

THE EFFECTS OF WRITTEN CORRECTIVE FEEDBACK ON SECOND LANGUAGE  
WRITING FOCUSED ON THE ENGLISH ARTICLE SYSTEM

BY

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THESIS

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## **ABSTRACT**

The present study explored the effectiveness of different types of written corrective feedback and error logs in L2 writing focused on English articles. For this study, during a semester, 25 undergraduate students in two intact ESL writing courses received implicit or explicit feedback while one of the classes were asked to keep error logs after receiving corrective feedback. To examine students' improvement, analysis of four writing tasks and a grammaticality judgment test were carried out. Statistical analysis of the data showed that corrective feedback was effective on the acquisition of English articles, and keeping error logs after receiving corrective feedback was effective to help students to better retain the received corrective feedback. The results also showed that implicit corrective feedback was more effective than explicit corrective feedback when students were asked to keep error logs after receiving corrective feedback while explicit corrective feedback was more effective when they did not keep error logs. The results suggest that receiving corrective feedback and keeping error logs can have a positive effect on L2 acquisition and the effectiveness of implicit and explicit feedback can be affected by other variables.

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# CHAPTER 1

## INTRODUCTION

Corrective feedback or error correction is probably one of the most common feedback forms used in ESL classrooms these days. However, despite its large usage, there has been ongoing debate on the effectiveness of written corrective feedback on the development of implicit and explicit knowledge of language. After Truscott's claim (1996) that Corrective feedback is "ineffective" at best and even "potentially harmful" to students (p.328), insisting that such time and effort should be spent on alternative activities such as additional writing practice, there have been a number of studies which have tried to investigate the effectiveness of corrective feedback based on empirical experiments (Hendrickson, 1978; Semke, 1984; Truscott, 1996, 1999, 2004, 2007).

In his paper, Truscott (1996) claims that corrective feedback should be abandoned because (1) it will be ineffective in cases where the teachers' corrective feedback does not fit to students' developmental sequences, which ignores the nature of interlanguage development; (2) even if it is effective, it is likely to be beneficial only to the development of explicit or metalinguistic knowledge, and it is unlikely to affect students' implicit knowledge or procedural knowledge (e.g., DeKeyser, 2003; Ellis, 2004); (3) the language learning process is not a linear information transfer from teacher to students but a gradual and complex process; and (4) practically, it is not possible for teachers provide adequate and consistent feedback, and it is not certain whether students are able or willing to use such feedback effectively in their learning process (Truscott, 1996, 2007). Furthermore, he adds that in cases where teachers provide

corrective feedback on students' grammatical errors, there is the possibility that students might avoid using such forms so that they come to use only simply-structured sentences instead of more complex ones (Truscott, 2007).

Against Truscott's arguments (1996, 2004, 2007), Ferris (1999, 2004, 2007) defends the effectiveness of corrective feedback on grammatical errors in students' writings, arguing that Truscott's claim is premature since not enough empirical data has been accumulated to determine the effectiveness of corrective feedback on L2 writing. After such debates, there has been an enormous amount of empirical research examining the effects of corrective feedback in L2 writings, even though the conclusion is not yet established.

In addition to this ongoing debate, another growing body of research in L2 writing is on the relative effectiveness of different types of corrective feedback. So far many researchers have investigated the allegedly differentiated effects of implicit and explicit corrective feedback on L2 acquisition in the relation with explicit and explicit knowledge of L2. However, the findings on this topic are not clear either: Some studies have concluded there is no difference (Frantzen, 1995; Robb, Ross, & Shortreed, 1986), others have favored explicit corrective feedback (Bitchener & Knoch, 2010b; Chandler, 2003; Van Beuningen et al., 2008), and the others have found implicit corrective feedback most effective (Ferris, 2006; Lalande, 1982).

Therefore, even though many empirical studies deal with the effectiveness of corrective feedback and/or the relative effectiveness of implicit and explicit corrective feedback, we still cannot be sure whether written corrective feedback is effective to improve students' L2 grammar

or which type of corrective feedback is more effective in the spectrum of implicit and explicit feedback. Despite the enormous amount of research on this topic, there are three limitations in such existing studies. First, not many studies deal with the effectiveness of written corrective feedback on a separate and specific grammar category such as articles that causes problems for many students; second, even though many studies have shown how corrective feedback affects the improvement of accuracy in revisions, few research projects have investigated the effectiveness of corrective feedback in new writing tasks which could provide genuine evidence of learning (Sachs & Polio, 2007; Truscott & Hsu, 2008); and third, not many studies have examined the effect of error logs, a strategy that can be considered as students' effort to intake corrective feedback from the teacher.

When considering the effectiveness of written corrective feedback on a separate and specific grammar category, Truscott (2007) claimed that any single form of corrective feedback cannot be effective for all of the different domains of grammatical categories which are "integral parts of a complex system" (p.258). His argument indicates a possibility that different types of corrective feedback can have different effects on different grammar categories. So in addition to investigating the effectiveness of comprehensive corrective feedback, the effectiveness of corrective feedback on each grammar category with which students have problems, such as articles, needs to be examined. So in this study, the effectiveness of corrective feedback on acquiring articles will be investigated.

According to Truscott & Hsu (2008), students' enhanced performance in revisions is inadequate as evidence learning. Truscott & Hsu (2008) claimed in their paper that students'

enhanced performance in revisions based on corrective feedback only proves that it can be a good editing tool. However, to prove that corrective feedback actually leads to learning, empirical evidence collected from new writings instead of revisions should be provided. Based on the received corrective feedback, students may be able to temporarily show improved performance in the revision process, but this does not necessarily mean that they have acquired such grammatical rules. However new writing tasks where students can use target grammatical rules based on previous corrective feedback can be considered as genuine evidence of learning. Therefore in this study, instead of using revisions, new writing tasks are used in each treatment stage to determine if there is any improvement.

Error logs can be another tool for learning because they give students one more chance to genuinely acquire what they learn from corrective feedback. In fact, error logs used in the current study are in response to Truscott's claim (1996, 2004, 2007) that the language learning process is not a simple linear information transfer from teachers to students. Truscott (1996) argued that since the language learning process is gradual and complex, giving corrective feedback with the assumption that the L2 learning process is a linear information transfer is not effective. Cohen (1987) and Swales (1988) reported that students were reluctant to do any rewriting when they received corrections or had to deal with error correction. In many cases, students did nothing more than make a mental note of the received corrective feedback. This stands in contrast to teachers' belief that students will study their feedback and use it to develop their interlanguage.

Therefore, merely giving corrective feedback to students under the assumption that they will automatically pay enough time and attention to it may be insufficient. Instead, certain



prompts that stimulate students' awareness/noticing should be provided. With such stimuli, students can activate their metacognitive processes and acquire the knowledge delivered via the received corrective feedback. Error logs can support this process. Ferris (2004) advocated "the maintenance of error charts," which can raise students' awareness of their weaknesses as well as their improvement (p.60), even though she could not be sure of their effectiveness or how they may be effective.

Therefore this study, framed within a cognitive perspective of L2 acquisition, carries out a classroom-based quasi-experimental study consisting of pretest, treatment and posttest to investigate the effectiveness of corrective feedback on L2 acquisition of English articles, the effectiveness of keeping error logs, and the relative effects of implicit and explicit corrective feedback on L2 accuracy. By investigating these three topics, the three limitations of existing studies can be improved, and we can have better empirical evidence on (1) the general effectiveness of corrective feedback for acquiring English articles, (2) which type of corrective feedback is more effective for acquiring articles, if there is any difference, and (3) the effectiveness of error logs.

## **CHAPTER 2**

### **LITERATURE REVIEW**

This literature review provides an overview of existing studies surrounding corrective feedback in L2 writing and the acquisition of the English article system. First, an overview of research on various topics surrounding the effectiveness of written corrective feedback focuses on the following topics: (1) the effects of written corrective feedback on accuracy in a general sense, (2) a comparison of research conducted on revisions and new writing tasks, (3) a comparison of research on focused corrective feedback and unfocused corrective feedback, (4) studies which investigate the relative effectiveness of implicit and explicit corrective feedback, (5) corrective feedback as a facilitator of the noticing process, and (6) the effectiveness of error logs. After that, as a second part, existing studies of English article classification and acquisition are examined, explaining why articles are chosen as the focus of this study. This literature review then concludes with the three thesis questions of this study.

#### 2.1 Research into the Effectiveness of Written Corrective Feedback

##### 2.1.1 The effectiveness of written corrective feedback on accuracy in a general sense

As briefly mentioned above, there has been an ongoing debate on the effectiveness of corrective feedback on L2 writing triggered by Truscott's article (1996) which claims that corrective feedback is a waste of time and potentially harmful for L2 learners and provides several strong reasons. After his article was published, a number of empirical studies came out to

support the effectiveness of corrective feedback. These researchers, especially Ferris (1999, 2004, 2007), have actively rebutted his claim by arguing that (1) it is premature to establish any conclusion since the research base is not complete or conclusive; (2) there is some positive research evidence on the effectiveness of corrective feedback on L2 writings; and (3) students have a strong desire to get corrective feedback from teachers.

Indeed, as Ferris (2004) points out in her article, even though “it is premature to establish any conclusion” on the effectiveness of corrective feedback in L2 writing (p. 50), there is considerable empirical evidence showing the positive results of written corrective feedback. For instance, Ashwell (2000), Chandler (2003), and Ferris & Roberts (2001) showed empirical evidence that corrective feedback led students into improved accuracy in revisions. Additional studies more recently conducted by Bitchener (2008), Bitchener & Knock (2008, 2009a, 2009b), Ellis et al. (2008), and Sheen (2007) have also demonstrated that written corrective feedback led to enhanced performance in terms of accuracy in new writing tasks. As Ferris (2004) cautiously claims in her article, even though we cannot draw a firm conclusion from existing empirical research, we can find “some” positive evidence regarding corrective feedback in L2 writing that can “predict” positive effects for L2 acquisition in a general sense (p.50).

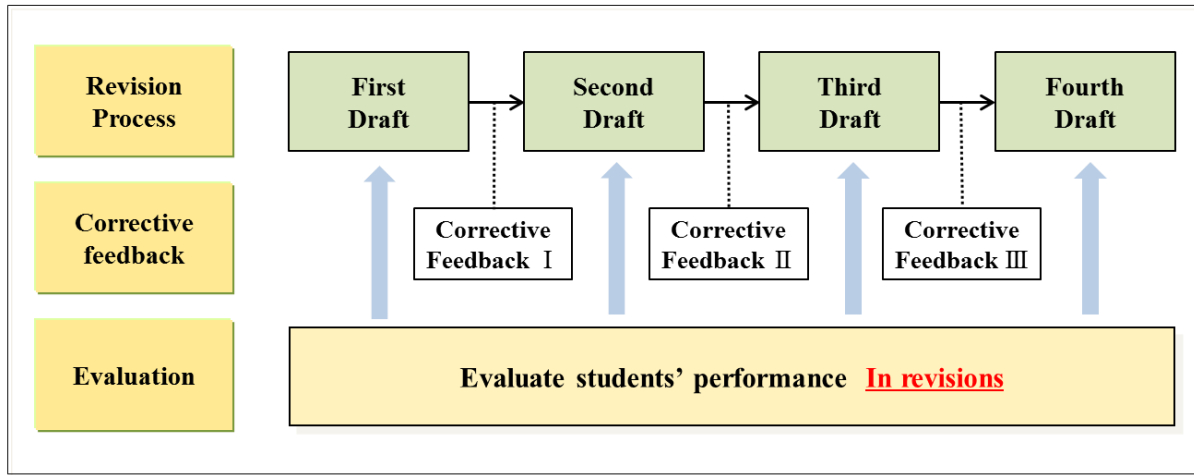
### 2.1.2 Revisions vs. New writing tasks

Admittedly, in earlier studies, the effectiveness of written corrective feedback was mainly investigated in the revision process, with primary focus on revising an early draft to create a newer, and in many cases better version of the writing. However, in response to Truscott’s claim

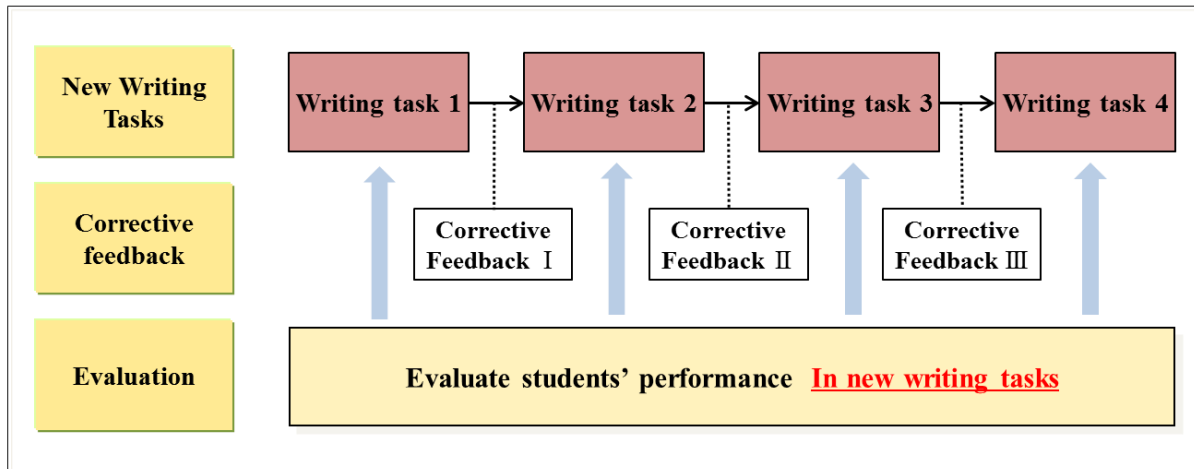
that students' improved performance in the revision process tells us "nothing" about whether such help can make students be better writers in the future, more and more research has been conducted to examine the effectiveness of written corrective feedback in new writing tasks, which can be considered as genuine evidence of learning (Truscott, 1996, p.339). So, when we examine the effectiveness of written corrective feedback, as Van Beuningen et al. (2012) suggest in their study, we should distinguish two different functions of corrective feedback, a useful editing tool and a facilitator of learning, and accordingly we should distinguish between these two different lines of studies.

Among existing empirical studies, we can indeed find a set of studies focused on the role of corrective feedback during the revision process while another group of studies investigates the role of corrective feedback in new writings to answer the question of whether corrective feedback has a learning effect. According to revision research by Ashwell (2000), Ferris (1997), and Ferris & Roberts (2001), students' better performance on revisions based on corrective feedback provided from their teachers can be seen as evidence of improvement in accuracy. These findings, however, only demonstrate that corrective feedback can be considered as a useful editing tool. As Truscott and Hsu (2008) have rightly claimed, these results cannot be considered as evidence of genuine learning, since students' enhanced performance on revisions cannot show whether they are truly acquiring such forms or whether they would then be able to use those correct target forms in a new piece of writing. So, the more meaningful research among these two streams are the studies that have investigated the effects of corrective feedback in new writing tasks.

**Figure 2.1 Diagram of revision process**



**Figure 2.2 Diagram of new writing tasks**



Therefore, more studies have begun to explore the effectiveness of corrective feedback in new writing tasks using pre-test and (delayed) post-test to examine the long-term effects of corrective feedback on L2 writing. More recent empirical studies by Bitchener (2008), Bitchener & Knock (2008, 2009a, 2009b), Ellis et al. (2008), and Sheen (2007, 2010) investigating the long-term effects of corrective feedback in new writing tasks are examples of this line of studies. They use either or both new writing tasks and/or pre- and post-tests to investigate the

effectiveness of corrective feedback as a facilitator of learning, and show positive results. According to Ellis et al. (2008), for instance, groups which received corrective feedback “outperformed a control group,” and the study results “indicate that written corrective feedback is effective (p.353). Similar findings were reported in other studies. In those studies, students who received feedback made fewer errors, even in new writing tasks, than students who received no such corrective feedback and had a greater increase in their post-test scores. Based on such positive results, many researchers conclude that “written corrective feedback is effective,” and “thus strengthens the case for teachers providing written corrective feedback has learning effects” (Ellis. et al., 2008). However, not all the studies in this line of research had positive results. Some studies, such as Kepner (1991), Polio et al. (1998), and Sheppard (1992), failed to find evidence of learning from corrective feedback. Their studies found no significant effects on learning due to corrective feedback in the analysis of new writing tasks. These conflicting findings indicate the need for additional research on this important topic.

**Table 2.1. Summary of research findings: the effectiveness of corrective feedback in revision and new writing tasks**

Research question	Studies and findings
Does corrective feedback help enhance students’ accuracy <i>in revisions?</i>	Yes: Ferris (1997), Ashwell (2000), Fathman and Whalley (1990), Ferris and Roberts (2001), Robb et al. (1986)
	No: Polio et al. (1998), Unclear: Semke (1984)
Does corrective feedback help enhance students’ accuracy in new writing tasks?	Yes: Chandler (2003), Ferris (1995a, 1997), Ferris and Helt (2000), Frantzen (1995), Lalande (1982), Ellis et al. (2008), Sheen (2007, 2010), Bitchener (2008), Bitchener & Knock (2008, 2009a, 2009b)
	No: Kepner (1991), Polio et al. (1998), Sheppard (1992), Cohen and Robbins (1976), Unclear: Semke (1984)

### 2.1.3 Focused vs. unfocused

One noticeable thing regarding these existing studies on the effectiveness of corrective feedback is that many of them investigated the effects of ‘focused corrective feedback’ which targets only one problematic error type (such as English articles as used in this study) as opposed to ‘unfocused corrective feedback,’ which targets all of the errors in students’ writings (Ellis et al.2008).

#### A sample of unfocused feedback

The thesis statement is crucial to an essay. Because it It gives readers a the first idea of what will cover be covered in the essay. A good thesis statement contains two parts: the first part should explains explain the purpose of the essay

*Comment from the instructor: You might want to revise this paragraph to be more coherent*

#### A sample of focused feedback

The thesis statement is crucial to an essay. Because it gives readers a the first idea of what will cover in the essay. A good thesis statement contain two parts: the first part should explains the purpose of the essay

The two samples above show unfocused corrective feedback and focused corrective feedback respectively. Even though ‘unfocused corrective feedback’ is what teachers usually do in their classrooms, Ellis et al. (2008) posited that learners might be able to notice and acquire the received corrective feedback better when they receive corrective feedback on only one

targeted feature, since they have limited processing capacity according to many L2 acquisition models. In essence, this is to say that unfocused corrective feedback may simply be overwhelming for the very students the teacher wishes to help (Bitchener, 2008; Sheen, 2007). In much research on focused feedback, which is a considerable portion of the studies in this field, the results have been positive as well. Studies such as Bitchener (2008), Bitchener & Knoch (2008, 2009, 2010a, 2010b), Ellis et al. (2008), and Sheen (2007, 2010) show that focused corrective feedback has positive effects on students' learning even in new writing tasks. Even now a number of studies are being conducted on these topics, so more and more empirical evidence is being accumulated in this category.

In contrast, little research has been carried out on the effects of 'unfocused' corrective feedback. According to Van Beuningen et al. (2008), just a handful of studies have investigated whether comprehensive corrective feedback has a positive learning effect. Among such studies, two of them (Truscott & Hsu, 2008; Van Beuningen et al., 2008) compared comprehensive corrective feedback to no corrective feedback groups, while two additional studies (Ellis et al., 2008; Sheen, Wright, & Moldawa, 2009) compared focused- versus- comprehensive corrective feedback groups in addition to a control group in their design.

The results of such unfocused corrective feedback are, however, inconsistent. A study by Truscott and Hsu (2008) in which 47 ESL student writings were examined with half of them receiving comprehensive correction and the others being a control group found that even though comprehensive corrective feedback resulted in enhanced performance in revisions, it did not lead to better performance in new writings. On the other hand, Ellis et al. (2008) found that students



showed enhanced performance on new writings in both their focused and comprehensive corrective feedback groups, and thus he concluded that both are equally effective. Moreover, in Sheen et al. (2009), focused corrective feedback was proved to be more beneficial than comprehensive corrective feedback for improved accuracy in new writings. So it is too early to draw any conclusion with regard to the effectiveness of comprehensive corrective feedback.

**Table 2.2. Summary of research findings: the effectiveness of focused and unfocused corrective feedback**

Research question	Studies and findings
Does <i>focused corrective feedback</i> help students produce more accurate written texts? (The effectiveness of <i>focused corrective feedback</i> )	Yes: Ellis et al. (2008), Bitchener & Knoch (2008, 2009, 2010a, 2010b),
	No: Truscott (1996)
Does <i>unfocused corrective feedback</i> help students produce more accurate written texts? (The effectiveness of <i>unfocused corrective feedback</i> )	Yes: Van Beuningen et al. (2008)
	No: Truscott & Hsu (2008)
What kind of corrective feedback between focused and unfocused <i>corrective feedback</i> is more helpful to students in terms of accuracy? (The relative effectiveness of <i>focused and unfocused corrective feedback</i> )	focused: Sheen et al. (2009), Bitchener, (2008)
	unfocused: none
	No difference: Ellis et al. (2008)

Despite many researchers' overall preference for the focused corrective feedback studies, advocates of unfocused corrective feedback argue that despite the considerable amount of research accumulated so far on focused corrective feedback, the study results are not conclusive (Van Beuningen et al., 2008), and that researchers' preference for focused corrective feedback on

targeted linguistic features such as English articles is typical because of its simplicity (Ferris, 2010; Truscott, 2010). They claim that researchers do more studies of focused feedback since it is easy to control, not because it is more effective than comprehensive corrective feedback. Moreover, Xu (2009) claims that such a focus on one or two forms may make students consciously monitor the use of those forms when they use them in the experiments. In that case, we cannot be sure whether they can use them correctly in the future when they are forced to have a focal attention in the target forms. In addition, Ferris (2010) points out that giving focused corrective feedback on students' writings does not resemble the actual teaching practice. Since in actual classroom practice a teacher usually gives corrective feedback on every error of an essay, focused corrective feedback cannot but be considered as an unnatural settings only for the purpose of the research.

Despite such possible disadvantages of focused corrective feedback, focused (selective) feedback can be a good option for teachers since "it is neither necessary nor desirable for a teacher to respond to every problem on every draft of a student essay" (Ferris & Hedgcock, 2005, p.131). And in fact, as Bitchener, (2008) and Sheen (2007) argue, since "L2 learners have limited processing capacity, asking them to attend to corrections that address a range of issues at the same time may tax their ability to process the feedback" (Sheen, 2007, p.278). Therefore in the present study, the effectiveness of focused corrective feedback on English articles will be examined. Admittedly, this research design has the advantage of allowing for greater control of variables, but that was not the reason for the choice of the design.

Given the difficulty that L2 learners have in acquiring English articles, especially Asian

students whose L1s do not use articles, it could be a good opportunity for students to focus on acquiring English articles over a semester. More detailed arguments regarding the English article system, the target form of this study, will follow later in this chapter.

#### 2.1.4 Explicit vs. Implicit

The relative effectiveness of explicit (direct) and implicit (indirect) corrective feedback is one of the most popular topics in L2 writings. In addition to whether corrective feedback is effective or not, many researchers have had interest in “how” it should be given to students. So far there have been many studies conducted on the relative effectiveness of different types of corrective feedback, on exploring different ways to deliver corrective feedback, and corrective feedback types. Most of the studies have categorized the types of corrective feedback from implicit to explicit according to the degree. Even though definitions of each type of feedback vary according to different researchers, in general, explicit corrective feedback is defined as the provision of the correct linguistic form or structure by the teacher, while implicit corrective feedback is defined as feedback which simply indicates to the writer that an error has been made, usually via a symbol or an abbreviation (e.g. ‘vb’ representing an error in the use of verbs) (Ferris, 2003).

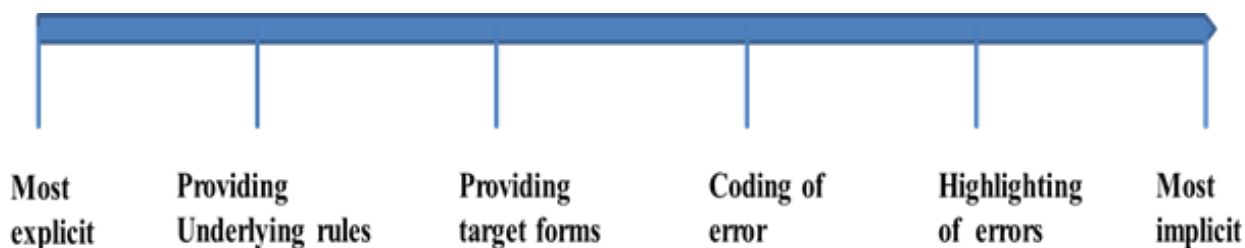
Even though corrective feedback has been categorized into two types in many studies, in practice, corrective feedback can take many different forms and degrees of explicitness. For instance, for implicit corrective feedback, either underlining/highlighting of errors or coding of errors may be used according to the purpose of the study or experimental setting. As long as the

studies share the key element of implicit corrective feedback (they give students the opportunity

**Table 2.3. Samples of implicit and explicit corrective feedback** (Adapted from Lyster & Ranta, 1997)

Type of feedback	Methods	Examples
Explicit corrective feedback	Explicit correction (Providing target forms)	I am eating <del>a</del> apple. (an)
	Metalinguistic feedback (providing underlying rules)	I am eating <del>a</del> apple → “an” should be used before words that begin with vowel sounds (e.g., a,e,i)
Implicit corrective feedback	Highlighting of errors	I am eating <b>a</b> apple
	Coding of errors	I am eating <b>a</b> apple → Error code A: an error in the use of indefinite article.

**Figure 2.3. Continuum of explicit and implicit corrective feedback**



to correct their own errors instead of providing the correct forms of the target language), various methods can be used as implicit feedback. Similar to implicit corrective feedback, various methods can be used to give explicit corrective feedback such as providing the correct forms of erroneous parts or giving explanations of the underlying rules applied to each error. And although their forms might be different, as long as they provide correct forms or rules explicitly, all of them can be considered as explicit feedback.

In many studies of the effectiveness of implicit versus explicit corrective feedback so far, implicit corrective feedback has been found to be more effective to enhance L2 accuracy. This conclusion is based on the argument that learners benefit more from implicit feedback because “it requires students to engage in guided learning and problem solving and, as a result, promotes the type of reflection that is more likely to foster long-term acquisition” (Bitchener & Knoch, 2008, p. 415). On the other hand, other studies support explicit corrective feedback. Chandler (2003) argues that explicit corrective feedback enables students to instantly internalize the correct forms, while students who receive implicit corrective feedback risk correcting their errors inaccurately due to insufficient information and knowledge of underlying rules. Furthermore, according to Ferris (2004), Hyland & Hyland (2006), and Sheen (2007), students need a certain level of linguistic knowledge to be able to correct errors by themselves based on implicit corrective feedback. So for students at lower proficiency levels, explicit corrective feedback might be more beneficial.

In addition to such conflicting arguments on the relative effectiveness of implicit and explicit feedback, a considerable number of empirical studies show no differences between these two treatments, such as Frantzen (1995) and Robb, Ross, & Shortreed (1986). In their studies, they found no significant difference between the two types of corrective feedback in terms of accuracy in students’ revised drafts, so they concluded that the type of feedback makes no difference in effectiveness.

Thus so far, we have mixed results on the issue, with some studies such as those by Ferris (2006) and Lalande (1982) finding implicit corrective feedback is more beneficial, and another

group of research such as Bitchener & Knoch (2010b), Chandler (2003), and Van Beuningen et al. (2008) finding that explicit corrective feedback is more effective, with a third group finding no significant differences between them. So when we interpret such study results, we need to be very careful, and to reach a more definite conclusion, more studies are needed on this topic.

In this study, therefore, the relative effectiveness of implicit and explicit corrective feedback is examined to add one more empirical data point to this topic. The detailed experimental design will be discussed in the following chapter.

#### 2.1.5 Corrective feedback as a facilitator of the noticing process

What is the role of corrective feedback in the L2 acquisition process? There can be various answers for this question. However, among the many possible explanations of the roles written corrective feedback can have in L2 acquisition, one of the most influential is Schmidt's Noticing Hypothesis (Schmidt, 1990; 2001). The concept of noticing combines the two crucial cognitive linguistic notions of attention and awareness (Svalberg, 2007). With the Noticing Hypothesis, Schmidt (1990) argues that "subliminal language learning is impossible, and that noticing is the necessary and sufficient condition for converting input to intake" (Schmidt, 1990, p.129). In other words, Schmidt (1990, 2001) maintains that without noticing there can be no language learning.

In addition to that, another role of noticing is to make learners aware of "a mismatch or gap between what they can produce and what they need to produce, as well as between what they

produce and what target language speakers produce” (Schmidt, 2001, p. 6). In fact, this concept has been referred to as noticing the gap by many researchers other than Schmidt, such as Ellis (1995), even though the terms they use vary according to different studies. And as studies on corrective feedback have accumulated, the notions of corrective feedback and the noticing hypothesis have been combined by considering corrective feedback as a facilitator of the noticing process (DeKeyser, 1994; Han, 2002).

As Hulstijn and Schmidt (1994) claim, such corrective feedback can be considered as a cognitive focusing device for students’ attention. By raising students’ awareness of certain linguistic features such as English articles, corrective feedback enables learners to notice the gaps between their own interlanguage and the target language. Subsequently, the noticing procedure can prompt destabilization and restructuring of learners’ developing interlanguage grammar (Gass, 1997).

#### 2.1.6 The effectiveness of Error logs

Another common tool for L2 writing instructors is to have their students keep error logs based on the feedback they are provided. . According to Ferris (2004), however, there are only handful of studies which “deal with” the effectiveness of error logs (e.g. Ferris, 1995a; Ferris and Helt, 2000; Lalande, 1982), and in addition, their research does not focus on examining the effectiveness of error logs, and naturally no appropriate empirical data are provided. Even though little research has been conducted to determine the effectiveness of using error logs after receiving corrective feedback, it seems logical to connect its effectiveness to the Noticing

Hypothesis (Schmidt, 1990), since the ultimate goal of keeping error logs is to give students one more opportunity to “raise awareness” of the received corrective feedback and intake it better.

A study of error logs might fill a gap in studies of corrective feedback. Since keeping an error log of received corrective feedback forces students to re-examine their interlanguage, the process addresses Truscott’s (1996) critique of the effectiveness of corrective feedback that the language learning process is not merely a linear information transfer from teacher to students; it involves students’ attitudes and efforts as well. Indeed, so far only a few studies such as Cohen (1987), Ferris (1995a), and Swales (1988) have investigated students’ attitudes and usage of corrective feedback. And in such studies, even though students’ overall attitudes towards corrective feedback were positive, some negative reports also surfaced. For example, the study by Cohen (1987) claims that although most students paid attention to their teachers' comments, 20% of students did not. Moreover, most students reported "a limited repertoire of strategies for processing teacher feedback" (p. 65), and they merely "made a mental note" (p. 63) of their teachers' feedback. If Cohen’s findings reflect actual L2 classrooms, something more than merely providing corrective feedback should be devised, since teachers cannot be sure whether students have enough opportunity to notice the correct forms and intake them based on the received corrective feedback. Therefore in this sense, keeping error logs may help students to actually notice and intake the correct forms through corrective feedback.

However, how helpful would keeping error logs actually be for raising students’ awareness? Even though we can ‘predict’ the effectiveness of error logs to be positive in L2 acquisition, we cannot prove it without empirical data. As Ferris (2004) rightly notes in her



article, even though maintaining error logs can be helpful to raise students' awareness, its effectiveness or how it would be effective is not yet known. So in this study, the effectiveness of keeping error logs is examined by having half of participants keep error logs and comparing their test results with those of a control group. Such empirical data can be helpful to address the effectiveness of error logs.

## 2.2 Classification and Acquisition of English Articles

### 2.2.1 The L2 Acquisition of English articles

The English Article system is frequently mentioned in L2 acquisition literature as one of the most difficult areas to master even for those at the most advanced stage and after many years of using the language. This is especially true for language learners whose L1 does not include articles, such as speakers of Chinese and Korean. It is little wonder, then, why DeKeyser (2005) claims articles as “highly abstract notions that are extremely hard to infer, implicitly or explicitly, from the input” (p.5).

### 2.2.2 The difficulty to acquire

There are several reasons why article use is complex. One of the reasons is their “low saliency” (p.76). Even though English articles are used with high frequency since they should be applied to almost every noun, their significance in delivering meanings is low. They are function words, they are short, and even phonetically they are reduced or unstressed in phonetic valleys.

So in many cases, students do not pay much attention to them in their written or oral L2 production. As one of my own students, “Andy,” mentioned,

When I use articles, I just put ‘the’ without thinking... I know it is not ok but I cannot think them too much because I am busy thinking about other things [when I work on my writings.]

As illustrated in this interview with a student, when students work on their writings, they tend to be too busy focusing on the contents to think about the correct use of English articles. So even with the widespread use of English articles, the misuse of them is often considered as local errors, not global errors, since they usually do not hinder understanding the overall meaning of the sentence. Therefore students often neglect errors in English articles, which prevents them acquiring English articles properly (R. Ellis, 1994b).

Another reason that many students find articles a challenge is the complexity and low reliability of the rules they use, at least from their perspective. Even though the rules applied to the use of articles are reliable and predictable, many students find them mystifying due to their complexity. This complexity, according to Hulstjin and de Grad (1994), falls into two categories. First article rules have a large scope of application, since they should be applied to almost all nouns, and second, the rules may not seem reliable from students’ perspective because there are so many variables to consider in every context. For instance, it is very common for students at beginning to intermediate levels to think of only indefinite articles such as ‘a’ or ‘an’ or definite article such ‘the,’ which are relatively easy when they think about English articles. However in

terms of the use of articles, the hardest part is using zero articles. In the use of zero articles, writers must consider rules about plural nouns, mass nouns or abstract nouns which nullify the simple rules about how definite and indefinite articles should be applied, so there is no wonder why some students feel the rules of articles are “not reliable” and “too difficult.”

A further reason for the difficulty of mastering English articles is the different ratio of use in oral and written production. According to a corpus-based study by Leech et al. (2001), there is a difference between the written and spoken use of indefinite and definite articles. According to Leech, 20% fewer indefinite articles are used in oral production compared to written production, while only half the amount of definite articles are used in oral production compared to written production. This means that students cannot learn how to use English articles properly in academic writing through conversation in their daily lives. To use English articles properly in writings, especially in academic writings, students need to expose themselves to written input, but the difference between the written and oral input they get makes acquiring the English article system even harder for students.

### 2.2.3 The use of the English article system by Chinese and Korean learners of English

#### 2.2.3.1 The use of the English article system by Chinese students

Since the majority of the students participating in this study were Chinese (22 students out of 25), knowledge about the common tendencies of English article usage of Chinese students can be very helpful. According to Robertson (2000), the most common error of Chinese students

in the use of English articles is simply omitting them. This research shows that only “an overall rate of 78% suppliance of articles in contexts where a native speaker would use the definite or indefinite article” (p.135). The same tendency Robertson (2000) found coincides with the analysis in this study as well. The most common error found in the analysis of English articles in this study was omission. In an interview with a Chinese participant “Huan” in the current research, such a tendency was also mentioned.

...when I write something in English, of course, I try to use articles correctly. But if I don't know what I should use, I just don't use... since other things are more important so I cannot think about articles too much...

Because of this tendency, Robertson (2000) infers three systematic rules that Chinese learners have in their interlanguage: 1) a syntactic principle of ‘determiner drop’, whereby an NP with definite or indefinite reference need not be overtly marked for [ $\pm$  definiteness] if it is included in the scope of the determiner of a preceding NP; 2) a ‘recoverability’ principle, whereby an NP need not be marked for [ $\pm$ definiteness] if the information encoded in this feature is recoverable from the context; and 3) a ‘lexical transfer principle’, whereby some of these learners are using demonstratives (particularly this) and the numeral one as markers of definiteness and indefiniteness respectively (p. 150). These three rules by Robertson (2000) explain the very specific patterns of errors many Chinese students make in the use of articles.

However, such rules of their interlanguage cannot explain all of the article use or misuse

of Chinese students. Another tendency of Chinese students in the use of English articles is inconsistency (Robertson, 2000). In the same contexts, students were observed to use articles sometimes while omitting them at other times. Therefore even though some errors in the use of articles can be attributed to an interlanguage system that is heavily affected by a native language with no equivalent article system, such inconsistency in the use of articles shows that more evidence is needed to explain the use of articles by Chinese students (Robertson, 2000). Robertson's (2000) view is that inconsistent use of English articles is due to the difficulty of applying the correct rules from the surface features of definiteness and referentiality, meaning that it is hard for Chinese students to naturally pick up the rules of articles from their daily conversations, so they need certain help to facilitate their acquisition.

#### 2.2.3.2 The use of the English article system by Korean students

Few studies have examined the use of the article system by Korean students. However, those that do indicate that their English article usage is not much different from that of Chinese students. Lee (1998), for example, found that Korean students also omit articles in many contexts, add articles in an unnecessary contexts, and misuse articles of 'a/an' and 'the' in wrong contexts (Lee, 1998). However the most noticeable phenomenon observed among Korean students is the overuse of definite articles (Thomas, 1989). As with many other L2 learners, Korean students tend to over-generalize their usage of the definite article 'the,' tending to use it in referential indefinite contexts as well as in front of non-referential contexts (Thomas, 1989, p.335).

This analysis of the use of articles by Chinese and Korean students provides useful

insight into the patterns of usage by the participants in this study, which can lead to a better prediction and a better study design.

#### 2.2.4 Classification of English articles

To learn such a difficult system, establishing an appropriate classification of English articles is crucial. The classification determines which rules apply, so it's clarity and accuracy that will eventually determine the success or failure of students' acquisition of English articles. However, the classification of English articles is not uniform or simple. There is a broad categorization of the English article system instead of one 'fixed' category. And among many, there are three major approaches in classification models. First, learner-oriented classification models such as Huckin & Olsen's model (1991), second, linguistic-theory-based classification such as Huebner (1979) and Bickerton (1975), and for the last, there are pedagogically focused classification models such as Master (1990) and Celce-Murcia et al. (1999). Even though learner-oriented models and linguistic-theory-based models hold good points, they have disadvantages for this study. First, even though the learner-oriented models are the simplest and can be beneficial to students at beginning levels, they are too simple to distinguish different usages of English articles in various contexts. And although linguistic-theory-based models provide conceptual models including all article usages, they are too complicated and even ambiguous in certain contexts. Therefore neither of them is suitable for L2 learners.

The most suitable classification we can rely on is a pedagogical classification, which emphasizes teach-ability. Even though this type of classification overlaps with other types of

classification, especially with linguistic-theory-based models, the main purpose of pedagogical classification is to provide teachers and students with comprehensive explanations about usage for education. The Grammar Book (1999), one of the most popular grammar books in the traditional sense, provides the English article system classification created by Christopherson (1939). It contains almost every category of English articles like a dictionary and provides a complete set of explanations about article usage.

However, there is an alternative pedagogical classification developed by Master (1990). Unlike other dictionary-like pedagogical classification models, Master (1990) offers a different pedagogical model of the article classification which is more simplified and provides a more straightforward rule that may be applied to article usage in the greatest number of instances (Master, 1990). He proposes a single binary schema for L2 learners which re-arranges English articles into a single ‘classification/identification’ distinction. Master (1990) claims that this single binary system meets psychological and educational criteria much better than descriptive pedagogical models based on formal linguistics since it allows for a ‘one form/one function correspondence’ by identifying given noun phrases and classifying new noun phrases (Master, 1990). Master’s classification model by the single binary system is shown in Table 2.4 below.

One noticeable fact about Master’s classification is, however, that he excluded article usage with proper nouns and idiomatic distinctions from his 1990’s model, but in a modified version (Master, 2002), the distinction between the zero article ( $\emptyset$ ) and the null article (which describes different uses of zero articles related to the indefinite article ‘a/an’ and the definite article ‘the’ in different environments) were included. However, the effectiveness of such a

distinction between zero articles and null articles in the pedagogical sense is not certain. And that is why some modification of this model is necessary for this study.

**Table 2.4. Categories within the (single) binary system (Master, 2000, p.336; modified from Master, 1990, p.471)**

Classification [ <i>a</i> , Ø1]	Identification [ <i>the</i> , Ø2]
<i>Count/Noncount</i> a book; Ø1 books/ Ø1 wine	<i>Count/Noncount</i> the book; the books/the wine
<i>First mention</i> a photograph	<i>Subsequent mention</i> the photograph
<i>Descriptive adjectives</i> a first step a best man an only child	<i>Ranking adjectives</i> the first step the best film the only chance
<i>Defining relative clause</i> a car that gets 50 mpg	<i>Limiting relative clause</i> the car that won the race
<i>Partitive of-phrase</i> a cup of coffee a temperature of 212 degrees	<i>Descriptive of-phrase</i> the diameter of a circle the temperature of the sun
<i>General characteristics</i> A squirrel (has a tail) Ø1 Squirrels (have a tail)	<i>Generic the</i> The squirrel (is becoming a pest.)
<i>New knowledge</i> a moon a catastrophe	Shared (given) knowledge the moon the catastrophe
<i>Classified proper nouns</i> a Mr. Jones (to see you)	<i>Identified proper nouns</i> the Mr. Jones (you met last night)
<i>Idiomatic phrases</i> have a cow; eat Ø1 crow	<i>Idiomatic phrases</i> rise to the occasion

One more thing we should notice when we talk about the classification of English articles is that within the framework of the classification developed by Master (2002), the usage of English articles can be also explained as individual English users' choices in specific situations



rather than predetermined by the fixed framework of the English article system. Understanding the limitations of English article classification and the availability of choices can lead learners to a better use of English articles in specific contexts. That is why Master (2002) also spent so much time and text in his article to explain variables that can differ according to different contexts. In fact, one of disadvantages of the pedagogical classification of English articles with comprehensive explanations is the tendency to easily overlook the context-dependent nature of the English article system.

#### 2.2.5 English Articles Classification used in the current study

Among these various classification options, for this study Master's classification list is adapted and modified as seen in the table 2.5 below. However, the errors examined in the current study were not strictly restricted to such lists but varied according context, considering the context dependent nature of English article system.

**Table 2.5. English article usages targeted in the current study Usage Examples. (adapted from Akakura (2009))**

1 Non-generic indefinite <i>a/an</i>	She enjoys <b>a</b> glass full of tea every morning. It was <b>an</b> exciting party.
2 Non-generic definite <i>the</i>	Suddenly, <b>the</b> old lady burst into tears.
3 Generic <i>a/an</i>	Please remember <b>a</b> fire exit should be used only in an emergency.
4 Generic <i>the</i>	Did you know that <b>the</b> rich are more economical?
5 Ø for generalizing about plural and mass nouns	Ø <b>Strange sounds</b> always bother me
6 Ø for numbers	There were Ø <b>three reasons</b> for that.
7 Ø for genres that economize	A newspaper headline says; “President appoints Ø <b>new director</b> ”
8 Ø for abstract concepts	He was filled with Ø <b>happiness</b> .
9 Ø for names	Ø <b>Sarah</b> is not afraid of heights.

## Research Questions

Based on existing research accumulated in this field so far and framed within a cognitive perspective of L2 acquisition, the present study will examine and answer three research questions as described below:

Thesis questions:

- (1) Does corrective feedback on articles have an effect on the development of implicit and/or explicit knowledge of English articles?
- (2) Which type of corrective feedback is more effective for L2 acquisition?
- (3) Is keeping error logs helpful in the development of explicit and implicit knowledge of the L2? Does it make any differences in the noticing process?
- (4) Which method of providing corrective feedback among the four different methods presented in this study is most effective in enhancing L2 accuracy?

## **CHAPTER 3**

### **METHODOLOGY**

In this chapter instructional setting, participants, overview of study design, data collection, procedure, and data analysis are described. Even though there have been a considerable number of studies on this topic over the decades, many of the existing studies have been considered to be insufficient to prove either the effectiveness or ineffectiveness of corrective feedback due to flawed research design (Ferris, 2004). The most common criticisms in terms of research design on the topics related to corrective feedback are as follows:

- 1) There are not many longitudinal studies,
- 2) There is no control group involved in a number of the existing studies,
- 3) Many of the existing studies investigated the effectiveness of corrective feedback in the revision process, which cannot be understood as genuine evidence of learning, and
- 4) Many of the existing studies have been conducted in a vacuum and so are not replicable (Ferris, 2004; Truscott, 1999, 2007).

For this study, however, the limitations of previous studies were largely eliminated. First, this study was conducted over a 15-week- long semester so it can be considered as “longitudinal” (i.e. Ferris (2004) categorized a 10-week study as longitudinal (p.52)). Secondly, this study employed a control group in terms of error logs: to examine the effectiveness of error logs, one (experimental) group used error logs, and one group made no use of such logs (control). Thirdly,

this study investigated the effectiveness of corrective feedback in new writings instead of on subsequent drafts of the same paper. Fourth, this study is replicable since it was conducted as a part of an existing curriculum of an existing program. It was not a study designed for one-time research but merged seamlessly with the existing curriculum of an existing program. So it can be said to be more replicable than other existing studies.

With its considerably improved research design, this study will hopefully provide meaningful empirical data on the topic of the effectiveness of corrective feedback.

### 3.1 Instructional Setting

This study was carried out in the ESL service courses of the University of Illinois at Urbana-Champaign. These courses are designed exclusively for international students who are non-native speakers of English. Since international students are often not familiar with college-level academic English, this program is designed to help undergraduate and graduate students to improve their academic English up to the level that is expected in their major fields of study. In this program, ESL114 and ESL115 (both for undergraduates) and ESL500 and ESL501 (graduate level courses) are offered. These classes are level-differentiated, so ESL114 and ESL500 are for lower-level students while ESL115 and ESL 501 are for higher-level students<sup>1</sup>.

In order to register for one of these courses, students are required to take the English

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<sup>1</sup> For more information about the program or each course, visit the website:  
<http://www.linguistics.illinois.edu/students/esl/>

Placement Test (EPT)<sup>2</sup> and, according to their test result, they are placed in a class which fits to their English proficiency level. In the test, students are asked to write an essay in response to a given prompt, usually involving a controversial issue. After the test, students' essays are graded by raters, usually the instructors of the ESL service courses, based on how well they logically structured their essays, used appropriate evidence, and expressed their ideas. Even though students usually have one more chance to adjust their class level based on the result of a diagnostic essay after the semester begins, they are basically placed in a class based on the test results of the EPT. To graduate from the University of Illinois, students need to fulfill this ESL writing requirement, and in case a student is placed in a lower-level class, they have to take the two course sequence to successfully complete their ESL requirement.

In this study, the participants were from ESL115, "Principles of Academic Writing," the higher level of the two ESL writing classes offered for international undergraduate students.

Once students are placed into ESL115, they have 50-minute lessons three times a week for one

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<sup>2</sup> The UIUC English Placement Test (EPT) is used to assess English ability of newly admitted international students as validated against the English language demands of our campus. Newly admitted UIUC international students are required to take the EPT according to their pre-arrival scores on either of two international ESL tests: TOEFL or IELTS. The EPT will usually be given during the week before registration each semester. It consists of two parts: a written test and an oral interview. The writing test lasts about a half-day and requires students to produce an academic essay based on the information obtained from a reading passage and a short lecture. During the half-day test, an oral screening measure is also administered. At the oral screening, students are given a topic on which to speak for three minutes. If students speak intelligibly, they will be exempted from further oral testing. Otherwise, students will be required to take another oral exam scheduled at a later time (typically, the same afternoon as the written test). Students will be able to register for the appropriate ESL course when they receive their EPT results. (Website: <http://www.linguistics.illinois.edu/students/placement/>)

semester in a designated computer lab. All of the writing tasks and lessons are conducted using computers through the online course website, and all course assignments and feedback are given electronically. In class students are introduced to various strategies of academic writings such as PIE structure<sup>3</sup>, paraphrasing, writing conventions such as APA style, and are asked to write various types of academic essays such as a diagnostic analysis essay and a Guided Research Paper. Among various writing tasks students are required to complete for this course, the seven most important are listed in the table below.

**Table 3.1. Seven major assignments required for ESL115.**

Assignments	length	Used in this study
Diagnostic Essay Analysis	2-3 pages	✓
Pre-research Portfolio	1 page	
First reflective essay	1-2 pages	✓
3 annotated bibliographies for Guided Research Paper	3-4 pages	✓
3 annotated bibliographies for Individual Research Paper	3-5 pages	
Guided Research Paper	3-5 pages	✓
Individual Research Paper	5-7 pages	
Second reflective paper	1-2 pages	

<sup>3</sup> PIE structure refers to a body paragraph structure with point (topic sentence), illustration, and explanation, which is taught in ESL courses to help students organize their body paragraphs better.

And as shown in the table above, among the seven major assignments required for ESL115, four assignments were used for this study. Although the main focus of the course is on writing, students also work on the improvement of their reading, listening, and speaking skills through classroom activities and assignments. More detailed information about the course, including detailed syllabus and time schedule, is attached in Appendix A.

One thing noticeable about this course, however, is that even though the main goal is to improve students' general writing skills, students do not have any grammar instruction except for the corrective feedback they receive from instructors on the grammatical errors of their writing assignments. But even for that, the majority of corrective feedback is usually focused on the content of writing, not on grammar. So we can say that students enrolled in ESL115 are not exposed to systematic grammar instruction.

### 3.2 Participants

The participants in the study were initially 28 undergraduate students (16 male students and 12 female students) from two intact ESL115 courses. They were all placed in the classes based on their performance on the EPT or on their completion of ESL114, so their proficiency level was similar: from low intermediate to high intermediate. The participants were divided into two groups according to their class sections: one group was taught by the teacher-researcher of this study, while the other group was taught by a teaching assistant with the same culture and language background and approximately the same amount of teaching experience. Both groups received corrective feedback from the teacher-researcher, but only the first group taught by the



teacher-researcher was asked to keep an error logs. After the participants were divided into two groups, each group was randomly subdivided into two more groups as we can see in the table below.

**Table 3.2. Groups of Participants.**

	Class 1 (taught by the teacher-researcher)		Class 2 (taught by a teaching assistant)	
	Group A (6 students)	Group B (7 students)	Group C (6 students)	Group D (6 students)
Error Logs	✓	✓		
Implicit/Explicit corrective feedback	Implicit	Explicit	Implicit	Explicit

As we can see in Table 3.2, groups A and C received implicit corrective feedback, and groups B and D received explicit corrective feedback. Only students in Class 1, taught by the teacher-researcher, were asked to keep error logs.

The students in both classes were all undergraduates with ages ranging from 18 to 21, ranking from freshmen to juniors, and with various majors. They all came from China and Korea, and most of them were recent arrivals, with more than 80 % of them having less than 2 years of experience in the US, and only three having more than 3 years of US experience. Their proficiency level spanned from low intermediate to high intermediate, with TOEFL scores ranging from 80 to 103 (IBT), though (as discussed later) high TOEFL scores did not necessarily correlate with high performance in pre/post-test or writing tasks. When asked about their English learning experiences, they all answered that they had studied English more than 5 years, with

study amounts ranging from 5 to 15 years with 6.4 years of English grammar education on average. Most of them, more than 80%, answered that they had primarily studied English in their country of origin, and more than 80 % of the students answered that they are confident in their English grammar and in using English articles properly. More detailed background information on the participants including more information about their previous language learning experience was collected through an online survey at the beginning of the semester and presented in Appendix B.

### 3.3 Overview of Study Design

The study was quasi-experimental with participants from two intact classes of ESL courses. It was designed to analyze four new writing tasks, corrective feedback from the instructor, error logs (for one class), and pre and post-tests, and was carried out over 10 weeks during one semester. By examining 4 different types of academic essays and error logs from one group of students under two different experimental conditions, i.e., receiving implicit corrective feedback in group A and explicit corrective feedback in group B, keeping error logs or not, the teacher-researcher tried to examine the effectiveness of corrective feedback, the relative effectiveness of implicit and explicit feedback and the effectiveness of error logs.

The four writing tasks used for this study were all major graded assignments. Although time was spent on these essays in class, by design there was not sufficient time to complete the tasks in class, so the students completed them as homework. All writing tasks and any kind of feedback from the instructors including corrective feedback on articles or error logs were given

and received electronically, and all of the class sessions were held in a computer lab. The Pre-tests, post-tests, and surveys for students' background information were conducted online as well. Only the participant interviews at the end of the semester were not conducted online, and took place face-to-face in the teacher-researcher's office.

For this study, as mentioned above, students were divided into four groups of A, B, C and D. (see Table 3.2). Students in group A were asked to 1) write four essays (diagnostic analysis essay, reflective essay, 3 annotated bibliographies for Guided Research Paper, and Guided Research Paper), 2) receive implicit corrective feedback on each writing task, and 3) submit four error logs right after receiving corrective feedback. Students in group B were asked to 1) write four essays, 2) receive explicit corrective on each writing task, 3) submit four error logs right after receiving corrective feedback on each essay. Students in group C were asked to 1) write four essays and 2) receive implicit corrective on each writing task while students in group D were asked to 1) write four essays and 2) receive explicit corrective on each writing task. So the difference between groups A & B and groups C &D was whether they kept error logs or not. Since examining the effectiveness of keeping error logs was one question the teacher-researcher tried to answer with this study. The different tasks according to groups are summarized in Table 3.3 as below.

Regardless of their group's placement, all participants were asked to take a pre-test and background information survey at the beginning of the semester, and to take a post-test and a self-report survey at the end of the semester. In addition, eight students were randomly chosen from each group to interview with the teacher-researcher during individual conferences

scheduled for the course. The interview was less than 30 minutes for each student. The following table shows the data collection procedure for all the four groups.

**Table 3.3. Summary of group tasks.**

	Error Log Group		No Error Log Group	
	Group A	Group B	Group C	Group D
Diagnostic Analysis Essay (Writing task 1)	✓	✓	✓	✓
Corrective feedback 1	Implicit	Explicit	Implicit	Explicit
Error Log1	✓	✓		
Reflective Essay (Writing task 2)	✓	✓	✓	✓
Corrective feedback 2	Implicit	Explicit	Implicit	Explicit
Error Log2	✓	✓		
Annotated Bibliographies (Writing task 3)	✓	✓	✓	✓
Corrective feedback 3	Implicit	Explicit	Implicit	Explicit
Error Log3	✓	✓		
Guided Research Paper (GRP) (Writing task 4)	✓	✓	✓	✓
Corrective feedback 4	Implicit	Explicit	Implicit	Explicit
Error Log4	✓	✓		

**Table 3.4. Data Collection Procedure.**

Date	Data Collection	
	With Error Log (Group A & B)	Without Error log (Group C & D)
Jan 23 (Wed)	Students answer needs analysis/Background information (survey)	Students answer needs analysis/Background information (survey)
Jan 30 (Wed)	Pre-test	Pre-test
Feb 6 (Wed)	Students submit Writing task 1 (Diagnostic analysis Essay)	Students submit Writing task 1 (Diagnostic analysis Essay)
Feb 13 (Wed)	Corrective Feedback 1 Students receive the first feedback on Diagnostic analysis Essay electronically	Corrective Feedback 1 Students receive the first feedback on Diagnostic analysis Essay electronically
Feb 20 (Wed)	<i>Students submit the first error log</i>	<i>No treatment</i>
March 6 (Wed)	Students submit Writing task 2 (Reflective Essay)	Students submit Writing task 2 (Reflective Essay)
March 13 (Wed)	Feedback 2 Students receive the second feedback on Reflective Essay electronically	Feedback 2 Students receive the second feedback on Reflective Essay electronically
March 20 (Wed)	<i>Students submit the second error log</i>	<i>No treatment</i>
March 27 (Wed)	Students submit Writing task 3 (Annotated Bibliographies for GRP)	Students submit Writing task 3 (Annotated Bibliographies for GRP)
April 3 (Wed)	Corrective Feedback 3 Students receive the first feedback on Annotated Bibliographies for GRP electronically	Corrective Feedback 3 Students receive the first feedback on Annotated Bibliographies for GRP electronically
April 10 (Wed)	<i>Students submit the third error log</i>	<i>No treatment</i>
April 17 (Wed)	Students submit Writing task 4 (Guided Research Paper)	Students submit Writing task 4 (Guided Research Paper)
April 24 (Wed)	Feedback 4 Students receive the second feedback on Guided Research Paper electronically	Feedback 4 Students receive the second feedback on Guided Research Paper electronically
April 29 (Mon)	<i>Students submit the fourth error log</i>	<i>No treatment</i>
May 1 (Wed)	Post-test/Survey	Post-test/Survey
April 24- May1	Interviews	Interviews

### 3.4 Data Collection

Data for the current study came from four types of student essays (diagnostic analysis essay, reflective essay, annotated bibliographies, and Guided Research Paper), error logs, verbal reports in interviews, and survey questionnaires on student background information and their impressions of the whole procedure. In addition, a pre-test and a post-test on articles were also given to examine the effects of the procedure. The following sections will give a detailed description of each data source.

#### 3.4.1 Student Essays

One of the major sources of data for this study was the four essays that students wrote as course requirements (Diagnostic analysis essay, Reflective essay, Annotated bibliographies, and Guided Research Paper). Since these essays were course requirements, their main purpose was not for this study but for assignments to fulfill the requirements of the course. Corrective feedback was given to students' final draft of each assignment, which was graded, but after receiving corrective feedback, students were not required to revise their draft. Instead, students in the error log group were asked to keep an error log based on the feedback (see Table 3.2). Therefore at each stage of the study, a new writing task was used instead of revision drafts to examine the genuine effectiveness of corrective feedback in the learning process. Once submitted to their instructors, all essays were collected and examined by the teacher-researcher to analyze students' usage of articles. Article usage in each paper was coded for the following data:

- 1) the total number of articles included in the essay
- 2) the total number of article errors in the essay
- 3) the number of indefinite articles of ‘a/an’, definite articles of ‘the’, and zero articles respectively included in the essay.

Since the type and the length of each essay was different, the percentage of errors was calculated and compared to the total number of articles included in an essay to compare the results with those of other students.

#### 3.4.2 Written Corrective feedback

On each essay, students received either implicit or explicit corrective feedback on article errors according to their randomly assigned group (see Table 3.2, earlier in this chapter). In this study, four essays were used, so students received corrective feedback four times in total. (see Table 3.1). As shown below, explicit feedback was given to groups B and D, providing the students with the correct form via the Track Changes feature of Microsoft Word™.

Explicit corrective feedback: providing correct forms.

Example 1: Explicit corrective feedback

~~On~~ in the media, only slim body images were exposed.

Group A and C received implicit feedback. For implicit feedback, the erroneous parts

were only highlighted without any explanation or corrections, as shown below. So, students who received implicit feedback needed to figure out correct forms or underlying rules by themselves.

#### Implicit corrective feedback: highlighting errors

Example 2: Implicit corrective feedback

On media, only slim body images were exposed.

Students' sample essays with both explicit and implicit corrective feedback may be found in Appendix C.

The procedure for providing corrective feedback was as follows. First, all of the essays were collected electronically by the teacher-researcher. Then the teacher-researcher analyzed all the articles included in the essays, marked the erroneous ones, and put the correct forms right after the erroneous parts using the track change function in Microsoft Word. Following this, according to the group a student was in, the teacher-researcher changed corrective feedback into implicit or explicit forms. In the case of explicit corrective feedback, no more changes were needed. However in the case of implicit corrective feedback, the teacher-researcher left only the highlighted erroneous parts and deleted the correct forms which were included when the teacher-researcher analyzed the text. After that, the essays were electronically returned to students with implicit or explicit corrective feedback and brief instructions regarding what to do after receiving the feedback.

After receiving implicit or explicit corrective feedback from the teacher-researcher, the students were asked to read all the received corrective feedback first. The students in groups A



and B were additionally asked to keep an error log for all the corrective feedback they received. So within a week after they received their corrective feedback, the students in groups A and B electronically submitted copies of their error logs to the teacher-researcher. Students in groups C and D were not asked to do anything other than read the corrective feedback they received, since they were considered as a control group in terms of the effectiveness of error logs.

By providing implicit and explicit corrective feedback to students and analyzing their subsequent article usage, 1) the effectiveness of corrective feedback on articles in general was examined, 2) the relative effectiveness of implicit and explicit corrective feedback on articles was examined, and 3) the effectiveness of error logs could be examined. Because new writing tasks were used at each stage in this study, lowering in the percentage of article errors over time should be evidence of learning through corrective feedback for the pertinent groups. In addition, by comparing the learning effects of the implicit and explicit groups, we could possibly determine which type of corrective feedback is more effective. By comparing the learning effects of the error log group and a control group, we could also comment on the effectiveness of error logs.

### 3.4.3 Error logs

The third data source for this study was the error logs kept by students in groups A and B after receiving corrective feedback over four writing assignments. In error logs, which were to be submitted within a week after receiving corrective feedback, students were asked to write:

- 1) The erroneous part,
- 2) Why the student made such a mistake,
- 3) The correct form,
- 4) The reason it should be corrected in that way,
- 5) Why the student thinks that he/she made such a mistake

The fifth question asked the students whether each error was accidental even though the student knew the underlying rules, or whether the error was made because the student did not know the correct target form. (see Appendix D for a sample error log). By keeping this error log students had one more chance to notice the gap between the correct target form and their interlanguage, and their conscious attention was drawn to input of correct forms, as Schmidt (1990) advised in his paper.

For the students in the implicit groups, however, the correct target forms of the erroneous parts were not provided, so they needed more time and effort than the explicit groups to develop conscious attention input with the corrective feedback they received, even though they could notice that there was a gap between the correct target form and their interlanguage. Up to now, the effect of the additional time and effort required of students in the implicit groups was not well known, and that is one of the reasons for the conflicting results of existing studies of the relative effectiveness of implicit and explicit corrective feedback. In addition, few studies have investigated the relative effectiveness of implicit and explicit corrective feedback in connection with error logs. From that perspective, this study could be meaningful for determining whether, and possibly how, error logs are effective in relation with the noticing hypothesis (Schmidt, 1990)

as Ferris (2004) mentioned in her article.

#### 3.4.4 Pre-test/post-test

Students were asked to take an online pre-test at the beginning of the semester and an online post-test at the end of the semester. These consisted of a grammar test containing a number of a grammaticality judgment items (part 1) and a metalinguistic knowledge test (parts 2 and 3) adapted from Akakura's dissertation (2009). Both the pre-test and post-test were taken online in class and without time limitation so that students could have as much time as they needed, but most students finished the test within 30 minutes. Comparing the results of the pre- and post-test provided data to analyze 1) whether their ability to use articles had improved (by part 1), and 2) whether their ability to identify the underlying rules improved (by parts 2 & 3). The table below shows detailed information of the test used in this study.

**Table 3.5. Test Characteristics. (The format was adapted from Ellis 2005a p152)**

Type of the test	Part 1	Part 2	Part 3
	Grammaticality judgment test	Metalinguistic knowledge test	
Items	20 items (10 grammatical items/ 10 ungrammatical items)	10 items (all ungrammatical items)	5 items (all ungrammatical items)
Time available	Unrestricted	Unrestricted	Unrestricted
Primary focus on attention	Form	Form	Form
Use of metalinguistic knowledge	To some extent	Yes (rule-stating) To some extent (correction)	Yes (rule-stating) To some extent (correction)

In part 1, the grammaticality judgment test, students were asked to answer 20 questions containing 10 grammatical items and 10 ungrammatical items. For each item, students were asked to judge whether the underlined portion of the sentence was grammatically correct or incorrect to measure their ability to use articles in specific contexts, as seen in the sample question below:

Example 1: Sample item for the grammaticality judgment test (Part 1)

One of the famous birds of the US is the bald eagle

- (1) Not correct
- (2) Probably not correct
- (3) Probably correct
- (4) Correct

One thing noticeable about the questions in part 1, as shown above, is that these items could also measure students' confidence level since "the confidence assessment measure" was incorporated within the judgment scale (Akakura, 2009, p.130). If the sentence is grammatical, students must check either 'correct' or 'probably correct' according to their level of confidence, while if the sentence is not grammatical, students must check either 'not correct' or 'probably not correct.' By measuring the level of confidence, the teacher-researcher could obtain more accurate information about students' ability to use articles in specific situations.

Parts 2 and 3 in the pre- and post-tests comprised the metalinguistic knowledge test. In part 2, students were given 10 sentences containing an article error in the underlined part and

asked to correct the error in each item. A sample item from part 2 is shown below.

Example 2: Sample item for the metalinguistic knowledge test (Part2)

I went to a flower shop. There were many flower in the shop window.

Correct the error. [                    ]

Part 3 was the “rule-stating section” in which students were given five sentences with an erroneous part in them and asked to write why they were erroneous and how they should be fixed. When students wrote their answers for these questions, however, they were not required to use metalinguistic terminology such as “noun” or “zero article.” A sample of items of part 3 is shown below, with the sample student answers in italics.

Example 3: Sample item for the metalinguistic knowledge test (Part3)

There were many flower in the shop window.

**You need to...** *use the plural form of the noun 'flowers'*

**because...** *'many' indicates that there's more than one flower.*

After each item included in the test, there was an additional question asking how they had decided upon the answer, with the students choosing between ‘by feel’ or ‘by rule.’ In the instructions, students were asked to click ‘by feel’ in case they knew the answer immediately, just by reading the sentence, or if they did not decide immediately but nevertheless did not rely on any grammatical rule to make their judgment. On the other hand, they were asked to click ‘by rule’ in case they did not decide immediately but relied on a grammatical rule to make their judgment. With this information, we can know better whether the students used procedural

knowledge or declarative knowledge to solve the test questions and how corrective feedback changed the proportion of procedural and declarative knowledge in the use of articles over time.

### 3.4.5 Survey/Interview

In this study, two surveys and interviews were also used as supplementary data sources. At the beginning of the semester, a background information survey was conducted (see Appendix B), while at the end of the semester, a survey for students' self-reporting about the effectiveness of this study was conducted (see Appendix E). In addition to these two surveys, at the end of the semester interviews were conducted with eight randomly chosen students, two students from each group. (see Appendix F.) In the background survey, students' culture and language background as well as language learning experiences were collected, and in the self-reporting survey and the interviews, students' self-reporting about their learning experiences in this study and the improvement of their ability to use articles were examined. (see Appendix E and F.) In both the survey and the interviews, most of the students reported that they improved throughout the process. More detailed information is discussed in the next chapter.

## 3.5 Procedure

This study included three sessions: a pre-test session, a treatment/control session, and a post-test session. All the writing tasks were course requirements and parts of the standard ESL course curriculum, so all the tasks were administrated according to the standard course syllabus and schedule. The tasks and topics were introduced and explained during class periods by the

class instructors. However most parts of the writing tasks were given to students as homework, and all the corrective feedback was electronically provided by the teacher-researcher outside of the classroom.

### 3.5.1 Session 1 Pre-test session (Weeks 1-2)

#### 3.5.1.1 Experimental Set-up

The study was designed to investigate the effectiveness of corrective feedback on students under four different conditions. For this study, two different sections of ESL115 were chosen. The sections are identical in terms of meeting days, class hours and curriculum. To control other factors which might affect the study results such as instructors' different pedagogical techniques, the instructors of both classes met once a week to check and share the teaching materials and class schedules. No grammar instruction was involved in any classes of these two courses, only corrective feedback on articles.

Before the semester began, students were randomly divided into four groups as shown in Table 3.2. The class taught by the teacher-researcher was the error log group, while the other class taught by another teaching assistant was a control group. Each group was divided again into an implicit corrective feedback group and an explicit corrective feedback group, so that four groups comprised this study in total. After forming the groups, a background survey and an online pre-test were prepared and conducted at the beginning of the semester.

### 3.5.1.2 Background information Survey

During the first session of the study, all students, irrespective of their group assignment, were asked to do an online background information survey in class using computers in the computer lab that they used as a classroom. As we can see in Appendix B, the survey contained questionnaires on culture & language background of students, language learning experiences, and their use of English articles as follows.

1. Their name/gender/age
2. The nationality/native language
3. Their major/ the grade/ TOEFL score
4. How long they have stayed in the US
5. How long they have studied English/English grammar
6. Where they primarily studied English/ English grammar
7. How confident they are with English grammar/ articles

Based on survey questionnaires, students' background information was collected and used as the basic information of this study. The following table gives an overview of the participants' background information. (A summary of Table 3.6 is included in Appendix B)



**Table 3.6. Overview of the background survey results.**

	Total	ESL 115 Section R (taught by the teacher-researcher)	ESL 115 Section X (taught by a teaching assistant)
Gender	Female: 9 Male: 16	Female: 5 Male: 8	Female: 4 Male: 8
Age	18 - 21 Average:19.8	18-21 Average:19.8	18-21 Average:19.8
Nationality	3 Koreans 22 Chinese	1 Koreans 12 Chinese	2 Koreans 10 Chinese
Native language	3 Koreans 22 Chinese	1 Koreans 12 Chinese	2 Koreans 10 Chinese
Grades	14 Freshmen 9 Sophomore 2 Junior	5 Freshmen 6 Sophomore 2 Junior	9 Freshmen 3 Sophomore
TOEFL score	80- 103 Total Average: 93.87	Average: 93.56	Average:93.61
The length of stay in the US	6 months to 3years	6 months to 3years	6 months to 3years
The length of English Education/Grammar Education	6 month to 15 years Average: 8.83	6 month to 12 years Average:7.88	6 month to 15 years Average:9.76
The location of primary English education	Country of origin:22 US:3	Country of origin:12 US:1	Country of origin:10 US:2

### 3.5.1.3 Pre-test

During Week 2, all of the students, irrespective of their groups, were asked to take an online pre-test in class. (see Table 3.4.) The test was comprised of 35 questions about articles in three parts. It took almost 30 minutes for students to complete. (see the pre-test section in this

chapter for more detailed information.) The purpose of the test was to check the students' prior knowledge about articles and their ability to use articles before any treatments began. Even though Ferris (2004) and Ellis (2008) explain that a grammar test consisting of a grammar judgment test and a metalinguistic knowledge test might not be able to measure students' procedural knowledge, it was the most suitable instrument considering practical considerations and time restrictions. The results of the test were later analyzed and compared with the results of the post-test to examine the improvement in students' performance in article use. These results are discussed in detail in the following chapter.

### 3.5.2 Session 2 treatment/control session (Week 3-14)

Before administering session 2, the teacher-researcher introduced the procedure and the purpose of the study in both classes so that students could understand what this study is about and what they were expected to do for it. The teacher-researcher told students that their main focus in the writing tasks should be on the content rather than on the forms in order to minimize other factors that could influence the results of study and to allow the unique contribution of corrective feedback to be examined. However, interviews with students conducted at the end of the semester showed some self-reports that they paid more attention to the content than to the target forms anyway, since all the writing tasks were course requirements based on which their grades were determined. Even though we cannot be sure whether it was true for every student, this precautionary setup consequentially ensured that the study could be less concerned about other possible factors and more focused on the effects of corrective feedback on students' accuracy.

### 3.5.2.1 Writing Tasks

#### First essay: Diagnostic analysis Essay (Week 3)

The Diagnostic analysis Essay that was used for the first writing task was completed through two steps. First, on the second day of the course students were asked to write a diagnostic essay (for this draft, no teacher feedback was provided). Secondly, over 3 weeks, students analyzed the diagnostic essay they had written with many writing strategies they learned in class. In Week 3, students were asked to write a 2-3 page Diagnostic analysis Essay based on the diagnostic essay and the writing strategies they had learned in class as the first writing task used in this study. In the Diagnostic analysis essay, students were asked to analyze their diagnostic essay and suggest how they were going to revise it based on the writing strategies they had learned so far in class. Upon submission of these essays in week 3, the teacher-researcher 1) counted all the articles included in these essays, 2) categorized the articles into three categories: indefinite articles of 'a/an,' definite articles of 'the,' and zero articles, 3) analyzed all the errors included in the essays, and 4) examined the percent of errors compared to all the articles included in the essays.

#### Second essay: Reflective Essay (Week 6)

In week 6, a 1-2 page reflective essay was collected as the second writing task for the study. In this essay, students were asked to write an essay about their writing experience for different audiences and what kinds of features should be differentiated according to their audience based on what they had learned in classes up to that point. This essay was the shortest

and the most casual essay among the four writing tasks used in this study. Upon submission of these essays, the same analysis was conducted as for the first essay, the diagnostic analysis essay.

Third essay: 3 annotated bibliographies (Week 9)

In week 9, students were asked to submit three Annotated bibliography entries for a Guided Research Paper they were working on. As part of the course requirements, students were asked to submit two research papers, a Guided Research Paper (GRP) and an Individual Research Paper (IRP). The Annotated bibliography they needed to submit was one part of the writing process of the GRP. For this assignment, students were asked to find and read three academic papers related to the topic of their GRP and to write a 250-300 word summary of each including some critical comments on the article's reliability and relevancy to the GRP. Upon submission of these writings, all the analysis conducted for the two previous writing tasks was conducted as well. And since this writing task was more academic than the two previous writings, whether types of writing tasks have any influence on the use of articles was additionally investigated.

Fourth essay: Guided Research Paper (Week 12)

In week 12, the Guided Research Paper (GRP) was collected and analyzed as the fourth writing task for this study. One of the most important parts of this course was learning how to write a research paper, so students spent almost six weeks to learn how to write a research paper by writing each part of the paper together in class, with the GRP as the final product of this writing process. Therefore this writing was the longest (3-5 pages) and the most academic paper

among the four writing tasks used in this study. Upon submission of the GRP, analysis was conducted and additional analysis on whether the type of writing task has any influence on the use of articles was also conducted.

### 3.5.2.2 First corrective feedback (Week 4, 7, 10, 13)

In the weeks following students’ submission of their writing tasks, differentiated corrective feedback according to groups (group A & C: implicit and group B & D: explicit) was given to students. As shown in the table 3.7 below, for groups A and C, implicit corrective feedback was given, while for groups B and D, explicit corrective feedback was provided. For students in the implicit corrective feedback groups, erroneous parts were highlighted (see Tables 3.2 & 3.7 ), while for students in the explicit corrective feedback groups, correct target forms were given (see Tables 3.2 & 3.7).

**Table 3.7. Summary of Groups.**

	Error log group		No error log group	
	Group A	Group B	Group C	Group D
Type of corrective feedback	Implicit	Explicit	Implicit	Explicit

### 3.5.2.3 Error logs

In the weeks following their differentiated corrective feedback, groups A and B were asked to keep an error log of the corrective feedback they received. The purpose of keeping error logs was to determine the effectiveness of error logs in raising students’ awareness of the target

forms and the gap between the correct target form and their own productions. For this purpose, students' performance on writing tasks and the pre- and post-tests as well as their performance in error logs were analyzed. For more detailed information, see the data collection section, Appendix D and the following chapter.

### 3.5.3 Session 3 (Week 15)

#### 3.5.3.1 Post-test

In the last week, all of the students were asked to take an online post-test in class no matter their group. For the post-test, a test which was slightly changed from the pre-test but based on the same test spec was used to rule out content familiarity as a reason for improvement in test scores. So in the post-test, the basic format of the pre-test remained the same with slight changes in vocabularies and item order. Admittedly, using a newly-developed test for the post-test would have been an ideal choice in terms of measuring students' improvement in accuracy. However when we consider the time and effort required to develop a new test along with the fact that the post-test was conducted more than two months after the pre-test, making changes to the pre-test was a practical choice. In addition, using a modification of the pre-test also avoided the potentially confounding variables that an entirely new test might have added, including unfamiliar vocabulary, changes in grammatical structure of questions, etc. The post-test test results were analyzed and compared with the results of the pre-test and used for answering research questions.

#### 3.5.3.2 The self-reporting survey

In the last session of the study, all students, irrespective of their group assignment, were asked to do an online self-reporting survey in class using their computers in the computer lab that they used as a classroom. As we can see in Appendix E, the survey contained questions on the self-reported effectiveness of corrective feedback, self-reported improvement, and their use of English articles.

1. The most effective way to learn English grammar/articles
2. The effectiveness of receiving corrective feedback on errors in articles
3. Self-reported improvement in the use of articles
4. The most noticeable elements in the feedback

Based on these survey questions, students' self-reported effectiveness of corrective feedback and self-reported improvement were collected and used as one data source of this study.

### 3.5.3.3 Interviews (Week 15)

With the self-reporting survey, in the last week a stratified random sample of 8 students were chosen for interviews, 2 students from each group. In the interviews, their self-reported improvement in the use of articles and self-reported effectiveness of receiving corrective feedback was covered as follows.

1. How students used corrective feedback
2. The self-reported effectiveness of corrective feedback

3. The self-reported improvement of the use of articles
4. The noticeable things in corrective feedback
5. The most effective way to learn grammar/English articles
6. A detailed discussion on their use of articles in their writing tasks.

Even though some of the questions used in interviews overlapped with the survey questionnaires, more detailed answers were collected in the interviews. And responses to question 6 provided more insights about their genuine learning experiences through corrective feedback and more insights about their use of articles. Interview questions are shown in Appendix F, and the detailed contents of the interviews are discussed in the following chapter.

### 3.6 Data Analysis

After the collection of data, all the writing tasks as well as the pre-and post-tests were coded and analyzed for accuracy. For calculation of accuracy rate and comparison, students' scores were input in SPSS 18, and descriptive and inferential statistics were generated so that an analysis could be made. In order to determine whether there was a statistically significant difference between the students' performance on the self-correcting tasks before and after the grammar test, a paired samples t-test was carried out. Alpha level was set at 0.05

Along with statistical analysis of the scores, students' interviews were also examined in terms of self-reporting about the grammar test and four writing tasks. The focus of interviews



was on whether or not receiving corrective feedback on the errors in their writings was helpful for their acquisition of English articles and better performance on writing tasks and the grammar test. Students' oral performance in the interview was not analyzed in this study.

### 3.6.1 Data Analysis for each research question

**Table 3.8. Data used to answer each question.**

	Background information survey	Pre-test/post-test	Writing tasks	Error logs	Self-reporting survey	Interview
Question 1		✓	✓		✓	
Question 2		✓	✓		✓	
Question 3		✓	✓	✓	✓	✓

3.6.1.1 Question 1: Does corrective feedback on articles have an effect on the development of implicit and/or explicit knowledge of English articles?

To answer research question 1, 1) the results of the pre- and post-tests and 2) the analysis of students' use of articles in writing tasks were used. For research question 1, overall improvement in the pre- and post-tests was examined by investigating the difference between students' performance on the pre-test and the post-test. In addition, overall improvement in writing tasks was also examined by comparing the error ratio in the four writing tasks. The error

ratio was used to measure overall accuracy in the use of articles and calculated as number of errors/ total number of articles \* 100. Since the length of each writing task was different, this error ratio was effective to compare the overall accuracy of each writing task so that whether students' overall accuracy has been improved over time or not could be determined.

### 3.6.1.2 Question 2: Which type of corrective feedback is more effective for L2 acquisition?

To answer research question 2, 1) the results of the pre- and post-tests and 2) the analysis of students' use of articles in writing tasks were used. However in this case, the results of each group were compared to each other instead of examining the overall improvement of all of the students. First, the improvement in pre-and post-test of explicit groups (groups B & D in Table 3.7) and implicit groups (groups A & C in Table 3.7) was compared to each other and second, the accuracy ratio of the explicit group and implicit groups in the four writing tasks were compared as well. By comparing the results of these two groups, we can have a better idea about the relative learning effects of implicit and explicit corrective feedback.

### 3.6.1.3 Question 3: Is keeping error logs helpful in the development of explicit and implicit knowledge of the L2? Does it make any difference in the noticing process?

For research question 3, 1) the results of the pre and post-tests, 2) the analysis of students' use of articles in writing tasks, 3) the error logs, and 4) interviews and self-reporting survey were investigated. To answer this question, the improvement in the pre-and post-tests of the error log groups (groups A & B in Table 3.7) and no error log groups (groups C & D in Table 3.7) was first

compared across groups, and the accuracy ratio of the error log groups and no error log groups in the four writing tasks were compared as well. In addition, the accuracy ratio of four kinds of error logs was examined. If the accuracy ratio of error logs improved over time, it could be also considered as evidence of learning. So the ratio of error logs as well as the other two data points were examined for this research question.

3.6.1.4 Question 4: Which method of providing corrective feedback among the four different methods presented in this study is most effective in enhancing L2 accuracy?

For research question 4, 1) the results of the pre and post-tests, 2) the analysis of students' use of articles in writing tasks, and 3) interviews and self-reporting survey were investigated. To answer this question, the improvement in the pre-and post-tests of the four groups (groups A, B, C, and D) was first compared to each other along with the accuracy ratio of the four groups in the four writing tasks. By comparing the results of these four groups, we can have a better idea about the relative learning effects of the four treatment conditions and the relative effectiveness of implicit and explicit corrective feedback in connection with error logs.

## **CHAPTER 4**

### **RESULTS & DISCUSSION**

This chapter presents descriptive and inferential results for each research question along with relevant discussions in the order of the original research questions:

- 1) The overall (possible) effectiveness of corrective feedback on the development of implicit and/or explicit knowledge of English articles (research question 1),
- 2) The relative effectiveness of implicit and explicit corrective feedback (research question 2),
- 3) The effectiveness of error logs (research question 3), and
- 4) The relative effectiveness of corrective feedback in four groups (research question 4).

Even though Truscott (1996, 2004, 2007) claimed that written corrective feedback on grammatical errors is not effective and should be abandoned in L2 classrooms, the findings of this study suggest the possibility that corrective feedback is effective to enhance students' accuracy in the use of articles over time. Even though no significant difference was found with regard to the relative effectiveness of implicit and explicit corrective feedback, error logs seem possibly effective to enhance students' accuracy in the use of articles compared to the results of a control group. Additionally among the four groups, group A, who received implicit corrective feedback and kept error logs showed the greatest improvement. Detailed study results and discussions relevant to such research findings follow below.

#### 4.1 Results & Discussion for each research question

4.1.1 Question 1: Does corrective feedback on articles have an effect on the development of implicit and/or explicit knowledge of English articles?

4.1.1.1 Results of overall accuracy

For this analysis, data from each participant's pre- and post-test and four writing tasks were calculated and analyzed as a whole. For pre-and post-test analysis, students' test scores were itemized and calculated both separately and as an overall score for each part. After that, to determine whether there is statistical significance in the observed improvement between the pre- and post-tests, a paired sample t-test was performed. The four writing tasks were analyzed by coding the data for different categories of articles and different types of errors (see Appendix H for sample of essay coding). The percentage of errors included in each writing task was calculated as the number of errors/total number of articles \* 100. Since the length of each writing task was different, the percentage of errors in each writing task instead of the number of errors was used to make preliminary comparisons of the overall effectiveness of corrective feedback. Using this data, a paired samples t-test was performed to examine the statistical significance of the improvements in the four writing tasks. With such an analysis for all participants, the question of the overall effectiveness of corrective feedback can be answered. Tables 4.1 and 4.3, and Figures 4.1 and 4.2 below show the effects of corrective feedback in both pre-and post-tests and four writing tasks.

**Table 4.1. Pre-test and post-test result of all of the participants.**

All of the participants	Pre-test		Post-test	
	M	SD	M	SD
Overall results	26.48 (75.66%)	7.17	29.36 (83.89%)	4.79
Part 1 (Grammaticality judgment test)	14.64 (73.20%)	4.20	16.2 (81.00%)	3.16
Part 2 & 3 (Metalinguistic knowledge test)	11.84 (78.93%)	3.45	13.16 (87.73%)	2.39

**Figure 4.1. The test results of all participants in pre-and post-test.**

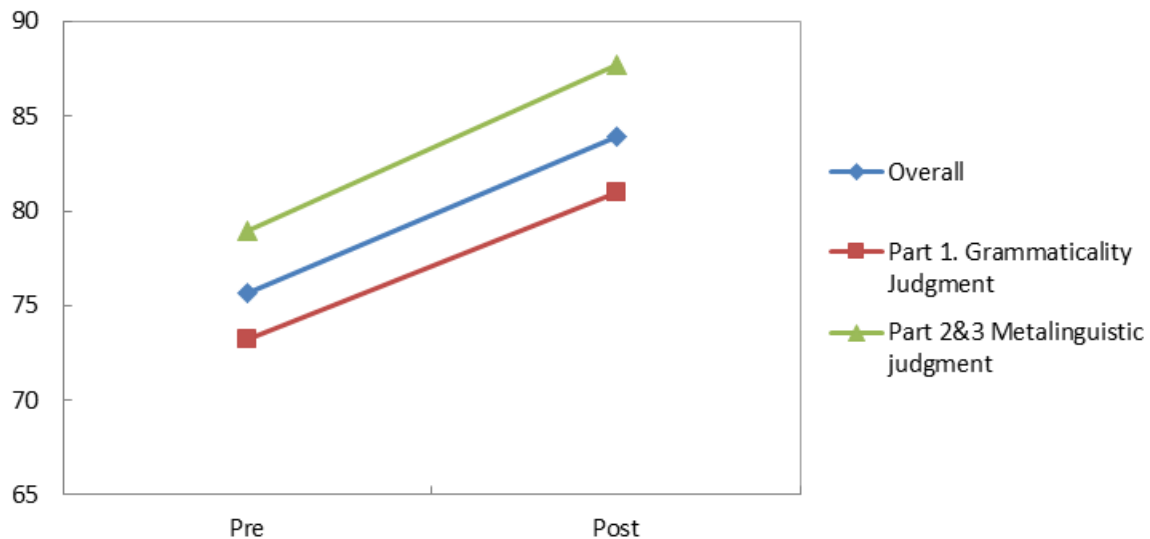


Table 4.1 and Figure 4.1 show the descriptive statistics of all students' pre-and post-test results. As we can see in Table 4.1, the students' average score improved from 26.8/35 (accuracy rate: 75.66%) to 29.36/35 (accuracy rate: 83.89%) over a semester, and the standard deviation of students' scores also shows positive change from 7.17 to 4.79. In order to investigate whether there was a statistically significant improvement between the pre and post-tests, a paired samples

t-test was performed. The t-test reveals a significant improvement between the pre- and post-test scores,  $t(25) = 2.34$ ,  $p < 0.028$ . The lower value of the standard deviation in the post-test compared to the pre-test indicates that students' proficiency gap in the use of articles narrowed in the post-test compared to the pre-test. Overall, a comprehensive comparison of pre-and post-test results shows that students' performance improved on the post-test conducted at the end of the semester compared to the pre-test implemented at the beginning of the semester. Furthermore, when we look closely at the original data, we see improvement not only in the average scores of all participants, but also in all of the participants' individual scores on the post-test compared to their pre-test scores, which is to say that not a single participant had a lower score on their post-test. Such improvement suggest that there may be a positive effect of corrective feedback on the use of articles, even though we cannot be sure since there is no control group to confirm the results in this study.

Further analysis of pre-and post-test results was conducted to investigate the relative effectiveness of corrective feedback on students' metalinguistic knowledge versus their procedural knowledge. As shown in Table below (Table 4.2: re-attached for reference), part 1 is a grammaticality judgment test that provides a measure of students' ability to use articles in certain contexts. Parts 2 and 3 comprise a metalinguistic knowledge test that offers a measure of students' ability to monitor errors using their metalinguistic knowledge. The results show that students' average scores on the Grammaticality Judgment (part 2 of the test) and the Metalinguistic judgment (Part 3 of the test) are higher for both the pre-test (11.8/25, accuracy rate of 78.93%) and post-test (13.16/25, accuracy rate of 87.73%) in comparison to their score on

**Table 4.2. Test Characteristics (the format was adapted from Ellis 2005a p152).**

	Part 1	Part 2	Part 3
Type of the test	<b>Grammaticality judgment test</b>	<b>Metalinguistic knowledge test</b>	
Items	20 items (10 grammatical items/ 10 ungrammatical items)	10 items (all ungrammatical items)	5 items (all ungrammatical items)
Time available	Unrestricted	Unrestricted	Unrestricted
Primary focus on attention	Form	Form	Form
Use of metalinguistic knowledge	To some extent	Yes (rule-stating) To some extent (correction)	Yes (rule-stating) To some extent (correction)

part 1 (14.64, accuracy rate of 73.20% on the pre-test, and 16.2, accuracy rate of 81.0 on the post-test). Table 4.1 and Figure 4.1 show the relative effectiveness of corrective feedback on metalinguistic knowledge and procedural knowledge.

The analysis of data from the four writing tasks provides further evidence of the students' improved overall accuracy in the use of articles. Unlike the analysis of pre-and post-test data, the analysis of error rates in the four new writing tasks provides a measure of students' actual ability to use articles in written compositions over time. Table 4.3 below shows the analysis of the error rates in each writing task, giving an overview of students' improvements in terms of accuracy in their use of articles.



**Table 4.3. Overall error rate of all participants in four writing tasks.**

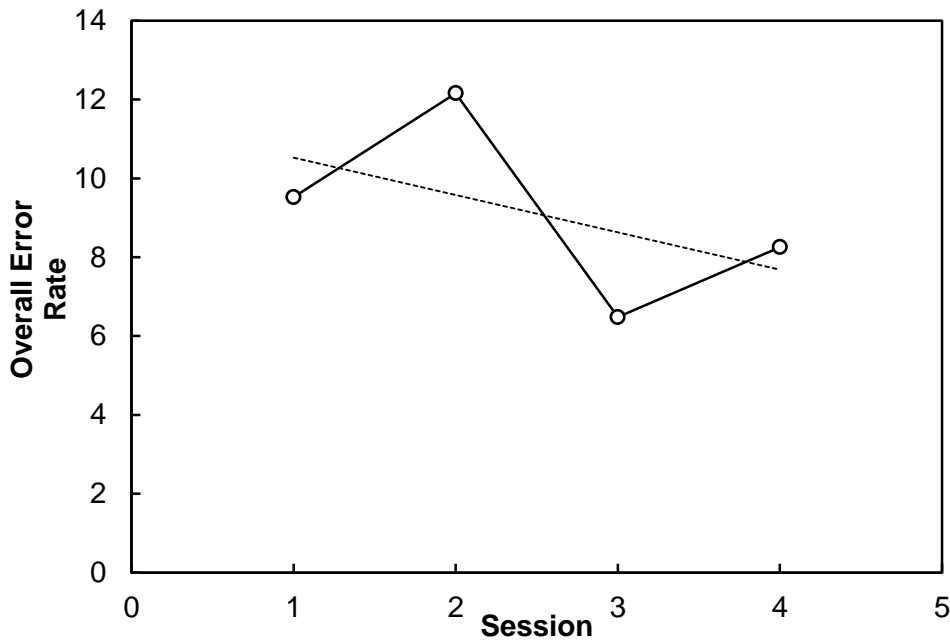
	Writing Task 1 (Diagnostic Analysis Essay)		Writing Task 2 (Reflective Essay)		Writing Task 3 (3Annotated Bibliographies)		Writing Task 4 (Guided Research Paper)	
	M	SD	M	SD	M	SD	M	SD
Overall Error rates of all of the participants	9.52	4.23	12.16	8.78	6.48	3.34	8.25	3.18

As we can see in Table 4.3, the overall error rate declined over the course of the semester from 9.52% in the first task to 8.25% in the last writing task, and the standard deviation of error rates narrowed over time from 4.23 to 3.18 as well. To determine whether there was a statistically significant improvement between the first writing task, (The diagnostic analysis essay), and the last writing task (The Guided Research Paper (GRP)), a paired samples t-test was performed. Results of the t-test reveal a significant improvement between the first and the last tasks,  $t(25) = 3.53$ ,  $p < 0.034$ . And we can see in Figure 4. 2. below, the trend line, which was calculated based on all of the data, also shows a decrease in students' overall error rates over time. In Figure 4.1, despite the fluctuation in error rates in writing tasks 2 and 4, we can see that the overall error rate is a decreasing trend, further evidence of a positive effect of corrective feedback on students' accuracy in the use of articles.

As noted above, the article error rate does not show a constant decrease across tasks. The error rate for task 2 is higher than that in task 1, and the rate for 4 is higher than for 3 (9.52 to 12.16, and 6.48 to 8.25). Figure 4. 2 below shows the same fluctuation of error rates in the four new writing tasks. This change of error rates could be the result of task type/difficulty, but as a reflection of procedural knowledge, the graph shows us that the learning effect of corrective

feedback simply does not improve in a straight-line fashion. However, the trend line shows a decrease in students' error rates over time, which can be interpreted as evidence of a learning effect of corrective feedback.

**Figure 4.2. Overall error rates of all participants in four writing tasks**



#### 4.1.2 Discussion for overall accuracy

Research question 1 asked whether written corrective feedback on articles enabled students to use the English articles more accurately, and whether written corrective feedback affects the development of metalinguistic knowledge differently than procedural knowledge. To answer these questions, the test results of all participants' performance in the pre- and post-tests were compared in detail, and the overall error rates of all the participants in the four writing tasks were examined. Both data sets were used to measure accuracy, but for the second part of the question, the pre-and post-tests mainly reflect students' ability to monitor errors using their

metalinguistic knowledge, while the writing tasks provide a measure of students' ability to use articles while writing a new text. Admittedly, however, as Truscott (1996) reasonably argued, to present the effectiveness of overall corrective feedback properly, a control group is needed. Since this study was conducted based in a naturalistic setting with many other variables which can affect the study results, without a control group which can confirm the effectiveness of the target treatment, the interpretation of study results in terms of overall effectiveness of written corrective feedback should be limited.

Despite of certain limitations, however, with regard to overall accuracy we can find some positive evidence in the results of the analysis of both pre-and post-tests and the four new writing tasks. Even though the error rates in the four writing tasks do not decrease consistently for each writing task, the trend line presents a gradual decrease of overall error rates over time as shown in Figure 4.2, and the results of pre-and post-tests clearly show an increase in students' overall performance. Such enhanced performance in both measures suggests that corrective feedback on errors in articles might be effective in improving students' overall accuracy in their use of articles, even though we cannot confirm such improvement is solely attributed to written corrective feedback because there was no control group. Despite this limitation, however, we cannot deny that it provides positive data for answering the big question: does error feedback help L2 student writers?' asked repeatedly by Ferris (2004, p. 50) and other researchers.

In fact, this finding confirms the findings of several earlier studies. For instance, Ashwell (2000), Ferris (1997) and Ferris & Roberts (2001) all show that corrective feedback is effective to enhance students' performance in the revision process, and more interestingly, studies such as

Bitchener (2008) Bitchener & Knoch (2008, 2009, 2010a, 2010b), and Ellis et al. (2008) show that corrective feedback focusing on a grammatical item can be effective to enhance students' performance, even in new writing tasks. Even though it is difficult to compare the results of such studies directly with the results of this study due to different experimental settings, the findings of this study might add more empirical evidence supporting the preposition that written corrective feedback on grammatical errors is effective to enhance L2 accuracy, even for new writing tasks.

Even though this study cannot provide strong evidence of overall effectiveness of written corrective feedback, it does provide more interesting data with regard to the relative effects of corrective feedback on the development of metalinguistic knowledge and procedural knowledge. The results of the pre-and post-tests show, as we can see in Table 4.1 and Figure 4.1, that students performed better on parts 2 and 3 (Metalinguistic knowledge test) than on part 1 (Grammaticality judgment test). It suggests the possibility that such written corrective feedback might be more deeply related to the development of metalinguistic knowledge than procedural knowledge. In order to confirm such a finding, more detailed supporting data will be needed, but such findings can at least provide the possibility that corrective feedback is more related to development of metalinguistic knowledge than procedural knowledge.

Furthermore, the data on students' use of articles in new writing tasks show that improvement of students' accuracy is not stable. Even though the overall trend shows a gradual decrease of error rates, the error rate itself fluctuates. Such a fluctuation of error rates across the four writing tasks, however, can be explained in several ways since there are many variables that

can affect the study results. One possible explanation for the increased error rate in writing tasks 2 and 4 is the different difficulty level of each writing task. As an instructor of the course, I noticed that the difficulty level of the second and the fourth writing tasks was higher than that of the other two writing tasks in terms of format, required vocabulary level, and length of writings. Since students' processing capability is limited, and since they have more factors to control when composing a more complex written text, their focal attention on the target form, articles in this study, cannot help being limited (Ellis et al., 2008).

The data, however, also offer a possible explanation for the apparent relative effectiveness of corrective feedback on metalinguistic knowledge and procedural knowledge. Since parts 2 and 3 of the pre-and post-tests can be considered as a measure of students' ability to monitor errors using their metalinguistic knowledge while part 1 and the analysis of error rates in the four new writing tasks can be considered as a measure of students' procedural ability, students' higher scores in parts 2 and 3 along with the unstable error rates revealed by the analysis of the four writing tasks can be interpreted as evidence that corrective feedback is more effective for the development of metalinguistic knowledge than for procedural knowledge. In fact, such a result was expected to some extent based on earlier studies such as Doughty (2003) and Ellis et al. (2008). Many studies, including these two, show that corrective feedback is more effective in the development of metalinguistic knowledge. Truscott (1996, 2007) even claims that corrective feedback on grammar does not enhance procedural learning, but is only effective in developing metalinguistic knowledge.

However two points should be made here: First, for L2 learners, such metalinguistic

knowledge is needed for writing since their accuracy can benefit from the conscious monitoring that metalinguistic knowledge makes possible. Second, corrective feedback is shown to be effective in the development of both metalinguistic knowledge and procedural knowledge. Unlike L1 learners, L2 learners cannot “infer rules implicitly or explicitly from the input” by themselves, especially in case of the English article system which contains “highly abstract notions” (DeKeyser, 2005). Therefore, to properly use articles in their writing, students cannot completely rely on their procedural knowledge; they have to use metalinguistic knowledge as well. Therefore the development of metalinguistic knowledge based on received corrective feedback can support accuracy in L2 students’ writing. Moreover, students’ improved performance on part 1 of the test and the decrease of overall error rates over time show that corrective feedback is effective to develop procedural knowledge as well as metalinguistic knowledge. Even though the effects cannot be observed immediately, the gradual decrease of error rates can be seen as evidence of learning.

#### 4.2 Question 2: Which type of corrective feedback is more effective for L2 acquisition?

##### 4.2.1 Results

To answer this question, each class was divided into two groups at the beginning of the semester, one group to receive implicit feedback, and the other to receive explicit feedback (see Table 4.4 as below: Table 3.2 re-attached for reference).

**Table 4.4. Groups of Participants (Table 3.2 reattached for reference).**

	Class 1 (taught by the teacher-researcher)		Class 2 (taught by a teaching assistant)	
	Group A (6 students)	Group B (7 students)	Group C (6 students)	Group D (6 students)
Error Logs	✓	✓		
<b>Implicit/Explicit corrective feedback</b>	<b>Implicit</b>	<b>Explicit</b>	<b>Implicit</b>	<b>Explicit</b>

At the end of the semester 1) students' pre- and post-test results in the implicit and explicit groups were compared, and 2) the change of error rates of the implicit and explicit groups in the four new writing tasks was compared as well. Since the length and type of each writing task was different, the error rate, calculated as number of errors/total number of articles \* 100, was used to compare the accuracy of the four writing tasks. Analysis of the two sets of data indicates the relative effectiveness of implicit and explicit corrective feedback. Descriptive statistics for the comparison of implicit and explicit groups in the pre-and post-test and the four new writing tasks is presented in Tables 4.5 and 4.6 and in Figures 4.3 and 4.4 below.

**Table 4.5. Pre-test and post-test result of explicit and implicit groups.**

	Pre-test		Post-test	
	M	SD	M	SD
Implicit group	27.58 (78.81%)	3.34	30.16 (86.19%)	3.04
Explicit group	25.46 (72.75%)	9.72	28.62 (81.76%)	6.17

**Figure 4.3. Pre-and post-test results of implicit and explicit groups**

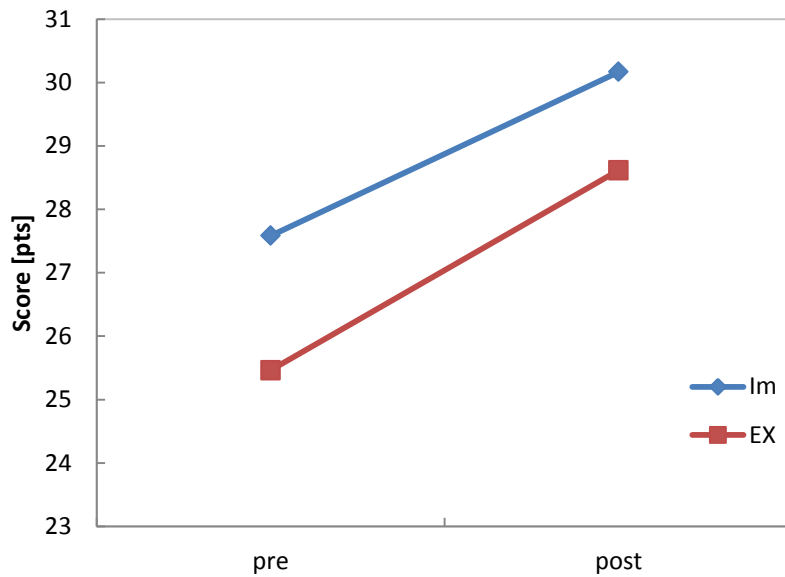


Table 4.5 and Figure 4.3 present the mean and standard deviation of results of the pre- and post-tests for each group. As we can see in Table 4.5, both groups significantly increased the accuracy of their use of articles. The average score of the implicit group increased from 27.58 (accuracy rate of 78.81%) to 30.26 (accuracy rate of 86.19%) and that of explicit group increased from 25.46 (accuracy rate of 72.75%) to 28.62 (accuracy rate of 81.76%). Furthermore, the t-test indicates significant improvement between the pre-test and post-test scores of both the implicit group,  $t(12)= 2.87, p<0.015$ , and the explicit group,  $t(12)= 1.39, p<0.038$ . The standard deviations of both groups also narrowed from 3.34 to 3.04 and 9.27 to 6.17, indicating that the gap of scores narrowed over time.

Figure 4.3 shows that the average test scores of the implicit group are higher than the average test scores of the explicit group in both the pre-and post-tests. Even though students' average TOEFL scores were not very different (implicit group: an average of 95.9/120 and



explicit group: an average of 95.5/120), the test scores in both the pre-and post-tests reflect a considerable gap between the implicit and explicit groups (see Table 4.5 & Figure 4.3).

At the beginning of the semester, students were also divided into four groups and their TOEFL test scores were examined with the assumption that TOEFL test scores are positively related to their ability to use English articles correctly. However, a correlation analysis conducted at the end of the semester indicates that students' TOEFL test scores are not positively related to either the pre-test scores,  $r=0.065$ ,  $p < 0.05$  or to the post-test scores,  $r= 0.156$ ,  $p < 0.05$ . In both the pre- and post-tests, scores of the implicit group were higher than scores of the explicit group. In the pre-test, the average score of the implicit group was higher by 2.12 than the explicit group, and in the post-test, the average score of the implicit group was higher by 1.54. When we measured the improvement between the pre- and post-test of the implicit and explicit groups, the implicit group showed an increase of 2.58, a 9.37 % increase, while the average explicit group score raised by 3.16, a 12.39% increase. Even though this comparison seems to show that the effectiveness of explicit corrective feedback is greater than implicit corrective feedback, a paired samples t-test does not support that,  $t(12)=0.199$ ,  $p < 0.846$ .

The second data set that was analyzed to examine the relative effectiveness of implicit and explicit corrective feedback was the change of error rates of each group across the four new writing tasks. Table 4.6 below shows the descriptive statistics for error rates in the four writing tasks.

**Table 4.6. Overall error rate of implicit and explicit groups in four writing tasks.**

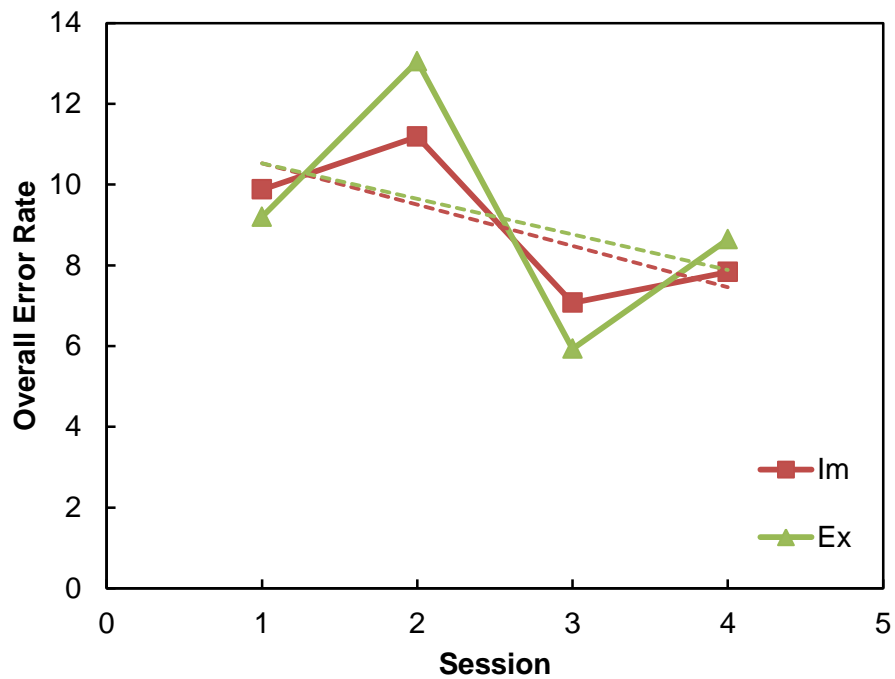
	Writing Task 1 (Diagnostic Analysis Essay)		Writing Task 2 (Reflective Essay)		Writing Task 3 (3Annotated Bibliographies)		Writing Task 4 (Guided Research Paper)	
	M	SD	M	SD	M	SD	M	SD
Implicit group	9.88	2.42	11.19	6.24	7.07	3.91	7.83	2.04
Explicit group	9.20	5.50	13.05	10.80	5.93	2.76	8.64	3.45

As shown in table 4.6, the overall error rates of both implicit and explicit groups in the last writing task declined compared to the first writing task. The error rate of the implicit group declined from 9.88% to 7.83% while the error rate of the explicit group decreased from 9.20% to 8.64%. A paired samples t-test was conducted to investigate the statistical significance of improvements in accuracy rates in the four writing tasks. This analysis revealed a significant improvement in the accuracy rate of the implicit group between the first and last writing task,  $t(12)= 1.75$ ,  $p<0.037$  as well as a significant improvement in the accuracy rate of the explicit group between the first and last writing tasks,  $t(13)= 2.48$ ,  $p<0.047$ . The standard deviation of error rates of both the implicit and explicit groups also narrowed over time: The implicit group decreased from 2.42 to 2.04, and the explicit group declined from 5.50 to 3.45. Such decreased standard deviations in both groups show that students' accuracy gap in both groups narrowed. Overall, both groups show a decrease in error rates and in standard deviations over time, which indicates that both types of corrective feedback have a positive effect on learning to use articles correctly.

However, this comparison also shows that (as noted earlier in this chapter), the decrease

in error rates is not stable. As seen in Figure 4.4, in writing tasks 2 and 4, the error rates of both groups increased compared to the immediately previous writing tasks. In writing task 2, the error rate of the implicit group increased from 9.88 to 11.19 while the error rate of the explicit group increased from 9.20 to 13.05. And in the writing task 4, the error rate of the implicit group increased from 7.07 to 7.83 while the error rate of the explicit group increased from 5.93 to 7.83.

**Figure 4.4. Error rates of implicit and explicit groups in four writing tasks**



Such instability of error rates can once again be attributed to various reasons such as different difficulty level of each writing task or different effectiveness of corrective feedback on the development of metalinguistic knowledge and procedural knowledge as mentioned above. However a more important point to note is that, as the trend line of each group shows, over time both groups show improvement in accuracy in the use of articles in four new writing tasks.

Most importantly, however, two significant results with regard to the relative effectiveness of implicit and explicit corrective feedback can be found in Figure 4.4 above: First, as the trend line of each group shows, the improvement rate of the implicit group is slightly higher than the improvement rate of the explicit group. Second, the change of error rate of the explicit group for each writing task is bigger than that of the implicit group, although a paired samples t-tests showed no significant difference between them,  $t(12)= 0.787, p<0.448$ .

#### 4.2.2 Discussion

Research question 2 examined the relative effectiveness of implicit and explicit corrective feedback, and to answer this question, pre- and post-test results of the implicit and explicit groups were compared in detail, and error rates of four writing tasks by the two groups were examined. Descriptive statistics were first analyzed for both data sets, and a paired- samples t- test was then conducted to examine whether the change or improvement was significant. These analyses showed that both implicit and explicit corrective feedback were statistically equal in terms of their effectiveness.

With regard to the overall learning effect of implicit and explicit corrective feedback, we can find positive evidence in the results of both the analysis of the four new writing tasks and the pre-and post-tests. As we can see in Tables 4.5 and 4.6 and Figures 4.3 and 4.4, both the implicit and explicit groups showed significant improvement in post-test scores over the pre-test. And improvements in error rates were observed in both groups as well on the four writing tasks (see Table 4.5 and 4.6). Similar findings, in fact, have been reported in many earlier studies. In many

studies which examined the relative effectiveness of implicit and explicit corrective feedback such as Chandler (2003), Ferris (2006), and Frantzen (1995), overall improvements of accuracy in both implicit and explicit groups were found even though all three authors drew different conclusions with regard to the relative effectiveness of the two types of corrective feedback. Ferris (2006) found that implicit corrective feedback is more beneficial; Chandler (2003) found that explicit corrective feedback is more effective; and Frantzen (1995) found no significant difference between implicit and explicit corrective feedback. Even though all of them had different conclusions, they showed the same results in terms of an overall learning effect: Both groups showed certain improvements. And it can be said that the findings of this study coincide with and support those of the earlier studies.

However, these study results of relative effectiveness of implicit and explicit corrective feedback do not coincide with findings of many other earlier studies. In this study, no significant differences were found between implicit and explicit corrective feedback. In the comparison of pre-and post-test scores, the improvement rate of the explicit group was slightly higher than that of the implicit group (see Table 4.5 and 4.6), but t-test analysis canceled the statistical significance of that difference. Moreover, even though the trend line of implicit corrective feedback shows a higher developing rate, comparison of error rates in the four writing tasks showed that the statistical significance of difference was canceled by t-test analysis as well. Thus, any difference between the effects of implicit and explicit corrective feedback was canceled, and no significant difference was found between them.

Once again, this is in line with previous research. Some studies in this field such as

Frantzen (1995) and Robb, Ross, & Shortreed (1986) also found no significant difference between the effectiveness of implicit and explicit corrective feedback. For instance, Frantzen (1995) compared the relative effectiveness of implicit and explicit corrective feedback on students' writings in two sections of an intermediate Spanish content course, but she found no significant difference between the two treatments. Robb, Ross, & Shortreed (1986) tried to compare the effectiveness of four different types of corrective feedback in their study but failed to find any significant differences between them either. So the findings of this study add even more empirical data in support of "no difference."

These previous studies, however, offer very few possible explanations for such results. Since so many variables can affect the results of this type of study, it is difficult to point out the most influential among them. The results of this study may be due to the relatively short experiment period, the difficulty of acquiring the English article system, or it may be that the difference in effectiveness of implicit and explicit corrective feedback is really too small to be detected, especially in this sample size.

Nevertheless, the finding of this study that the improvement rate and accuracy in the four writing tasks was higher (though not statistically significant) in the implicit group seems important. And the result points to the possibility that such differences in the rate of improvement of accuracy could be intensified over time. In fact, this tendency becomes clearer when the error rates of the four groups (see Table 4.9) are compared (see sections 3.3 & 3.4). Since implicit corrective feedback is more cognitively demanding than explicit corrective feedback, it is possible that implicit corrective feedback is more effective in fostering long-term

acquisition of target forms (Bitchener & Knoch, 2008; Ferris, 1995). So even though no significant difference between implicit and explicit corrective feedback was found in this study, it is possible that implicit corrective feedback is more effective, especially considering the study results of the four groups (see 3.3 & 3.4).

### 4.3 Question 3: Is keeping error logs helpful in the development of explicit and implicit knowledge of the L2? Does it make any difference in the noticing process?

#### 4.3.1 Results

In order to answer this question, students were divided into four groups at the beginning of the semester and received different treatments accordingly, as shown in Table 4.4 above. At the end of the semester:

- 1) Students' pre- and post-test results in the error log group were compared to those of the no error log group
- 2) The change of error rates of the two groups in the four new writing tasks was compared
- 3) The accuracy rate of the actual error logs in the four writing tasks was examined as well.

To compare the accuracy of the four writing tasks, error rates were calculated into percentages since the length and type of each writing task were different. Analysis of the three

data sets allowed the effectiveness of error logs to be examined. The descriptive statistics and results of t-tests of the error log and no error log groups, as well as the analysis of the error logs themselves, are presented in Tables 4.7 and 4.8 and Figures 4.5 and 4.6 below.

**Table 4.7. Pre-test and post-test result of error log group and no error log group.**

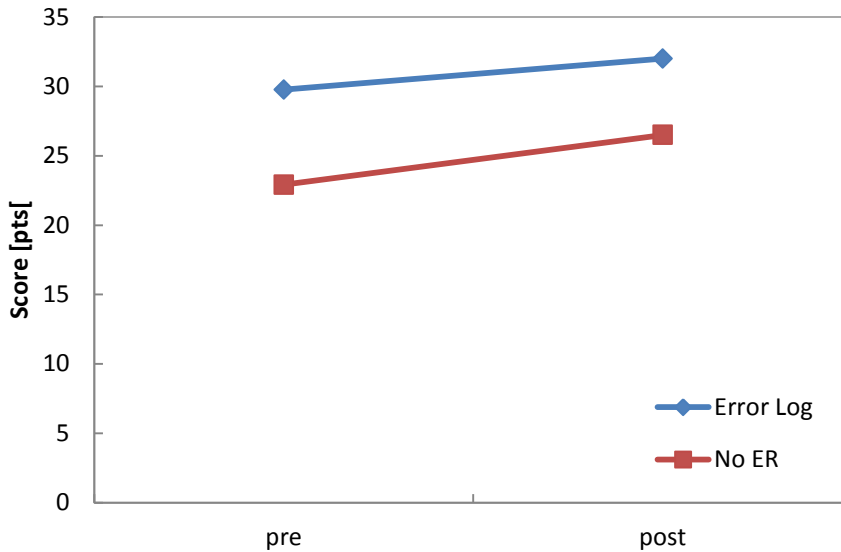
	Pre-test		Post-test	
	M	SD	M	SD
Error log group	29.77 (85.05%)	3.09	32 (91.43%)	2.16
No Error log group	22.92 (65.48%)	8.93	26.5 (75.71%)	5.47

Table 4.7 and Figure 4.5 show the mean and standard deviations for the pre-test and post-test for the error log and no error log groups. As we can see in Table 4.7, both groups increased the accuracy of their use of articles. The average score of the error log group increased from 29.77 (accuracy rate of 85.05%) to 32 (accuracy rate of 91.43%) and that of the no error log group increased from 22.92 (accuracy rate of 65.48%) to 26.5 (accuracy rate of 75.71%). To determine whether there was a statistically significant improvement between the pre- and post-tests, a paired samples t-test was performed. The t-test showed a significant improvement between the pre- and post-tests in both the error log and no error log groups: Error log group with  $t(13) = 3.65$ ,  $p < 0.003$ , and no error log group with  $t(12) = 2.42$ ,  $p < 0.028$ . In addition, the standard deviations of both groups narrowed from 3.09 to 2.16 in the error log group and from 8.93 to 5.47 in the no error log group, meaning that the gap of scores narrowed over time.



Figure 4.5 below presents the average test scores of the error log and no error log groups. In both pre- and post-tests, the average score of the error log group is higher than the average score of the no error log group. For the analysis of the two groups, two intact classes were used as each group (see Table 4.7), so students' prior ability to use articles could not be controlled. As a result, the test results of the error log group are higher in both pre- and post-tests, as shown in Figure 4.5. In the pre-test, the average score of the error log group was higher by 6.85 points than the no error log group average, and in the post-test, the average score of the error log group was higher by 5.5 points than the average for the no error log group. When the improvement between the pre and post-tests of the error log and no error log groups was measured, the error log group showed an increase of 2.23 points (an increase of 8.49 % from the pre-test scores) over time. The no error log group showed an increase of 3.58 points (an increase of 15 % from the pre-test scores). This comparison of the increase rate of the implicit group (8.49%) and explicit group (15%) seems to show that the improvement rate for no error log is higher than that of error log. However when we consider the fact that the average score of the error log group in the pre-test (29.77 points) was higher than the average score of the no error log group in the post-test (26.5 points), and the fact that in the post-test the average score of the error log group was 32 points out of 35 points, and two students among them achieved 35 out of 35 points, it is hard to say whether this analysis provides any relevant information about the effectiveness of error log. Indeed, a paired samples t-test revealed no statistical difference in improvements between the error log and no error logs groups,  $t(12)=0.417$ ,  $p<0.685$ .

**Figure 4.5. Pre-test and post-test results of error log group and no error log group**



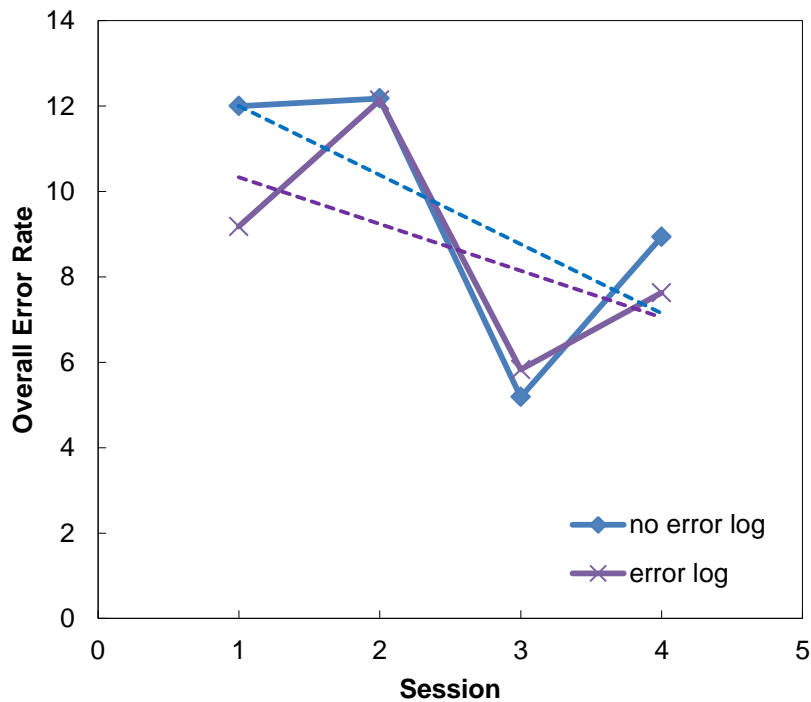
The analysis of error rates of the error log and no error log groups shows a better picture about the effectiveness of an error log. Table 4.7 and Figure 4.6 below show the descriptive statistics for error rates in the four writing tasks. As shown in Table 4.7, the overall error rates for both the error log group and no error log group declined on the last writing task from the first writing task. The error rate of the error log group declined from 9.18 % to 7.63 %, while the error rate of the no error log group decreased from 12 % to 8.93%. A paired samples t-test indicates that there was a significant improvement in the accuracy rate of both the error log and no error log groups when the error rates of the first and the last writing tasks were compared to each other (error log group,  $t(12)= 1.63, p<0.027$ ; no error log group,  $t(13)= 1.68, p<0.045$ ). The standard deviations of error rates of both the error log and no error log groups also narrowed over time. The error log group decreased from 3.38 to 2.92, and the no error log group declined from 5.13 to 3.42. Such decreased standard deviations show that students' accuracy gap in both groups narrowed. The reduced error rates in both the error log and no error log groups show that

corrective feedback of either type has a positive learning effect over time for both groups.

**Table 4.8. Overall error rate of error log and no error log groups in four writing tasks.**

	Writing Task 1 (Diagnostic Analysis Essay)		Writing Task 2 (Reflective Essay)		Writing Task 3 (3Annotated Bibliographies)		Writing Task 4 (Guided Research Paper)	
	M	SD	M	SD	M	SD	M	SD
Error Log group	9.18	3.38	12.14	6.73	5.83	4.21	7.63	2.92
No error log group	12	5.13	12.18	10.90	5.19	1.21	8.93	3.42

**Figure 4.6. Error rates of error log group and no error log group in four writing tasks**

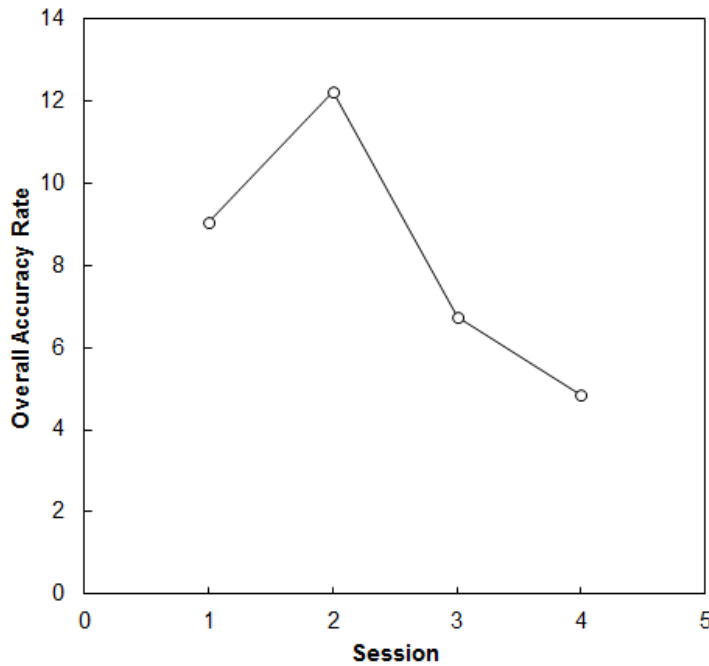


However, in terms of the effectiveness of error logs measured in the analysis of the four writing tasks, as other analyses show, the error rates increased in writing tasks 2 and 4. In writing task 2, the error rate of the error log group increased from 9.18 to 12.14 while the no error log group increased from 12 to 12.18. In writing task 4, the error rate of the error log group increased from 5.83 to 7.63 while the no error log group increased from 5.19 to 8.93. Even though the error rates are not stable, the overall trend line of each group once again indicates that both groups improved in terms of accuracy over time.

Figure 4. 6 may also offer clues about the effectiveness of the error log treatment. This graph shows that the error rates of the error log and no error log groups in writing tasks 2 and 3 are similar to each other. In writing task 2, the error rate of the error log group was 12.14 while the error rate of the no error log group was 12.18. In writing task 3, the error rate of the error log group was 5.83 while the error rate of the no error log group was 5.19. However, comparing the first writing task with the last writing task, we see that the difference gap between the two groups is large. Especially in the last writing task, the increase in errors of the error log group is much lower than the increase of the no error log group. The trend lines also reveal that the rate of improvement in accuracy in the two groups is reversed in the last writing task, showing that the improvement rate of the error log group is clearly higher than that of the no error log group. Even though the error rates in three of the writing tasks are similar to each other, the clear gap observed in the last writing task suggests a possibility that the error log is at least somewhat effective for L2 acquisition. If we use it carefully in our classrooms it can be an effective tool to enhance L2 acquisition.

One more data set examining the effectiveness of keeping an error log was the analysis of error rates in the error logs over time. For this study, students in the error log group were asked to submit their error logs to the teacher-researcher after receiving corrective feedback on their writing tasks. The error logs were then coded and analyzed to see how the error rates in each error log changed over time. Figure 4.7 below shows the overall error rates for each writing task.

**Figure 4.7. Error rates of error logs over time**



And as shown in Figure 4.7, the error rate in each error log constantly decreased over time. Even though error rates on new writing tasks (the first ones) are not stable, in their error logs, which are more controlled and more involved with metalinguistic knowledge than new writing tasks, students' performances were much better. A paired samples t-test conducted to examine the statistical significance of the change of error rates of error logs also shows that the

improvement seen in Figure 4.7 is statistically significant,  $t(13) = 3.57$ ,  $p < 0.017$ .

#### 4.3.2 Discussion

The effectiveness of error logs should be understood in terms of the noticing hypothesis (Schmidt, 1990; 2001). Some researchers who support The Noticing Hypothesis argue that it is not possible to acquire an L2 unconsciously, and only through conscious attention can the input students receive be converted into intake (Schmidt, 1990). When students keep an error log after receiving corrective feedback, they need to think about and analyze the errors in their own writing. Therefore, the error log provides one more opportunity to “raise awareness” of the received corrective feedback, allowing them to better acquire the pertinent rules. As Cohen (1987) and Swales (1988) point out, without error logs, students are reluctant to use the received corrective feedback effectively, so they do not acquire what they have “noticed” in the corrective feedback. This study was designed to examine how effective keeping error logs is in enhancing L2 accuracy in the use of English articles.

The results of this study show positive effects of error logs in enhancing accuracy. Analysis of the pre- and post-tests reveals that the average test score of the error log group was higher than that of the no error log group in both tests. Their scores were especially higher in the post-test with an average of 32 out of 35. Even though the improvement rate of the no error log was higher than that of the error log group in the analysis of the four writing tasks (error log group: 8.49%, no error log group: 15%), this fact is at least partially explained when we consider

that the average score of the no error log group in the post-test (26.5) was lower than the average score of the error log group in the pre-test (29.77). The relatively lower improvement rate of the error log group may therefore be partly due to a ceiling effect (Bruton, 2009), since students in the error log group started with high test scores on the pre-test (29.77/35) and reached very high scores on the post-test (32/35) with two students achieving 35 out of 35.

The analysis of error rates in the four new writing tasks also suggests positive effects of error logs in enhancing L2 accuracy in the use of articles. As shown in Figure 4.6, the difference in error rates of the error log and no error log groups in the last writing tasks is meaningful. The graph shows that the error rates of the two groups are reversed in the last writing task. Even though the error rates in writing tasks 2 and 3 are similar to each other, which might be considered as evidence of no effect of error logs, when we consider the fact that the error rates of the error log group constantly decreased over time, such results can be considered as a delayed learning effect. Many earlier studies such as Bitchener (2008), Ellis et al. (2008), and Sheen (2007, 2010) show that the learning effect in new writings appears later than the learning effects in revisions or metalinguistic knowledge. Since the change of error rates in new writing tasks mainly shows the improvement of procedural knowledge, which takes more time to improve than metalinguistic knowledge (Bitchener, 2008; Ellis et al., 2008; Sheen, 2007, 2010), there is a possibility that the observed difference in the error rates of the two groups in the last writing task can be explained as delayed learning effects of procedural knowledge. Even though more detailed investigation is needed to confirm this suggested delayed learning effect, considering the observed clear gap between error log and no error log groups in the fourth writing task, it is

possible that error logs might be more effective in the longer term.

Moreover, the discrepancy between the metalinguistic knowledge and procedural knowledge can be better explained with Figure 4.7. Interestingly, even though the error rates of the four writing tasks fluctuated (see Figure 4.6), the error rates of error logs constantly decreased over time after the second writing task (see Figure 4.7). When students keep an error log, they tended to use and strengthen their metalinguistic knowledge more than their procedural knowledge. Therefore, if the constant decrease of error rates of error logs (Figure 4.7) can be considered as evidence of students' increased "noticing" of the metalinguistic rules, the contrast between the increased error rate in the writing task 3 (see Figure 4.6) and the decreased error rate in the error log 3 (see Figure 4.7) can be also considered as evidence of "noticing" metalinguistic rules and its learning effect.

In fact, the claim that metalinguistic knowledge is easier to obtain than procedural knowledge also finds support in the analysis of pre- and post-test scores of all of participants presented in research question 1. As shown in Table 4.1 and Figure 4.1, students' test scores on parts 2 and 3 (a metalinguistic knowledge test) were higher than their scores on part 1, a grammatical judgment test (see Table 4.2). Thus, as with many earlier studies, metalinguistic knowledge is shown to be easier to obtain, even though we do not know how long it is retained, and even though it may not be used in the actual writing process. That is why Truscott (1996) argues that students' better performance in the revision process tells "nothing" about whether corrective feedback can make students better writers in the future. Thus the contrasting results



between the error rates of error logs and the error rates of the four writing tasks can be understood as evidence of different learning processes for metalinguistic knowledge and procedural knowledge. Moreover, the relatively higher accuracy rate of the error log group shown in the last writing task can be considered as evidence of a delayed learning effect of keeping error logs. So overall, keeping error logs in connection with corrective feedback can facilitate L2 acquisition.

#### 4.4 Question 4: Which method of providing corrective feedback among the four different methods presented in this study is most effective in enhancing L2 accuracy?

##### 4.4.1 Results

The key findings related to this research question are those of the error logs group where implicit corrective feedback was more effective to enhance accuracy while in the no error logs group, explicit corrective feedback was found to be more effective (see Table 4.9 & 4.10, Figure 4.8 & 4.9). Additionally, in the error rates of the four writing tasks, only group A, who received implicit corrective feedback while keeping error logs, showed a constant decrease in error rates (see Table 4.10 & Figure 4.9). These study results show that the relative effectiveness of implicit and explicit corrective feedback can be different according to whether students keep error logs or not, and the effectiveness of keeping error logs can be enhanced by implicit corrective feedback from the instructor.

To draw such results, students were divided into four groups as shown in Table 4.4.

Group A received implicit feedback and was asked to keep error logs. Group B received explicit feedback and kept error logs while group C received implicit feedback without error logs. Group D received only explicit feedback without error logs. At the end of the semester, 1) students' pre- and post-test results in the four groups were compared, and 2) the change of error rates of the four groups for the four new writing tasks was compared. With these two sets of data, the relative learning effects of the four different groups were measured and analyzed to determine which method is most effective. The descriptive statistics for the comparison of the four groups in the pre- and post-test and the four new writing tasks is presented in Tables 4.9 and 4.10 and Figures 4.8 and 4.9 below.

**Table 4.9. Pre-test and post-test result of each group.**

Groups		Pre-test		Post-test	
		M	SD	M	SD
Group A	Error log Implicit	28.00 (80.00%)	2.61	31.50 (90.00%)	1.38
Group B	Error log Explicit	31.29 (89.39%)	2.75	32.43 (92.65%)	2.70
Group C	No Error logs Implicit	27.17 (77.62%)	4.17	28.83 (82.38%)	3.76
Group D	No Error logs Explicit	18.67 (53.33%)	8.71	24.17 (69.05%)	6.21

**Figure 4.8. Pre-test and post-test results of four groups**

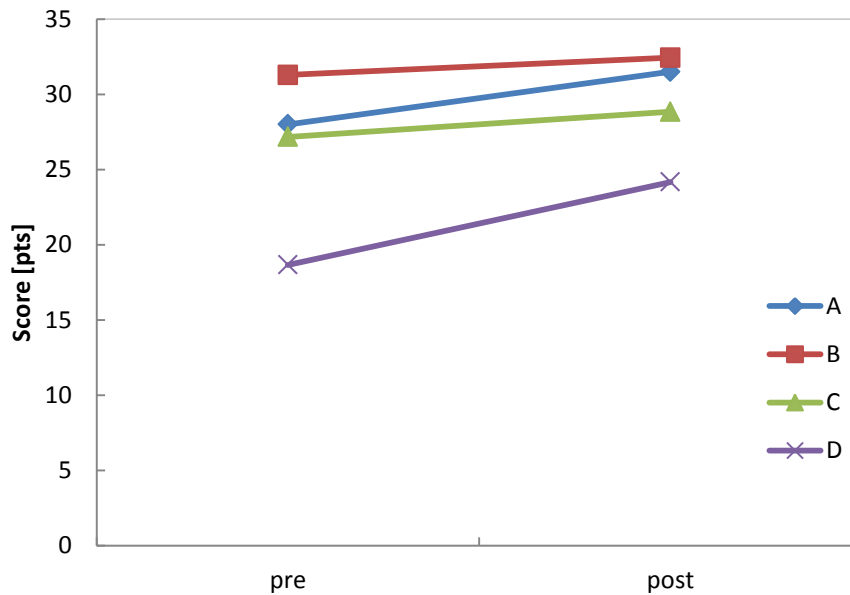


Table 4.9 and Figure 4.8 present the mean and standard deviations for the pre- and post-tests for the four groups. As we can see in Table 4.9, all four groups significantly increased their accuracy the use of articles. The average score of group A increased from 28.00 (accuracy rate of 80.00%) to 31.50 (accuracy rate of 90.00%); that of group B increased from 31.29 (accuracy rate of 89.39%) to 32.43 (accuracy rate of 92.65%); Group C increased from 27.17 (accuracy rate of 77.62%) to 28.83 (accuracy rate of 82.38%); and group D increased from 18.67 (accuracy rate of 53.33%) to 24.17 (accuracy rate of 69.05%). The standard deviations of the four groups also decreased as shown in Table 4.8, meaning that the gap between scores narrowed over time.

Table 4.9 shows students' average test scores on the pre-and post-test in the four groups. The test scores of the error log groups A and B are higher than those of groups C and D in both the pre- and post-tests. Even though all participants were in the same course level, ESL115, their TOEFL score ranges were relevantly large (ranging from 80-103/120), and their proficiency gap

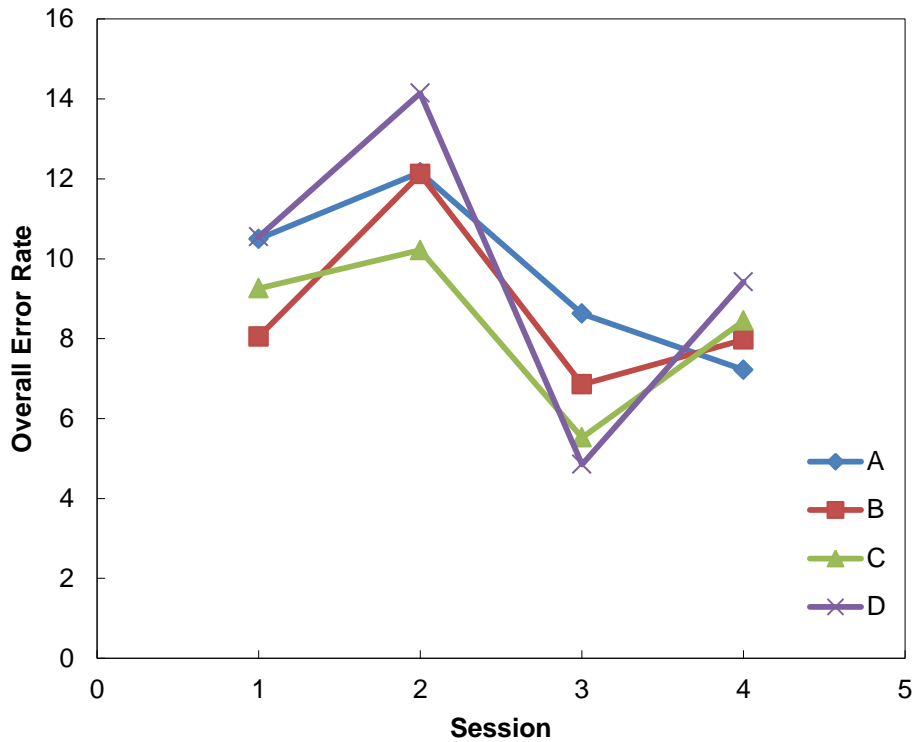
in the use of articles was significant. The average pre-test score for Group A was the highest at 31.29 (89.39%), while the average score of Group D was the lowest at 24.17(69.05%). The relative improvement rate of each group, however, was dramatic. Group A increased by 12.5%, group B increased by 3.70%, C by 6.20%, and group D increased by whopping 29.40%. It is interesting that the relative effectiveness of implicit and explicit corrective feedback is different in the error log groups and no error group.

Table 4.10 and Figure 4.9 below show the analysis of the second data set, the change of error rates in the four writing tasks. Table 4.10 below shows the descriptive statistics for the error rates in the four writing tasks, and Figure 4.9 presents the corresponding graph clearly showing the relative performance of the four groups.

**Table 4.10. Overall error rate of error log and four groups in four writing tasks.**

	Writing Task 1 (Diagnostic Analysis Essay)		Writing Task 2 (Reflective Essay)		Writing Task 3 (3Annotated Bibliographies)		Writing Task 4 (Guided Research Paper)	
	M	SD	M	SD	M	SD	M	SD
Group A	10.49	2.37	12.16	4.18	8.62	5.17	7.22	2.35
Group B	8.05	3.86	12.12	8.71	6.85	3.39	7.97	3.49
Group C	9.26	2.51	10.21	8.11	5.52	1.05	8.45	3.55
Group D	10.55	7.12	14.14	13.65	4.85	1.36	9.42	3.55

**Figure 4.9. Error rates of the four groups in the four writing tasks**



As shown in Table 4.10, the overall error rates for all four groups in the last writing task declined compared to the first writing task. The error rate of group A declined from 10.49% to 7.22%, group B's rate decreased from 8.05% to 7.97% while group C declined from 9.26 to 8.45, and group D decreased from 10.55% to 9.42%. The standard deviations of error rates also decreased over time except for group C. Group A decreased from 2.37 to 2.35, Group B declined from 3.86 to 3.49, and group D declined from 7.12 to 3.55, while group C increased from 2.51 to 3.55. In general, a smaller standard deviation means that students' accuracy gap has narrowed over time. So overall, three of the groups show a narrowed accuracy gap for the last writing task compared to the first, whereas group C shows an expanded accuracy gap between the two writing tasks.

In comparing the four groups, several points can be highlighted. Above all, the most noticeable result shown in this analysis is in the change of error rates for the four new writing tasks. As shown in Figure 4.9, the error rates of group A, who received implicit corrective feedback and kept error logs, consistently decreased over time, unlike the other groups. And among the three other groups, Group B, which was asked to keep error logs, had the highest improvement rate on the last writing task. So it can be said that the improvement rate of the two error log groups was higher than that of the other groups. Another noticeable point is that error log with implicit corrective feedback (group A) is clearly more effective than error log with explicit corrective feedback (group B), while no error log with explicit corrective feedback (group D) is more effective than only implicit feedback (group C) in terms of their improvement rate. This analysis suggests the possibility that the relative effectiveness of implicit and explicit corrective feedback might differ according to whether error logs are kept or not.

#### 4.4.2 Discussion

As suggested above, in an analysis of the relative effectiveness of error logs or of implicit and explicit corrective feedback, we should consider other variables as well, since a combination of two factors influencing the effectiveness of corrective feedback can result in different outcomes. For instance, in the analysis of the relative effectiveness of implicit and explicit corrective feedback presented in research question 2, no significant difference was found between the implicit and explicit groups. However analysis of the four groups shows that the relative effectiveness of the two treatments should be reconsidered in connection with the effectiveness of error logs. As seen in Figure 4.9, group A shows a constant decrease in error

rates for the four writing tasks while group B, the corresponding group with explicit feedback, shows an increase for the last writing task. However, even though no significant difference in the effectiveness of implicit and explicit corrective feedback was found when the analysis was conducted ignoring the effects of error logs, when error logs were factored in, a clear difference in enhancing L2 accuracy was revealed.

Another salient finding to be drawn is that the effectiveness of implicit and explicit corrective feedback in the error log and no error log groups was different. In the error log groups, the effectiveness of implicit feedback was clearly higher than that of explicit corrective feedback, while in the no error log groups the effectiveness of explicit corrective feedback was higher than that of implicit corrective feedback. When we consider the main purpose of keeping error logs, however, these two findings are not surprising at all. The main purpose of keeping error logs is to give students one more chance to notice their errors and the target structure. So for the error log group it is clear that implicit corrective feedback may impose higher cognitive demands on students than explicit corrective feedback, leading to enhanced effectiveness in fostering long-term acquisition of the target forms (Bitchener & Knoch, 2008; Ferris, 1995).

In contrast, in the no error log groups (group C & D), students were not “forced” to pay attention to received corrective feedback, not even for revisions. They were a control group, so no treatment related to error logs was designed for them. So for groups C & D, students’ attention to the received corrective feedback was optional, and probably only “some” students paid much attention to their feedback. This is one of the reasons why the standard deviation of the no error logs groups is generally larger than that of the error log groups (see Tables 4.8 and

4.10). An interview with a student named “Weiyuhan” reflects the option to review the received corrective feedback.

...When I had enough time, I read your comments carefully. But when I didn’t have enough time, I just read it once very quickly, and then I never opened it...

This comment explains why explicit corrective feedback is more effective than implicit corrective feedback when students are presumably paying less attention to their errors while implicit corrective feedback is more effective when error logs are kept. As Cohen (1987) and Swales (1988) point out, students tend to be reluctant to pay much attention to received corrective feedback if they are not required to. When we consider the amount time that students tend to pay to “notice” errors and target rules in the no error log groups, it is clear, at least in the short term, why more “explicit” corrective feedback, which can give them correct answers immediately, would be more effective than “implicit” corrective feedback which only hints about the errors. On the other hand, supplying implicit corrective feedback and “forcing” students to keep error logs in which they must analyze their errors would be more effective in enhancing future performance because they simply must “notice” more.

The last finding of this analysis centers on the overall effectiveness of error logs. In comparing the four groups, the most effective group was clearly Group A, which received implicit corrective feedback and kept error logs (see Table 4.10 and Figure 4.9). Moreover, the error log groups (A & B) outperformed the no error log groups (C& D) in both the pre- and post-



test and in the error rates for their four new writings. The overall better performance of groups A and B adds more evidence of the effectiveness of error logs in enhancing L2 accuracy.

#### 4.5 Interview & Survey: Students' self-reporting about their improvements in L2 accuracy

Students' self-reporting about their improvement in terms of L2 accuracy was very positive. In the self-reporting survey conducted at the end of the semester, all the students answered that receiving corrective feedback is effective, and 22 out of 25 reported that they improved their use of articles (see Appendix E). In interviews with the two students randomly chosen from each group, all eight answered that corrective feedback helped to improve their accuracy in the use of articles. One participant named "Fei" reported her feelings below:

...I think corrective feedback is [the] best way to learn grammar...because, we are all know grammar...We already learned how to use it [grammatical rules]. So I think correcting our errors with feedback is [the] best way to improve [our] English...And actually I think I am improved by this [receiving corrective feedback]...

Even though students' usage of the articles in their actual writings were not all accurate, in the interviews, many of them mentioned that they thought they knew many rules, at least basic rules, of the articles. And that was one of reasons they were very positive about receiving corrective feedback. As Ferris (2004) commented, even though "students are not, after all, always the best judges of what they need most," from an affective standpoint, students' positive attitudes towards corrective feedback can influence their success in enhancing their L2 accuracy

(p. 55).

One more interesting point about corrective feedback which came up in these interviews was that many students felt that receiving corrective feedback is not enough in terms of learning English articles. Even though they reported that they already knew “many rules” related to the use of the articles, and receiving corrective feedback effectively helped them to notice their errors and the correct target forms, they also reported that it was not effective enough for them to infer the “underlying rules” that determine the corrective forms, as one participant, “David,” said,

... Yeah... corrective feedback is good, but, [there are] too many rules I have to use in writings, so... yeah... it will be helpful to have lectures [instructions]...

As Dekeyser (2005) argued, English articles are “highly abstract notions that are extremely hard to infer, implicitly or explicitly, from the input” (p. 5). So for learning English articles, many students thought that separate instruction should accompany any corrective feedback.

#### 4.6 General Discussion

So far, four research questions have been discussed in detail. Table 4.11 below briefly summarizes the answers of this study to the four research questions.

**Table 4.11. Summary of each research question.**

Research Question 1	Research Question2	Research Question 3	Research Question 4
Does corrective feedback on articles have an effect on the development of implicit and/or explicit knowledge of English articles?	Which type of corrective feedback is more effective for L2 acquisition?	Is keeping error logs helpful in the development of explicit and implicit knowledge of the L2? Does it make any differences in the noticing process?	Which method of providing corrective feedback among the four different methods presented in this study is most effective in enhancing L2 accuracy?
Probably. (No control group)	No differences	Yes	Group A is most effective/ Group C is least effective

As shown in Table 4.11, corrective feedback was effective in enhancing L2 accuracy, but there was no significant difference between implicit and explicit corrective feedback. However in connection with error logs, the relative effectiveness of implicit and explicit corrective feedback became clear. In the analysis of the effectiveness of the four treatment conditions, group A, who received implicit feedback and kept error logs showed the highest effectiveness while group C, who received implicit feedback without error logs had the lowest effectiveness. That seems counterintuitive, but when we consider the noticing hypothesis (Schmidt, 1990) and the difference in the amount time students spent on the received corrective feedback according to their groups, such findings can be logically explained. Lastly, analysis of this study's results provides lots of evidence that error logs are effective in enhancing students' L2 accuracy.

Even though this study has many limitations, it is meaningful since 1) it provides evidence of the effectiveness of error logs and emphasizes the fact that learning from corrective

feedback is not a linear process from teacher to student, but that students' own attention and attitude can hugely influence their progress, and 2) it highlights the fact that the effectiveness of implicit and explicit corrective feedback should be examined from a more subdivided perspective since other variables such as error logs can also affect the relative effectiveness of both types of feedback as shown in Figure 4.9.

## CHAPTER 5

### FURTHER RESEARCH AND PEDAGOGICAL IMPLICATIONS

#### 5.1 Summary of findings in this study

This study investigated the effectiveness of written corrective feedback on the use of English articles under various conditions. First, in research question 1, the overall effectiveness of written corrective feedback of all of participants was examined as well as its effectiveness on the improvement of the implicit and explicit knowledge. As Truscott (1996) reasonably argued, even though the results of this study for research question 1 cannot be confirmed because it does not involve a control group, the study results show at least the possibility that corrective feedback can be effective since there were improvements in both the pre- and post-tests results and four writing tasks, meaning that corrective feedback has a learning effect for L2 accuracy. Secondly, in research question 2, the relative effectiveness of implicit and explicit corrective feedback was investigated. The study results indicate no significant difference between the effectiveness of two types of corrective feedback. This apparent similar effectiveness between implicit and explicit corrective feedback on students' accuracy could be due to various possible reasons, but considering many earlier studies in which certain differences had been found, one possible explanation can be drawn from the limitations of this research: relatively short experiment time and a small number of participants. With better-controlled experimental settings and with more participants or a longer time period, the results might have been different. In addition to that, the possibility that there is only minimal difference between implicit and explicit

corrective feedback as suggested in this study cannot be ruled out either. Thirdly, in the research question 3, the relative effectiveness of error logs was examined. In comparing the pre-and post-test results and the error rates of the four writing tasks, significant improvements were found, and error logs were concluded to be effective in enhancing L2 accuracy. This may be due to more opportunities for students in error log groups to “notice” their errors and the possible correct forms. Lastly, research question 4 of this study investigated, the relative effectiveness of four different methods. The results show that implicit corrective feedback with error logs was the most effective method among the four, and that implicit corrective feedback with no error logs was the least effective method. These results indicate two important interpretations. First, even though the effectiveness of implicit and explicit corrective feedback as measured in this study showed no significant difference, the relative effectiveness of the two types of feedback showed that implicit corrective feedback is clearly more effective than explicit feedback. This means that the relative effectiveness of implicit and explicit corrective feedback should be investigated from a more divided perspective. And second, the relative effectiveness of corrective feedback was different in the error log group and no error log group. In the error log group, implicit corrective feedback was more effective than explicit corrective feedback while in the no error log group explicit corrective feedback was more effective. This indicates that according to the amount of time and effort students put in after receiving corrective feedback, the relative effectiveness of implicit and explicit corrective feedback can be different. If students spend a considerable amount of time and effort to process the received corrective feedback, such as the error log group had to do, implicit corrective feedback with its greater cognitive demand would be more effective. However, if students do not spend a considerable amount of time and effort on the

received corrective feedback, explicit corrective feedback that gives the correct target forms directly would be more effective. Therefore, such results indicate that, again, the relative effectiveness of corrective feedback should be examined in more detail, and students' reaction to the received corrective feedback can also be an important variable in the success of corrective feedback.

Even though this study has many interesting findings, it also has several limitations to be supplemented in further studies. In the next section these study limitations and recommendations for further studies will first be discussed, and then pedagogical implications of this study will be discussed as well.

## 5.2 Further Research

The most important and biggest limitation of this research is the lack of a control group. Since this study does not include a control group that received no feedback or kept no error logs, the observed improvement of accuracy in the use of the articles in this study cannot be confirmed as a learning effect of corrective feedback, especially in research question 1. As Truscott (1996) argued in his article, the biggest problem of early studies on corrective feedback was that they did not have a control group which could confirm that the observed improvement of experiment groups were due to the given treatment. Even though for the research questions 2, 3 and 4 this study did a better job to control variables, for research question 1 it is obvious that the lack of a control group to confirm the results means they can have only very limited implications. Therefore in further study it is strongly recommended to have a control group.

This study, conducted over a semester, can be considered a longitudinal study, but when we consider the fact that accurate command of the English article system is very difficult to acquire due to its abstract underlying rules, a semester was not long enough (Ferris, 2004). Moreover since the focus of this study was on investigating the effectiveness of corrective feedback on new writing tasks, more time and more new writing tasks would be needed to observe its full effect on L2 accuracy. Therefore further research may be able to determine whether corrective feedback is effective for the acquisition of English articles, as well as L2 accuracy in general by conducting an experiment over a longer time period.

Also, whereas this study had only 25 participants for the four groups and ended up with only 6-7 students per group, further research should employ many more participants to enhance the generalizability of study results. To be statistically meaningful, group n's of at least 30 would be very helpful, so for the future, it would be good idea to conduct a larger scale study with at least 120 students, 30 students per group. If there are more participants, the effects of certain extreme data can be ruled out or neutralized so that trends can be drawn more clearly from the data sets. Therefore further studies need to have more than the 25 participants used in this study.

Another limitation of the research is the method of testing. As mentioned previously, the kinds of tests used in earlier studies as well as this one, grammaticality judgment tests, sentence completion, picture prompt tests and translation tests, favor the use of explicit knowledge and could not be considered valid measures of implicit knowledge (R Ellis et al., 2006). Even though this study used new writing tasks to balance the focus, further studies should include more parts in the pre- and post-tests to measure implicit (procedural) knowledge so that a more accurate



comparison of the effectiveness of corrective feedback in enhancing metalinguistic and procedural knowledge can be made.

Lastly, in further studies groups should be divided more carefully. In this study, students were assigned according to their classes to the error log or no error log group. Students in the error log group were in a class taught by the teacher-research while students in the no error log were in a class taught by another instructor of the course. Furthermore, assignment to implicit and explicit groups was determined by TOEFL scores collected from their background information survey under the assumption that TOEFL scores would be positively correlated with their capability to use English articles properly in written tasks. However, it turned out that this assumption was incorrect, and discrepancies in students' capability to use articles among the groups negatively affected study results. So in further studies, more attention should be paid to group composition.

Another simple suggestion drawn from the results of this study is that for learning English articles, separate instruction in addition to corrective feedback can be beneficial to students. According to interviews and the survey conducted in this study, many students think that they cannot rely solely on corrective feedback from teachers since the underlying rules of English articles are complicated. Therefore in addition to corrective feedback, some students believed that some instruction on the underlying rules for article use would help them to not only notice the rules but to acquire them. However in many programs at university level, it is not easy to have grammar instruction. Therefore if we cannot afford to include formal grammar lessons in ESL courses, it can be also effective to include some "mini lessons" about problematic grammar

issues such as English articles based on students' needs analysis (Ferris, 2002, 2004). So for further studies, the effectiveness of instructions such as the suggested "mini lessons" can be examined as well as the effectiveness of corrective feedback.

### 5.3 Pedagogical Implications

The first and most important pedagogical implication of this study is that in L2 classrooms, instructors need to give corrective feedback. The results of this study suggest that corrective feedback can be effective in enhancing L2 accuracy in writing tasks. In every analysis conducted for each research question, students' scores on the post- test increased, and the error rates in writing tasks decreased after receiving corrective feedback. Even though it is possible that many other variables affected these results, they can be considered as positive evidence of the effectiveness of corrective feedback. In addition to that, the self-reporting surveys and interviews conducted at the end of the semester support this too. Students reported that they think receiving corrective feedback on their grammar errors is effective to enhance their L2 accuracy. So for instructors in L2 classrooms, it would be a good idea to give corrective feedback on grammar as well as on the contents of writings when grading students' papers.

Then, how and what kind of written corrective feedback should instructors give in class? About this question the study provides a possible answer as well. First of all, based on the findings of this study, it can be beneficial to students to make them keep error logs (see research question 3). By keeping error logs, students can "notice" the relevant rules once more and have one more opportunity to acquire the target form. Therefore instead of just giving written

corrective feedback to students, by having them keep error logs for the feedback they receive, an instructor amplifies the effectiveness of written corrective feedback. The error log does not have to be long or very difficult to fill in; rather it can be just a very short chart giving students an opportunity to “think” about their errors and the correct target forms (see Appendix D for a sample error log).

And if students keep error logs, it would be more beneficial to give them implicit corrective feedback instead of explicit corrective feedback. As shown by the results of research question 4, in cases where students received implicit corrective feedback and kept error logs, their accuracy in the use of the articles was most enhanced. This may be because when students receive implicit corrective feedback, they need to think more to keep error logs than when receiving explicit corrective feedback, which gives them more opportunity to “notice” target rules. So in class, having students keep error logs and providing implicit corrective feedback to maximize their opportunity to notice target rules can be beneficial to students.

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## APPENDIX A: ESL115 COURSE SYLLABUS

<b>Class</b>	<b>Suggested Topics</b>	<b>ESL 115(R): What you actually did</b>
<b>1</b>	<b>First Day Handout Icebreaker</b>	<ul style="list-style-type: none"> <li>- First Day Handout</li> <li>- Course Expectations</li> <li>- Technology Orientation (Dropbox, Google Drive)</li> <li>- Icebreaking : Two Truths and One Lie</li> </ul>
<b>2</b>	<b>Diagnostic Test</b>	<b>Diagnostic Essay Writing</b>
<b>3</b>	<b>Audience - Communication Model</b>	<ul style="list-style-type: none"> <li>- watching a communication model video</li> <li>- Working on a communication model workout.</li> <li>- Audience &amp; Purpose discussion</li> </ul>
		<b>No class: MLK day</b>
<b>4</b>	<b>Audience /How to write academic e-mails</b>	<ul style="list-style-type: none"> <li>- Audience 2</li> <li>- How to write academic e-mails</li> </ul>
<b>5</b>	<b>Purpose, Audience, &amp; Tone</b>	<ul style="list-style-type: none"> <li>- Purpose, audience &amp; tone PPT</li> <li>- Working on audience analysis handout</li> <li>- Working on writing objectively handout</li> </ul>
<b>6</b>	<b>Thesis Statement</b>	<ul style="list-style-type: none"> <li>- Sample Academic introduction paragraph</li> <li>- Working on a thesis statement handout</li> <li>- Thesis statement PPT</li> </ul>
<b>7</b>	<b>PIE Structure</b>	<ul style="list-style-type: none"> <li>- PIE PPT</li> <li>- PIE handout</li> </ul>
<b>8</b>	<b>Coherence - KNO and Word Chains</b>	<ul style="list-style-type: none"> <li>- coherence PPT</li> <li>- coherence KNO practice</li> <li>- Diagnostic analysis: HW</li> </ul>
<b>9</b>	<b>Coherence/Cohe sion Review</b>	<ul style="list-style-type: none"> <li>- Advanced punctuation PPT</li> <li>- working on coordinating conjunction handout</li> <li>- punctuation practice</li> <li>- Unity &amp; Coherence_PPT</li> <li>- Unity &amp; Coherence_practice</li> </ul>
<b>10</b>	<b>Self-diagnosis Skills</b>	<ul style="list-style-type: none"> <li>- Diagnostic Analysis_Sample</li> <li>- Diagnostic Analysis_guide</li> <li>- Diagnostic Analysis practice</li> </ul>
<b>11</b>	<b>Academic Style</b>	<ul style="list-style-type: none"> <li>- Academic tone PPT</li> <li>- Academic tone handout</li> </ul>

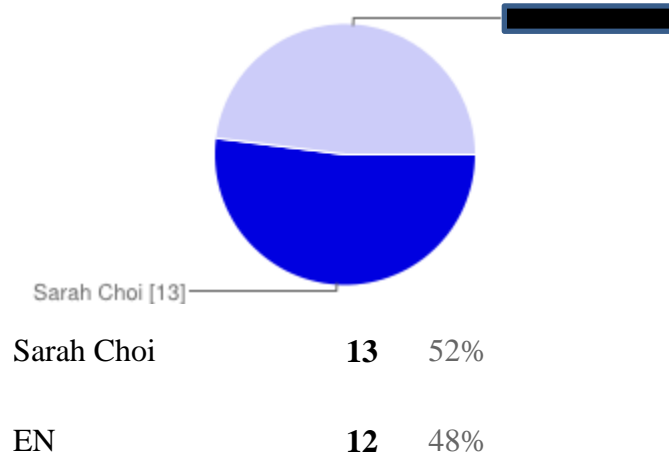
		- Academic tone games
<b>12</b>	<b>Introduction to the Research Process</b>	- Watching sponge Bob video - features of academic writing - Working on a handout
<b>13</b>	<b>Choosing a Research Paper Topic</b>	- CQ researcher - Ordering activity - Library Article guide
<b>14</b>	<b>Pre-research</b>	- Reviewing research process - Group project: pre-research chart
<b>15</b>	<b>Library day</b>	Library day
<b>16</b>	<b>Pre-research 2</b>	- mini presentation - Google doc: group project- finding problem & organization
<b>17</b>	<b>Choosing organization</b>	- Website Reliability PPT - Choosing organization criteria
<b>18</b>	<b>Critical Thinking</b>	- How to develop critical thinking methods
<b>19</b>	<b>Research Paper Thesis Statement</b>	- Analyzing Solutions Question Guide - Thesis Building Activity
<b>20</b>	<b>GRP "Rough" Outlining</b>	- GRP checklist - Analyzing solutions questions guide - Working on a brief outline of GRP
<b>21</b>	<b>IRP Discussion/Peer Perception</b>	- Q&A session about IRP - Group discussion about IRP
<b>22</b>	<b>Finding sources</b>	- IRP Pre-research Portfolio_Handout - IRP Pre-Research Portfolio - Group discussion handout
<b>23</b>	<b>Source Reliability (Part 1)</b>	- Source reliability PPT - Group project: checking source reliability activity in groups
<b>24</b>	<b>APA Reference Page Citations</b>	- APA reference page PPT - APA reference page sample - reference page in class practice - Purdue OWL APA style link

<b>25</b>	<b>Source Reliability part 2</b>	<ul style="list-style-type: none"> <li>- Source Reliability PPT</li> <li>- Source Reliability sample</li> <li>- Relevancy Chart</li> </ul>
<b>Spring Break</b>		
<b>Snow Day</b>		
<b>26</b>	<b>Avoiding Plagiarism 1</b>	<ul style="list-style-type: none"> <li>- watching a video clip</li> <li>- online plagiarism tutorial</li> <li>- plagiarism handout</li> <li>- plagiarism guide for ESL learners</li> </ul>
<b>27</b>	<b>APA Citation: Quoting</b>	<ul style="list-style-type: none"> <li>- APA Citation PPT</li> <li>- Quotation handout</li> <li>- Quotation practice</li> </ul>
<b>28</b>	<b>APA Citation: Paraphrasing</b>	<ul style="list-style-type: none"> <li>- APA Citation PPT</li> <li>- Paraphrasing handout</li> <li>- paraphrasing practice</li> </ul>
<b>29</b>	<b>Paraphrasing Practice</b>	<ul style="list-style-type: none"> <li>- Warm-up</li> <li>- paraphrasing step by step</li> <li>- paraphrasing handout</li> <li>- paraphrasing workshop</li> </ul>
<b>30</b>	<b>Summary Part 1.</b>	<ul style="list-style-type: none"> <li>- Summary PPT (academic summary ppt)</li> <li>- Summary handout</li> </ul>
<b>31</b>	<b>Summary Part 2</b>	<ul style="list-style-type: none"> <li>- Group work: Summary competition</li> </ul>
<b>32</b>	<b>Annotated Bibliography</b>	<ul style="list-style-type: none"> <li>- Annotated bibliography PPT</li> <li>- Annotated bibliography sample</li> <li>- AB Handout</li> </ul>
<b>33</b>	<b>Source Synthesis 1</b>	<ul style="list-style-type: none"> <li>- Source synthesis PPT</li> <li>- Source synthesis handout</li> <li>- GRP Source synthesis handout</li> </ul>
<b>34</b>	<b>Source Synthesis 2</b>	<ul style="list-style-type: none"> <li>- GRP Source synthesis chart : Group work</li> </ul>
<b>35</b>	<b>Introduction</b>	<ul style="list-style-type: none"> <li>- How to write an introduction handout</li> <li>- Introduction PPT</li> <li>- Background information sample question map</li> <li>- Introduction brainstorming</li> <li>- group work: developing an introduction in groups</li> </ul>
<b>36</b>	<b>Conclusion</b>	<ul style="list-style-type: none"> <li>- How to write a conclusion handout</li> <li>- conclusion PPT</li> <li>- Sample conclusion handout</li> </ul>

		<ul style="list-style-type: none"> <li>- Conclusion brainstorming</li> <li>- group work: developing a conclusion in groups</li> </ul>
<b>37</b>	<b>APA style</b>	<ul style="list-style-type: none"> <li>- APA Formatting Guide_Video</li> <li>- formatting guide</li> <li>- sample APA format</li> <li>- APA style</li> </ul>
<b>38</b>	<b>GRP Workshop Day</b>	<ul style="list-style-type: none"> <li>- Q &amp; A Session for GRP</li> <li>- Working on GRP</li> <li>- Group discussion</li> </ul>
<b>39</b>	<b>IRP Discussion Day</b>	- <b>IRP discussion day</b>
<b>40</b>	<b>Individual Conferences (NO CLASS)</b>	
<b>41</b>	<b>Individual Conferences (NO CLASS)</b>	
<b>42</b>	<b>IRP Discussion Day 2</b>	<ul style="list-style-type: none"> <li>- Q &amp; A Session for GRP</li> <li>- Working on GRP</li> <li>- Group discussion</li> </ul>
<b>43</b>	<b>Wrap-up day</b>	<p>Ices Say good-bye</p>

## APPENDIX B: SUMMARY OF THE BACKGROUND INFORMATION SURVEY

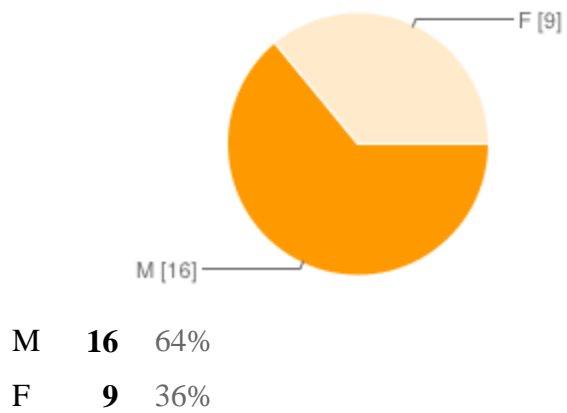
### [1] What is the name of your instructor?



### [2] What is your name?

N/A(deleted)

### [3] Gender



### [4] Age



Age	Number of students
18	2
19	8
20	8
21	7

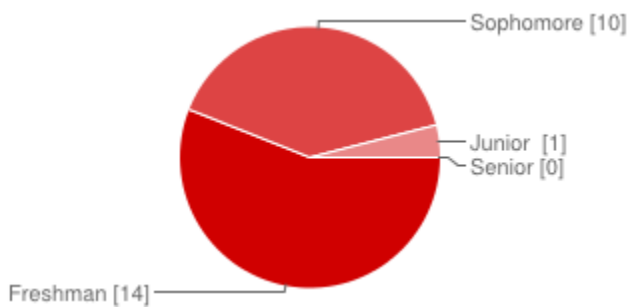
**[5] What is your country of origin?**

Country of origin	Number of students
China	22
Korea	3

**[6] What is your primary language spoken (Your native language)?**

Primary language	Number of students
Chinese	22
Korean	3

**[7] What year are you in?**



Freshman	<b>14</b> 56%
Sophomore	<b>10</b> 40%
Junior	<b>1</b> 4%
Senior	<b>0</b> 0%

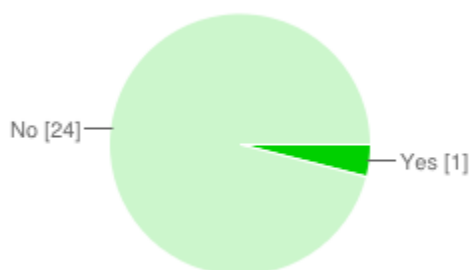
**[8] What is your major?**

Students' major	Number of students
Mathematics	5
Electrical Engineering	2
physics	1
Architecture	2
Chemistry	2
Economics	2
Industrial Design	2
DGS	2
Actuarial Science	1
food science	1
Landscape	1
Communication	1
Art foundation	1
NRES	1
Undeclared	2

**[9] How long have you been in the US?**

0 - 6 months	<b>4</b>	16%
6 months - 1 year	<b>13</b>	52%
1.5 years - 2 years	<b>5</b>	20%
2 years - 2.5 years	<b>0</b>	0%
2.5 years - 3 years	<b>0</b>	0%
more than 3 years	<b>3</b>	12%

**[10] Have you ever taken any kind of English instruction besides ESL classes this semester (for example: writers' workshop and/or private tutoring)?**



Yes 1 4%  
 No 24 96%

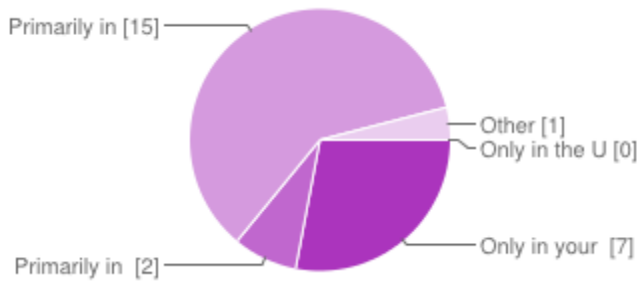
**[12] If yes, could you explain what kind of instruction you've had for how many hours so far? Was it related to English articles? Could you give more detailed information about English instruction you've had this semester?**

ESL114

**[13] How long have you studied English?**

Years of English study	Number of students
5 years	3
6 years	2
7 years	3
8 years	1
9 years	2
10 years	1
More than 10 years	13

**[14] Where did you study English primarily?**



Only in the US	<b>0</b>	0%
Only in your country of origin	<b>7</b>	28%
Primarily in the US	<b>2</b>	8%
Primarily in your country of origin	<b>15</b>	60%
Other	<b>1</b>	4%

**[15] How many years of formal English education have you had?**

Years of Formal English Education	Number of students
1-2 years	2
3 years	3
5 years	1
6 years	3
7 years	3
9-10 years	6
More than 10 years	7
Hard to tell	1

**[16] How long have you had formal English education in the US?**

Years of Formal English Education in US	Number of students
None	1
Less than 6 month	2
6 month (one semester)	3
More than 6 month and less than 1 year	1
1 year	12
1 year to 1.5 years	1
2 years	1
More than 3 years	4

**[17] How long have you studied English grammar?**

Years of studying English grammar	Number of students
0 years	1
1 years	1
2 years	3
3 years	1
4 years	1
5 years	1
6 years	6
8 years	1
9 years	3
More than 10 years	7

**[18] What was your most recent TOEFL score?**

TOEFL score	Number of students
80	3
80-85	1
85-90	3
90-95	4
95-100	7
100-103	5
IELTS 7.0	1
N/A	1

**[19] How confident are you with English grammar?**

1    **0**    0%  
2    **3**    12%  
3    **15**    60%  
4    **6**    24%  
5    **1**    4%

**[20] How confident are you with English articles?**

1    **0**    0%  
2    **3**    12%  
3    **17**    68%  
4    **4**    16%  
5    **1**    4%

## APPENDIX C: ESSAY SAMPLES WITH EXPLICIT AND IMPLICIT CORRECTIVE FEEDBACK

### (1) Essay Sample with explicit corrective feedback

Ways of writing must be different when we try to appeal different audiences. People write in more objective tones when write to friends or relatives. For example, when I write to one of my old friend who is living London, I will write in **an informal way**, use hyperboles in email. And I will often mention things happened when we were together, no need to remind him **the** whole story, just one word he will know what I am trying to say. And another informal writing can be **the/my diary**, different from emails to friends which have **a** topic (send greetings mostly) in writing, my diaries don't have **a** main idea, most are desultory notes that express feelings at that time, words may be more abstract since I can understand that. I have also tried writing novels in Chinese, that is another experience of writing – most of **the** stories in **the** novel are false, and I can write stories in **the** way I imagine, no need to consider what really happened **in reality**, it is not **a** description of fact, but **a** story in my mind. However, academic writing requires writers write in more formal tones and with more advanced and accurate vocabularies. For example, analytical essays are what students often asked to write in colleges, when analyzing **a** topic, writers should be impersonal and accurate, no preference or comments are need to be added in **the** passage. Remember your audiences are professors and classmates who already have some background knowledge of **the** essay, so overmuch explanation and description are unnecessary in **an** analytical paper. **The argumentative essay** is another kind of academic writing, different from analytical writing **the** audiences in argumentative writing are opponents to your point of view. As **a** result, **an** elaborate explanation of your idea is important in order to express your point of view

and persuade your readers. However, even you are trying your best to persuade your opponents, exaggeration or any description that are not agree with fact are not allowed in **the** academic paper. So before starting **a writing project/assignment**, be sure who you are writing to then decide your way of writing.

## **(2) Essay Sample with explicit corrective feedback**

Through high school and **first semester** in college, I have written many types of essays. **The** audience of my papers was also varied. Depending on **the** audience and purpose, **the** writings could be categorized into one of three types: argumentative, analytical, or informative. Argumentative writing is for persuading **a** person or people to change their opinion on **the** topic, so it comes with many evidences to support **the** claim. However, **analytical essay** is for describing, taking apart **a** topic, and getting **an** answer for **a** question, so **the** audience for this will be colleague or people who are in **the field** of **the study** that is related to **the** topic. Therefore, they may be assumed that they are somewhat knowledgeable about **the** topic. On **the** other hand, informative writing is for giving information to **the people**. Usually **the** audiences of **the** informative writing are people who are not experts in **the study** related to **the** topic, so some terms should come with **the** meaning and explanation to help **the** audience understand. It also should come along with only fact, not personal opinion since **the** purpose of this writing is to give accurate information.

## APPENDIX D: A SAMPLE ERROR LOG

### Sample Error Log

**Sample:**

Let say you made an error in your essay as the sample sentence below:

“ I like **an apples.**”

Then, in the error log, you will analyze your error as below:

No.	Original	Why did you make the error	Correction	Why should it be corrected to this form?	Error Or mistake?
1	An apples	I thought “apples” is a singular form	An apple	“-s” should be added to only plural forms of nouns	error

**Error or mistake?**

- If you knew the rule, but you “accidentally” used an incorrect form in the edited essay “only”, it would be a mistake.
- If you did not know the rule and/or you “repeatedly” used such an incorrect form in “many other writings” including this, it would be an error.

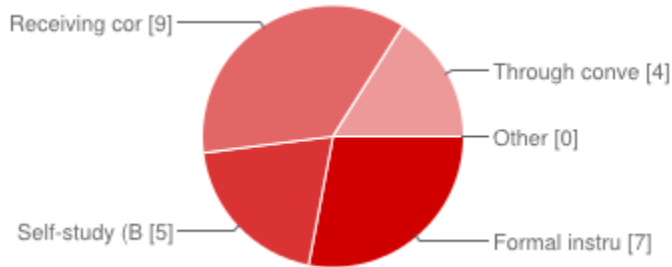


No.	Original	Why did you make the error	Correction	Why should it be corrected to this form?	Error or mistake?
1					
2					
3					
4					
5					
6					
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8					
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12					
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22					

## APPENDIX E: THE SELF-REPORTING SURVEY RESULTS

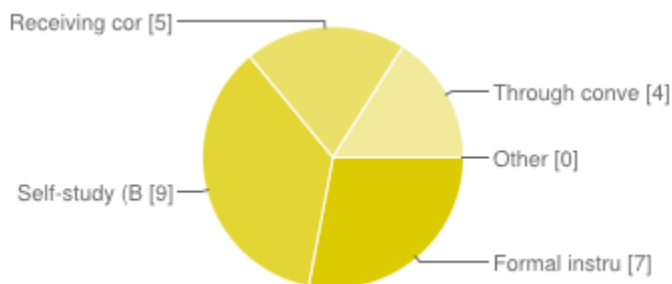
### [The self-reporting Survey Results]

#### [1] In your opinion, what would be the most effective way to learn English grammar?



Formal instruction (Lecture)	<b>7</b>	28%
Self-study (By reading books by yourself)	<b>5</b>	20%
Receiving corrective feedback on your errors	<b>9</b>	36%
Through conversation with native speakers	<b>4</b>	16%
Other	<b>0</b>	0%

#### [2] In your opinion, what would be the most effective way to learn English articles?



Formal instruction (Lecture)	<b>7</b>	28%
Self-study (By reading books by yourself)	<b>9</b>	36%
Receiving corrective feedback on your errors	<b>5</b>	20%
Through conversation with native speakers	<b>4</b>	16%

Other

0 0%

**[3] How do you feel about the article feedback you have received so far this semester? How effective was the feedback you received to learn the English article system?**

1	0	0%
2	0	0%
3	7	28%
4	9	36%
5	9	36%

**[4] Why did you feel it was effective/ineffective? (short-answer question)**

**[ Reasons why it was effective]**

- It was helpful to know what my mistakes are
- The instructor is good
- It corrects my mistakes effectively
- I can notice my mistakes in my articles
- It was helpful for me to correct the mistakes
- It was helpful because I could know where I made mistakes in article.
- It helps a lot help me correct grammatical mistakes
- I feel that it was effective in a way that it helped me learn how English articles work and how they are used.
- It was effective because feedback was helpful for me
- I can clearly get to know what grammar errors I used to make
- I get to figure out how some grammar errors should be fixed
- You can notice where did you do it wrong and improve it
- I know the mistakes and how to correct it after I receive feedbacks
- They clearly indicated my errors in the articles.
- I will remember them and may not make similar errors again in the future
- I know where I did wrong so that I can fix them next time
- It shows me the errors in my article and gives me the detailed comments to improve my article
- It corrects the mistakes and gives me feedback right away, so i can know my mistakes
- I think it's effective. It helps me revise a lot of grammar mistakes

**[ Reasons why it was ineffective]**

- We will easily forget it
- We need practice

- It gives me the feedback of my grammar mistake which is helpful, but it doesn't tell me why I was wrong (*A student who received implicit corrective feedback*)
- I will make the mistake again. I don't know, but just feel like that

**[5] Do you think you can use English articles better than before?**

yes, I think I am improved a lot.	<b>12</b>	48%
Yes, I am improved a little bit.	<b>10</b>	40%
Almost the same as before	<b>2</b>	8%
I am not sure whether I am improved	<b>1</b>	4%
No. I am less confident than before	<b>0</b>	0%
Other	<b>0</b>	0%

**[6] What was the most noticeable in the feedback you have received? What did you learn from receiving corrective feedback? List at least 3 things from the most important, to the least important. (Short-answer question)**

- About the idea of essay about the grammar mistakes/ about the structure of the essay "Good" academic tone logical thinking
- The feedback about use of "a" and "the"/The feedback about wrong sentences structure
- Grammar mistakes/ the structure of article/ contents of article.
- Every feedback is important /Grammar Speak English Writing English Most important
- Grammar check Structure
- 1.grammar error log help me realize some mistakes I ignored 2.The corrective structure of sentence help me know how to organize right sentences. 3. The format of article helps me in building up formal articles
- Logical mistakes format and grammar
- Use of articles/ Grammar-Relativeness/ Flowness
- Grammar/ Coherence/ Unity
- About the structure of the article Grammar mistakes (most of them are incorrect use of "the") I know I am not good at grammars and I am trying to fix them.

- Grammar corrects
- The grammar error/ The structure problem/ The misuse of "the"
- I didn't learn anything from this. It just gave me what was wrong, but it didn't tell about the reason why it is wrong and what is the correct form. GOOD
- I made mistakes a lot on the usage of the/a/an, after Sarah's correction, I've noticed that and pay attention to that. grammar mistake logic transition sentence

## APPENDIX F: INTERVIEW QUESTIONS

### Interview Questions

You have now received feedback on your essay. Please take some time to reflect on the feedback and/or suggestions you have received, and answer the questions below.

1. What do you feel about the feedback you have received so far? How effective was the feedback you received to learn the English article system?

(1-5 scale?)

2. Why did you feel it was effective/ineffective?

*(Reported evaluation of the effectiveness of feedback so far)*

3. Do you think you can use English articles better than before?

*(Reported learning)*

4. Was there particularly noticeable in the feedback you received? What did you learn from receiving corrective feedback? List at least 3 things from the most important, to the least important.

(1)

(2)

(3)

5. Overall, do you think receiving corrective feedback on your grammatical errors in articles is helpful to enhance your ability to use English articles correctly?

6. Overall, do you think receiving corrective feedback on your grammatical errors is helpful to enhance your accuracy?

7. Which one is most effective in learning articles?

(1) Receiving corrective feedback on your errors in grammar

(2) Grammar instruction in class

- (3) Self-learning
- (4) Through communication with native speakers
- (5) Other(            )

8. Which one is most effective in learning grammar?

- (1) Receiving corrective feedback on your errors in grammar
- (2) Grammar instruction in class
- (3) Self-learning
- (4) Through communication with native speakers
- (5) Other(            )

9. Now take a look at your essay and corrective feedback you received.

- (1) Why did you make the error?
- (2) How can it be corrected?
- (3) Why should it be corrected to this form? (the underlying rule)
- (4) Did you know the rule? Was it a mistake or an error?

**APPENDIX G: A SAMPLE PAGE OF ONLINE GRAMMATICALITY JUDGMENT  
TEST**

**A sample page of Online Grammaticality Judgment Test**

**Grammaticality Judgment**

**1. Your Name**

**2. What is your instructor's name?**

Sarah Choi

AAA

**Grammaticality Judgment test & Metalinguistic knowledge test**

**Part 1. Instruction**

You will see sentences with one underlined portion. You are asked to do 2 things

**(1) Please decide if the underlined words are correct in English or not.**

Tick  one box that describes your answer.

☞ Practice 1. We hope you will enjoying visiting Paris.

Not correct	probably not correct	probably correct	correct
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## APPENDIX H: A SAMPLE ERROR CODING CHART & A SAMPLE OF ESSAY

### CODING

#### A Sample of error coding for analysis of four writing tasks

Coding Categories	Occurrence of errors
1 Non-generic indefinite <i>a/an</i>	2
2 Non-generic definite <i>the</i>	4
3 Generic <i>a/an</i>	0
4 Generic <i>the</i>	2
5 Ø for generalizing about plural and mass nouns	5
6 Ø for numbers	0
7 Ø for genres that economize	4
8 Ø for abstract concepts	8
9 Ø for names	0

## A sample of Essay Coding

Eating Disorders Among Female College Students and the Impact of Media

Eating disorders has become an issue in recent years. Research shows that 35%- 57% of college women engage in crash dieting, fasting, self-induced vomiting, or diet pills. Such extreme dieting followed by bulimia is called an eating disorder and have negative impact on the health of these suffering people (National Eating Disorder Association, n.d.). This paper analyzes three current solutions provided by the National Eating Disorder Association to help decrease the eating disorders among female college students and the impact of media, including become a critical viewer, drug treatment diet controlled by professions and offering education to the unaffected college students.

In order to decrease the impact of media to people especially female college students, one of the most effective ways provided by the National Eating Disorder Association is to become a critical viewer. These tips are provided by the STAR program, a program established by the NEDA program that is designed to enforce laws to increase the awareness, education, early intervention and prevention programs (National Eating Disorder Association, n.d.). One of the ways we can protect our self-esteem and body image from the media's often narrow definitions of beauty and acceptability is to become critical viewers of the media messages we are bombarded with each day (National Eating Disorder Association, n.d.). Media messages about