improvement in accuracy on the observed grammatical items. From these results, it may be inferred that providing teacher written corrective feedback, regardless of the type of feedback strategy, was effective in reducing the number of errors on the grammatical items focused in this study. Despite there were no major differences among the three different feedback strategies in this study, providing any type of teacher feedback was more effective than providing no feedback at all in improving students' grammatical accuracy in immediate revised texts. These findings are consistent with the findings of previous studies by Bitchener and Knoch (2010), Chandler (2003), Ellis et al. (2006), Ferris and Hedgcock (2005), Ferris and Roberts (2001), Lalande (1982), and Rassaei and Moinzadeh (2011).

Another finding of this study is that all the three feedback treatment groups outperformed the control group in the new essay (Essay 2), producing fewer numbers of errors than the control group who did not receive any feedback. There was no difference in the mean number of errors between the IF and DF groups, and between the IF and IDECC groups. This finding supports the results of previous studies suggesting no difference in the effects of teacher feedback between the IF or DF groups (Robb et al., 1986; Semke, 1984). There was, however, a difference between the IDECC and DF and NF groups. This finding confirms the results of previous studies by Bitchener (2008), Bitchener et al. (2005), Bitchener & Knoch (2010), Ellis et al. (2006), Nagata (1997), and Nagata and Swisher (1995).

A more detailed look into the comparison between the IF and DF groups in immediate revised drafts after receiving two segments of teacher feedback revealed that the DF group had a higher accuracy than the IF group. This is understandable as the DF group received not only indications of errors but also the correct forms from the teacher to replace those errors while the IF group who only received indications of errors with no provision of the correct forms. As

suggested by Chandler (2003), providing direct feedback is best for producing accurate revisions and is easier for students to make revisions. However, in terms of the effects of feedback in the long run, as measured by the number of errors in a new essay several months after the feedback treatment, the IF group performed better than the DF group. This is in accordance with the notion that indirect feedback offers more advantages in the long term than direct feedback. Through indirect feedback, students are cognitively challenged to reflect upon the clues given by the teacher, are more engaged in discovering the correct forms as their attention is drawn to grammatical forms, and are more involved to problem-solve which is believed to be beneficial for long-term learning improvement (see Ferris, 2003a; Ferris & Roberts, 2001; Lalande, 1982; Lee, 2008; O'Sullivan & Chambers, 2006).

The IDECC group performed better in grammatical accuracy both in Revised Draft 2 and in the new essay than the IF and DF groups. This evidence has been explained in previous studies that providing explicit corrective comments through explanation of grammatical rules or metalinguistic information is advantageous for students in the long run, that it raises students' grammatical awareness, and engages students in problem-solving activities to discover the correct forms (see Bitchener et al, 2005; Ellis et al., 2006; Ferris & Hedgcock, 2005; Nagata, 1997; Varnosfadrani & Basturkmen, 2009). The findings of the current study, in line with other previous studies, clearly indicate that teacher corrective feedback is useful and effective in helping ESL/EFL students in reducing their grammatical errors not only in subsequent revisions but also in the new essay. Furthermore, providing teacher corrective feedback in the form of indirect feedback followed by direct feedback accompanied with explicit corrective comments (IDECC) help students correct their grammatical errors more effectively than other feedback strategies, especially compared to direct feedback only and no feedback at all, in both the second

revisions and the new essay. These findings add more evidence in support of teacher corrective feedback, especially when metalinguistic explanation is utilized in the form of explicit corrective comments on grammatical rules, in improving students' grammatical accuracy in essay writing.

Differences in the Number of Errors across Essay Drafts

The second research question asking whether differences in errors by feedback group were consistent across essay drafts or if there was an interaction of essay and feedback strategy. The results of data analysis showed that there was a difference in the mean number of errors across essay drafts for each treatment group except the control group with no feedback at all. Participants in the IF, DF, and IDECC groups made fewer errors in each revision as a result of incorporating teacher written corrective feedback. The differences in the mean number of errors from the first to the second revision and to the new essay were not consistent. These results can be interpreted that there was an effect of time on students' writing performance as measured in the reduction of the number of errors across three different time intervals or writing stages. Given that there were longitudinal gains for all treatment groups over time, it is important to determine the interactional effect of time and feedback strategy. The results of data analysis showed that an interaction of time and feedback strategy existed. This indicates that the feedback treatment groups (IF, DF, and IDECC) and NF control group in this study performed differently from each other over time.

The results of analysis also showed that there was an effect of different feedback treatment on students' performance as measured in the decrease of the mean number of errors among groups. The difference between the mean number of errors in the NF control group and the three treatment groups (IF, DF, and IDECC) was evidently observable. This indicates that participants in each group who received a type of teacher written corrective feedback

outperformed the control group who did not receive any corrective feedback. These findings are in support of the findings of previous studies conducted by Bitchener (2008), Bitchener et al. (2005), Rassaei and Moinzadeh (2011), and Sheen (2007).

Effects of Teacher Corrective Feedback on the Number of Errors on Student Production of a New Essay

The third research question asked if the provision of teacher written corrective feedback had an impact on student production of a new essay as measured by the fewer numbers of errors committed by participants in the new essay, written approximately two months after the completion of the feedback treatment. To determine the long term effects of teacher written corrective feedback on a new essay, Essay 1 and Essay 2 of the four groups were compared. The results of data analysis revealed that the mean number of errors on grammatical items focused in this study decreased considerably in all the three feedback treatment groups while the decrease in the mean number of errors in the control group was not conspicuous. This indicates that providing teacher written corrective feedback on student writing may provide a long-term effect in terms of reducing the errors on grammatical items when they wrote a new essay.

Analysis of participants' Essay 1 and Essay 2 in all the four groups in this study showed that the IDECC group who received indirect feedback followed by direct feedback with explicit corrective comments made the fewest number of errors in the new essay (Essay 2) and the mean number of errors was reduced by 65.67% compared to the number of errors they committed in Essay 1 before undergoing any corrective feedback treatment. As Essay 2 was written approximately two months following the two segments of teacher written corrective feedback, it can be inferred that a certain extent of transfer effect of teacher written corrective feedback existed in the IDECC group. This may also mean that providing indirect feedback followed by

direct feedback with explicit corrective comments helped student writers increase their grammatical accuracy by reducing grammatical errors when they wrote a new essay. It is important to note that the IDECC group outperformed all other groups in this study as indicated by its highest percentage of error reduction compared to all other groups (IF, DF, NF). The mean number of errors of the IF group in Essay 2 was reduced by 53.09% compared to Essay 1. While the level of improvement in the IF group was not as high as the IDECC group, the IF group still made a higher improvement compared to the DF group and the NF control group. The DF group also made a decrease in the mean number of errors in Essay 2 (by 38.74%) which was better than the NF control group. Participants in the NF control group who did not receive any type of corrective feedback only made a minor improvement in Essay 2 by 9.57% which was not easily observable compared to the number of errors they committed in Essay 1.

Based on the results of this analysis, it can be concluded that providing teacher written corrective feedback, regardless of any type of feedback strategy, may help student writers in improving their grammatical accuracy in the long run. This finding is in line with the results of previous studies on teacher feedback (see Chandler, 2003; Ferris & Roberts, 2001; Lalande, 1982; Leki, 1991). Another finding from the current study is that providing indirect feedback followed by direct feedback with explicit corrective comments on grammatical items focused in this study seemed to have given more benefits to student writers in reducing their grammatical errors when they wrote a new essay, especially when it is compared to the direct feedback only, or no feedback at all. This suggests that the effects of feedback provision may be carried over to the next level when students write a new essay. This finding confirms the results of previous studies by Carroll (2000), Carroll and Swain (1992), Ferris and Roberts (2001), Nagata (1997), Nagata and Hawisher (1995), and more recent studies by Bitchener (2008), Bitchener and Knoch (2010),

Ellis et al. (2006), Sheen (2007), and Rassaei and Moinzadeh (2011). These studies found that providing some types of explicit corrective comments or metalinguistic explanations benefited language learners in improving their grammatical accuracy in the long run.

Effects of Teacher Corrective Feedback on Essay Quality Ratings

The fourth research question asked whether there was a difference by feedback groups in students' writing quality as measured by the writing quality ratings given by two independent raters using the *ESL Composition Profile* developed by Jacobs et al. (1981). The results of analysis comparing writing quality scores for Essay 1 and Essay 2 revealed that there was an increase in the mean scores of writing quality in the IF, DF, and IDECC groups from Essay 1 to Essay 2. On the other hand, the NF control group only made a slight increase in the mean of writing quality scores. Of all the groups in this study, the IDECC group gained the highest increase in the mean of writing quality scores from 72.42 (Essay 1) to 77.52 (Essay 2) respectively followed by the IF group with an increase from 70.61 to 74.53 and the DF group from 69.43 to 72.86. No noticeable increase was observed in the NF control group as the gain was minimal from 71.93 to 72.38. The mean of writing quality scores of all groups for Essay 1 was between 69.43 and 72.42. According to the *ESL Composition Profile*, scores within this range places the participants in the category between "poor to fair" and "average to good". The mean of writing quality scores for Essay 2 was between 72.38 and 75.52, placing the participants into the category of "average to good".

From these results, it can be inferred that there was a positive relationship between the provision of teacher written corrective feedback and the increase of students' writing quality in their new essay. This finding is not supported by findings of previous studies conducted by Chandler (2003) and Robb et al. (1986) which suggested that students' writing quality ratings did

not change much after receiving corrective feedback. A further research may be needed to investigate if there were other factors that may have caused a gap in these findings.

Summary of the Findings

Based on the discussion of the results presented in this chapter, the findings of this study can be summarized as follows:

The results of analysis revealed that there were differences in the mean number of errors on three grammatical items (the English articles, prepositions, and past tense verbs) between all the three feedback treatment groups and the control group who received no feedback. There were also differences in the mean number of errors within each of the three treatment group across four writing stages (Essay 1, Revised Draft 1, Revised Draft 2, and Essay 2) while the control group did not show any differences across writing stages. The IDECC group who received indirect feedback followed by direct feedback with explicit corrective comments outperformed all other groups (IF, DF, NF), both in the Revised Draft2 and Essay 2. Results of this study were in line with the findings of previous studies. These results suggest that providing teacher written corrective feedback, regardless of feedback strategies, were more effective in reducing the number of errors on three grammatical items than providing no feedback at all. However, providing teacher corrective feedback accompanied with explicit corrective comments on grammatical or linguistic rules was more advantageous and more effective in helping students improve their grammatical accuracy than other feedback strategies or no feedback at all.

The results of data analysis showed that differences in number errors by feedback groups were not consistent across essay drafts. These results suggest that there was an interaction effect of essay and feedback strategy indicating that each group in this study performed differently from each other over time. The results this analysis also showed that participants in the IF, DF,

and IDECC groups made fewer errors in each of the writing stages while the NF control group did not make much difference in the mean number of errors. Findings of this study were consistent with the findings of previous studies suggesting an interaction effect of feedback strategies and writing stages.

The results of comparison between the number of errors of the four groups in Essay 1 and Essay 2 revealed that the mean number of errors decreased in Essay 2 in the IF, DF, and IDECC treatment groups while there was no obvious difference found in the NF group. These results suggest that teacher written corrective feedback may provide long-term effects in terms of reducing the errors on grammatical items in a new essay. The results of the analysis also showed that the IDECC group outperformed all other groups in this study. This can be interpreted that providing indirect feedback followed by direct feedback with explicit corrective comments (IDECC) was more effective than other feedback strategies or no feedback at all in helping students reduce the number of errors on grammatical items focused in this study. The results of the analysis also suggest that the effects of feedback provision (IF, DF, IDECC) may be carried over to a new essay. These findings confirm the results of previous studies.

Lastly, the results of comparison between the essay quality scores of the four groups on Essay 1 and Essay 2 revealed that the essay quality ratings given by two independent raters using *ESL Composition Profile* increased from Essay 1 to Essay 2 for all the treatment groups (IF, DF, IDECC). The NF control group did not show meaningful increase in the essay quality ratings. Although the corrective feedback treatment in this study only involved correction on grammatical items in three areas (English articles, preposition, and past tense verbs), an increase in all aspects of writing of the participants in the treatment groups was distinctively observable.

These results suggest that there was a positive relationship between the provision of teacher written corrective feedback and the increase in the essay quality ratings in general.

Debate on the Effectiveness of Corrective Feedback Revisited

In general, findings of this study provide clear evidence in support of teacher corrective feedback as advocated by many previous researchers in the field of ESL/EFL writing such as Bitchener (2008), Bitchener et al. (2005), Chandler (2003), Ellis et al (2008), Ferris (1999, 2004), Hyland and Hyland (2001). Findings of the current study that teacher corrective feedback is beneficial for student learning, regardless of the feedback strategies, also provide additional evidence in support of teacher corrective feedback that can be used to respond to the claim by Truscott who sparked the debate about the effectiveness of corrective feedback. As mentioned in previous chapters, Truscott (1996, 1999, 2004, 2007) argues that error correction is not only ineffective in improving student writing but it is also significantly harmful. Therefore, he suggests that grammar correction should be avoided or abandoned.

Despite counter evidence presented by other researchers providing empirical evidence in favor of corrective feedback (see Bitchener, 2008; Bitchener e al., 2005; Chandler, 2003; Ellis et al., 2008; Ferris, 1999, 2004; Ferris & Roberts, 2001), Truscott (2007) firmly believes that error correction is not effective. Moreover, Truscott and Hsu (2008) conclude that successful error reduction during revision cannot be used as a predictor of learning and that improvements made during revision cannot be viewed as evidence on the effectiveness of corrective feedback on learners' writing ability.

In the midst of this debate, Guénette (2007), and see also Bruton (2009, 2010), suggested that different findings which led to conflicting interpretations of previous studies on corrective feedback can be attributed to several different factors such as research design and methodology

flaws and external variables uncontrolled by the researchers, including the absence of a true control group. In addition to employing three treatment groups receiving different written corrective feedback strategies, the present study also used a control group who received no corrective feedback at all. This study also used a multiple-draft writing approach and a new essay to compare differences in error reduction across subsequent revisions and over a longer period of time during the production of a new essay.

As the results of this study revealed, in contrast to Truscott and Hsu (2008) who believe that successful error reduction is not related to learning, there was empirical evidence in this study that teacher written corrective feedback was effective in reducing students' errors on grammatical items focused in the study, not only in subsequent revised essay drafts but also in the production of a new essay. The findings of the current study clearly indicate that students in the feedback treatment groups were proven to have learned effectively from teacher corrective feedback to identify different types of errors and to appropriately react to teacher feedback by incorporating teacher feedback in subsequent revised drafts and by applying grammatical rules they learned from teacher feedback, including explicit corrective comments on grammatical or linguistic rules, in writing the new essay. Thus, students in the feedback treatment groups reduced their grammatical errors not only in the subsequent revised drafts but also in their new essay. The results of this study may provide empirical evidence that the reduction of errors in students' essays was in fact a result of learning from teacher feedback that they received twice during the treatment period and they applied in their two revision activities.

The evidence of learning was more obvious as measured in the reduction of errors on the same grammatical items in the new essay that the students wrote approximately two months later. At the same time, students in the control group who did not receive any corrective feedback did

not make any significant error reduction either during the self-revision tasks or when writing the new essay. The difference in the error reduction rate, both in the subsequent revised drafts and the new essay, between the three treatment groups and the no-feedback control group was very obvious which indicates that learning processes from teacher feedback did take place in the treatment groups. It was also evident in this study that students in the groups receiving a type of teacher written corrective feedback gained some improvement in grammatical accuracy across essay drafts and the new essay. In addition, they also outperformed the control group in both the revised drafts and the new essay, proving that learning did take place in the treatment groups resulting in improvement in students' writing accuracy. The findings of this study may counter Truscott's two fundamental claims that corrective feedback is ineffective in reducing students' errors and that error reduction is not a predictor of learning. The results on this study confirm that teacher corrective feedback is indeed effective in helping students reduce their grammatical errors and the reduction of errors in students' revisions and new essay is a result of learning from teacher feedback. Therefore, the findings of this study are in support of teacher corrective feedback, confirming that corrective feedback can be effective in improving students' writing accuracy in ESL/EFL contexts, not only in revising subsequent drafts but also in writing a new essay. To conclude, teacher corrective feedback should be provided for students as it is needed to support student learning and it should not be abandoned.

Areas of Future Research

With all the findings of the study described above, further research is recommended in the context of application of different strategies of teacher corrective feedback in improving ESL/EFL students' writing in terms of grammatical accuracy and writing quality in general. In the present study, Microsoft Word's *comment and track changes* features were used as a tool to

provide teacher written corrective feedback on students' essay and email was used as a medium to deliver the feedback from the teacher. Additional research focusing more on the use of other features of word processing software and email, electronic discussion groups and message boards, social networking sites and blogs, tablet or mobile devices, as feedback tools and media may be needed to determine their effectiveness in facilitating teacher feedback for ESL/EFL learners in various learning environments including face-to-face, hybrid, or distance learning.

The present study used multiple-draft writing approach and three different strategies of teacher written corrective feedback: indirect feedback only, direct feedback only, and indirect feedback followed by direct feedback with explicit corrective comments. As the findings of this study showed that there was no difference among the three feedback strategies during the first two revisions but there was a noteworthy difference between the IDECC and the DF in the production of a new essay, additional research may be needed to determine the amount of essay drafts or the number of revisions that can benefit ESL/EFL student writers most. This new study would help clarify whether these different feedback strategies combined with multiple-draft writing activities have an effect on students' writing accuracy and quality over time.

Last but not least, the present study used explicit corrective comments approach in providing feedback and was focused on the use of English articles, prepositions, and past tense verbs. Additional research may be needed in regards to the extent of explicitness and coverage of the comments on the grammatical rules or linguistic features of students' writing. Also, additional research may be needed in regards to other grammatical items or other aspects of writing such as content, organization, vocabulary, or mechanic. This new study would help clarify whether the effectiveness of explicit corrective comments can be translated into different areas of grammar or other aspects of writing.

Implications of the Study

The results of this study can be used to inform ESL/EFL teachers and researchers interested in applying or investigating teacher various types of written corrective feedback strategies, including written corrective feedback with explicit corrective comments, as used in this study. The finding that participants in the treatment groups in this study gained in grammatical accuracy in subsequent revised drafts, as well as in a new essay, may encourage teachers and researchers in the ESL/EFL field to provide corrective feedback with confidence that student writers can benefit from corrective feedback. The finding of this study also indicates that teacher written corrective feedback can be provided using readily available technology such as word processing software as editing and revising tools and email as electronic delivery medium, in addition to the traditional pen-and-paper approach. This study suggests that teacher written corrective feedback can be applicable in different learning environments, not only in face-to-face but also in blended-learning and distance learning environments. However, it should be advised that providing teacher written corrective feedback is a laborious process, especially in large classes, demanding teacher's dedication and passion for the success of student learning. When deciding to provide teacher written corrective feedback using technology at a distance, careful planning should be made far in advance accompanied with backup strategies in case the process does not go as it is planned. This provides an opportunity and a challenge for instructional designers and instructional technologists to come up with sound and reasonable solutions to accommodate student's need for teacher corrective feedback and to facilitate teachers in providing corrective feedback.

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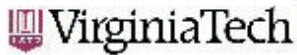
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Appendix A

Approval from the IRB at Virginia Tech

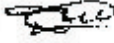


Office of Research Compliance
 Institutional Review Board
 2000 Kraft Drive, Suite 2000 (0497)
 Blacksburg, Virginia 24061
 540/231-4991 Fax 540/231-0959
 e-mail moored@vt.edu
www.irb.vt.edu
 PVA00000572 (expires 6/13/2011)
 IRB # is IRB00000867

DATE: March 2, 2010

MEMORANDUM

TO: John K. Burton
 Pupung Pumawarman

FROM: David M. Moore 

SUBJECT: **IRB Exempt Approval:** "Impacts of Feedback on Student Writing", IRB # 10-188

I have reviewed your request to the IRB for exemption for the above referenced project. The research falls within the exempt status, CFR 46.101(b) category(ies) 2.

Approval is granted effective as of March 2, 2010.

As an investigator of human subjects, your responsibilities include the following:

1. Report promptly proposed changes in the research protocol. The proposed changes must not be initiated without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subjects.
2. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

cc: File

Invent the Future

Appendix B

Directions to write Essay 1:

Please write a narrative essay in English of approximately 300 words. In your essay, **please describe your personal experience in studying English in the past**. You may want to talk about how you learned English before you went to college, your difficulties in studying English in high school, why you liked or you did not like studying English in high school, or anything important related to your experience in studying English in the past.

Please type and save your essay using Microsoft Word program. Use the standard, 12 pts Times New Roman font size, and double-spaced format. Please write your essay within 30-minute time frame. When you have finished writing, please attach your essay file to your email and send it to your teacher's email address.

Your essay will be read by your teacher. Please do not worry about mistakes; the most important thing is that you write your essay. Your teacher will send the file back to you through email. You may or may not receive feedback from your teacher, depending on which group you belong to. If you receive any feedback from your teacher, you may use the feedback when you revise your essay but it is not compulsory.

Thank you very much.

Appendix C

Direction to write Essay 2 (New Essay):

Please write a narrative essay in English of approximately 300 words. In your essay, **please describe your personal experience in studying English in the past**. You may want to talk about the most interesting experience in learning English in college, high school, or in an English course. You may want to describe how your teacher taught English in the class or any learning activities most interesting to you in the past.

Please type and save your essay using Microsoft Word program. Use the standard, 12 pts Times New Roman font size, and double-spaced format. Please write your essay within 30-minute time frame. When you have finished writing, please attach your essay file to your email and send it to your teacher's email address.

Your essay will be read and graded by your teacher. Please do not worry about mistakes; the most important thing is that you write your essay. At this time your teacher will not provide you with any feedback on your essay.

Thank you very much.

Appendix D

ESL Composition Profile (Jacobs et al., 1981)

ESL COMPOSITION PROFILE			
STUDENT	DATE	TOPIC	
	SCORE	LEVEL	CRITERIA
CONTENT	30-27		EXCELLENT TO VERY GOOD: knowledgeable • substantive • thorough development of thesis • relevant to assigned topic
	26-22		GOOD TO AVERAGE: some knowledge of subject • adequate range • limited development of thesis • mostly relevant to topic, but lacks detail
	21-17		FAIR TO POOR: limited knowledge of subject • little substance • inadequate development of topic
	16-13		VERY POOR: does not show knowledge of subject • non-substantive • not pertinent • OR not enough to evaluate
ORGANIZATION	20-18		EXCELLENT TO VERY GOOD: fluent expression • ideas clearly stated/ supported • succinct • well-organized • logical sequencing • cohesive
	17-14		GOOD TO AVERAGE: somewhat choppy • loosely organized but main ideas stand out • limited support • logical but incomplete sequencing
	13-10		FAIR TO POOR: non-fluent • ideas confused or disconnected • lacks logical sequencing and development
	9-7		VERY POOR: does not communicate • no organization • OR not enough to evaluate
VOCABULARY	20-18		EXCELLENT TO VERY GOOD: sophisticated range • effective word/idiom choice and usage • word form mastery • appropriate register
	17-14		GOOD TO AVERAGE: adequate range • occasional errors of word/idiom form, choice, usage <i>but meaning not obscured</i>
	13-10		FAIR TO POOR: limited range • frequent errors of word/idiom form, choice, usage • <i>meaning confused or obscured</i>
	9-7		VERY POOR: essentially translation • little knowledge of English vocabulary, idioms, word form • OR not enough to evaluate
LANGUAGE USE	25-22		EXCELLENT TO VERY GOOD: effective complex constructions • few errors of agreement, tense, number, word order/function, articles, pronouns, prepositions
	21-18		GOOD TO AVERAGE: effective but simple constructions • minor problems in complex constructions • several errors of agreement, tense, number, word order/function, articles, pronouns, prepositions <i>but meaning seldom obscured</i>
	17-11		FAIR TO POOR: major problems in simple/complex constructions • frequent errors of negation, agreement, tense, number, word order/function, articles, pronouns, prepositions and/or fragments, run-ons, deletions • <i>meaning confused or obscured</i>
	10-5		VERY POOR: virtually no mastery of sentence construction rules • dominated by errors • does not communicate • OR not enough to evaluate
MECHANICS	5		EXCELLENT TO VERY GOOD: demonstrates mastery of conventions • few errors of spelling, punctuation, capitalization, paragraphing
	4		GOOD TO AVERAGE: occasional errors of spelling, punctuation, capitalization, paragraphing <i>but meaning not obscured</i>
	3		FAIR TO POOR: frequent errors of spelling, punctuation, capitalization, paragraphing • poor handwriting • <i>meaning confused or obscured</i>
	2		VERY POOR: no mastery of conventions • dominated by errors of spelling, punctuation, capitalization, paragraphing • handwriting illegible • OR not enough to evaluate
TOTAL SCORE		READER	COMMENTS

Appendix E

Examples of Feedback Provision Technique (Indirect feedback)

Feedback Focus:

- a. Use of Articles (A, An, The) —————→ Yellow highlight
- b. Use of Prepositions (In, At, On, etc.) —————→ Bright green highlight
- c. Use of Verbs (Past Tense Verbs) —————→ Turquoise highlight

1. Original Essay (before any feedback):

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. First feedback from teacher (Feedback1):

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. Second feedback from teacher (Feedback2):

(It is supposed that the student has made some revisions but some errors are still present)

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we had to study English in the middle school and in the high school in my country. At that time, I felt interesting in it. But, I became lazy as I became a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I do not need to study English more because I will not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

Tips:**How to indicate or highlight errors using Microsoft Word (XP, 2002, or 2003 version)?**

1. Place your mouse pointer on an error (word or phrase),
2. Click (once only) the left button of your mouse in front of the first letter of an incorrect word or phrase,
3. Press and hold the left button of your mouse on the first letter of the word and drag your mouse to the right until you reach the last letter of the incorrect word or phrase to select it,
4. The selected word will now have black background and white font face,
5. Point your mouse on the "Highlight" button on the Toolbar on top of the screen,
6. Click the down arrow and select the color you want to use to highlight the word or phrase,
7. In the case of a missing word that needs to be present in between two words (e.g. "I was student", which is supposed to be "I was a student") in order for the highlight color to appear, click your mouse on the last letter of the first word and drag it till it reaches the first letter of the second word, then follow steps 5 and 6.
8. To make it easier and consistent highlight colors among teachers, please use **yellow** highlight for errors on articles, **bright green** highlight for errors on prepositions, and **turquoise** highlight for past tense verbs.

How to place a strikethrough?

1. To indicate that a word or phrase needs be deleted, highlight the word or phrase and place a strikethrough (~~for example~~) by clicking "Format" on the menu bar at the top of the screen,
2. Then select "Font",
3. Then put a check mark on "Strikethrough".

How to activate Track Changes Tool?

1. Go to the menu bar at the top of the screen,
2. Click on "Tool",
3. Click on "Track Changes"

Activating Track Changes will enable you as a teacher to see what has been changed by students on their essay and whether they accepted or rejected your feedback.

Examples of Feedback Provision Technique (Direct feedback)

Feedback Focus:

- a. Use of Articles (A, An, The) → Yellow highlight
- b. Use of Prepositions (In, At, On, etc.) → Bright green highlight
- c. Use of Verbs (Past Tense Verbs) → Turquoise highlight

1. Original Essay (before any feedback):

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. First feedback from teacher (Feedback1):

(Teacher provides highlights on errors made by the student and provide correct words or phrases on the right margin to replace the errors. If an error is due to a word that needs to be deleted, place a strikethrough one the error. No explanations needed.)

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

- Comment [U1]: an
- Comment [U2]: had
- Comment [U3]: in
- Comment [AS4]: delete
- Comment [U5]: in
- Comment [AS6]: delete
- Comment [U7]: became
- Comment [U8]: studied
- Comment [U9]: didn't
- Comment [U10]: would

2. Second feedback from teacher (Feedback2):

(It is supposed that the student has made some revisions but some errors are still present)

(Teacher provides highlights on errors made by the student and provide correct words or phrases on the right margin to replace the errors. If an error is due to a word that needs to be deleted, place a strikethrough one the error. No explanations needed.)

Before I came here, I didn't like to study English.

When I was an elementary school student, I started studying English because we have to study English in the middle school and in the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I would not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

Comment [U11]: had

Comment [AS12]: delete

Comment [AS13]: delete

Comment [U14]: studied

Comment [U15]: didn't

Tips:**How to indicate or highlight errors using Microsoft Word (XP, 2002, or 2003 version)?**

1. Place your mouse pointer on an error (word or phrase),
2. Click (once only) the left button of your mouse in front of the first letter of an incorrect word or phrase,
3. Press and hold the left button of your mouse on the first letter of the word and drag your mouse to the right until you reach the last letter of the incorrect word or phrase to select it,
4. The selected word will now have black background and white font face,
5. Point your mouse on the "Highlight" button on the Toolbar on top of the screen,
6. Click the down arrow and select the color you want to use to highlight the word or phrase,
7. In the case of a missing word that needs to be present in between two words (e.g. "I was student", which is supposed to be "I was a student") in order for the highlight color to appear, click your mouse on the last letter of the first word and drag it till it reaches the first letter of the second word, then follow steps 5 and 6.
8. To make it easier and consistent highlight colors among teachers, please use yellow highlight for errors on articles, bright green highlight for errors on prepositions, and turquoise highlight for past tense verbs.

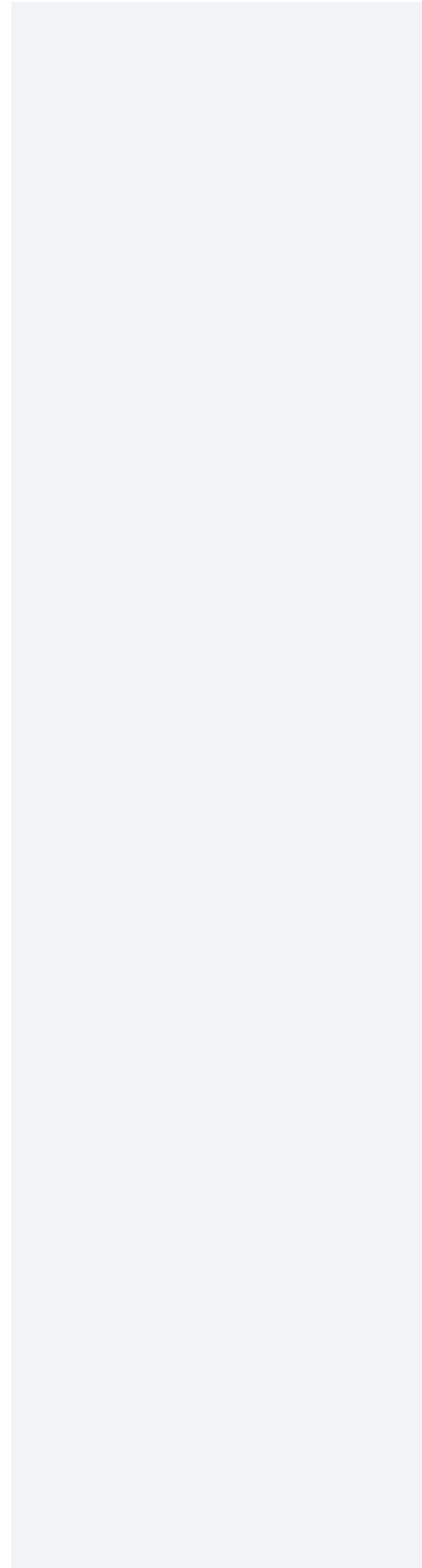
How to place a strikethrough?

1. To indicate that a word or phrase needs be deleted, highlight the word or phrase and place a strikethrough (for example) by clicking "Format" on the menu bar at the top of the screen,
2. Then select "Font",
3. Then put a check mark on "Strikethrough".

How to activate Track Changes Tool?

1. Go to the menu bar at the top of the screen,
2. Click on “Tool”,
3. Click on “Track Changes”

Activating Track Changes will enable you as a teacher to see what has been changed by students on their essay and whether they accepted or rejected your feedback.



Examples of Feedback Provision Technique (Combined Feedback with explicit explanations of rules):

Feedback Focus:

- a. Use of Articles (A, An, The) → Yellow highlight
- b. Use of Prepositions (In, At, On, etc.) → Bright green highlight
- c. Use of Verbs (Past Tense Verbs) → Turquoise highlight

Note:

- First feedback uses Indirect Feedback
- Second feedback uses Direct Feedback with Explicit Explanations of Rules

1. Original Essay (before any feedback):

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

**2. First feedback from teacher (Feedback1 – Indirect Feedback):
(Teacher only provides highlights on errors made by the student but does not provide any comments)**

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. Second Feedback from teacher (Feedback2 – Direct Feedback with Explicit Explanations of Rules):

(It is supposed that the student has made some revisions but some errors are still present)
(Teacher provides highlights on the errors accompanied with some comments or explanations of rules)

Before I came here, I didn't like to study English.

When I was **the** elementary school student, I started studying English because we had to study English **at the** middle school and **in the** high school in my country. At that time, I felt interesting in it. But, I became lazy as I became a higher grade student. Actually, I don't like memorizing some grammar or words. As I **study** it more, it made me feel tiresome. Then, I thought that I **do** not need to study English more because I would not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

Comment [U16]: You need to use article "a" because it is the first time you talk about your being a student.

Comment [U17]: Use preposition "in" because you are talking about middle school in general, not the school as place or location.

Comment [U18]: Delete article "the" because you are not talking about a specific school.

Comment [U19]: Delete article "the" because you are not talking about a specific school.

Comment [U20]: Use the past tense verb "studied" because you are talking about something in the past.

Comment [U21]: Use the past tense verb "did" because you are talking about something in the past.

Tips:

How to indicate or highlight errors using Microsoft Word (XP, 2002, or 2003 version)?

1. Place your mouse pointer on an error (word or phrase),
2. Click (once only) the left button of your mouse in front of the first letter of an incorrect word or phrase,
3. Press and hold the left button of your mouse on the first letter of the word and drag your mouse to the right until you reach the last letter of the incorrect word or phrase to select it,
4. The selected word will now have black background and white font face,
5. Point your mouse on the "Highlight" button on the Toolbar on top of the screen,
6. Click the down arrow and select the color you want to use to highlight the word or phrase,
7. In the case of a missing word that needs to be present in between two words (e.g. "I was student", which is supposed to be "I was a student") in order for the highlight color to appear, click your mouse on the last letter of the first word and drag it till it reaches the first letter of the second word, then follow steps 5 and 6.
8. To make it easier and consistent highlight colors among teachers, please use **yellow** highlight for errors on articles, **bright green** highlight for errors on prepositions, and **turquoise** highlight for past tense verbs.

How to place a strikethrough?

1. To indicate that a word or phrase needs be deleted, highlight the word or phrase and place a strikethrough (~~for example~~) by clicking “Format” on the menu bar at the top of the screen,
2. Then select “Font”,
3. Then put a check mark on “Strikethrough”.

How to activate Track Changes Tool?

1. Go to the menu bar at the top of the screen,
2. Click on “Tool”,
3. Click on “Track Changes”

Activating Track Changes will enable you as a teacher to see what has been changed by students on their essay and whether they accepted or rejected your feedback.

Examples of No Feedback Provision Technique (Control Group):**Feedback Focus:**

- a. Use of Articles (A, An, The) —————→ Yellow highlight
 b. Use of Prepositions (In, At, On, etc.) —————→ Bright green highlight
 c. Use of Verbs (Past Tense Verbs) —————→ Turquoise highlight

Note:

- Teacher sends students' essay without any highlights at all.
- Teacher highlights students' essay but this essay is kept for teacher's analysis only.

1. Original Essay (before any feedback):

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. First round of feedback from teacher (No Feedback):

(Send back the essay to the student without any highlights. *Please note that the essay with highlights is kept for teacher's record only*)

Before I came here, I didn't like to study English.

When I was elementary school student, I started studying English because we have to study English at the middle school and at the high school in my country. At that time, I felt interesting in it. But, I became lazy as I become a higher grade student. Actually, I don't like memorizing some grammar or words. As I study it more, it made me feel tiresome. Then, I thought that I don't need to study English more because I'll not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

2. Second round of feedback from teacher (No Feedback):

(It is supposed that the student has made some revisions but some errors are still present)

(Send back the essay to the student without any highlights. *Please note that the essay with highlights is kept for teacher's record only*)

Before I came here, I didn't like to study English.

When I was **the** elementary school student, I started studying English because we had to study English in **the** middle school and in **the** high school in my country. At that time, I felt interesting in it. But, I became lazy as I became a higher grade student. Actually, I don't like memorizing some grammar or words. As I **study** it more, it made me feel tiresome. Then, I thought that I **do** not need to study English more because I **will** not go out from my country. Actually, I was arrogant because the thinking was based on my score that was pretty good even though I didn't study hard. I didn't think that it was like 'a babe in the woods'.

Tips:**How to indicate or highlight errors using Microsoft Word (XP, 2002, or 2003 version)?**

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Appendix F

Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

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Name: Pupung Purnawarman

Description of item under review for fair use: The "ESL Composition Profile". Source: Jacobs, H. L., Zinkgraf, S. A., Wormuth, D. R., Hartfiel, V. F., & Hughey, J. B. (1981). Testing ESL Composition: A Practical Approach. Rowley, MA: Newbury House Publishers, p. 101.

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