THE POSSIBLE EFFECTS OF ONLINE FEEDBACK EXCHANGES THROUGH WEB 2.0 TOOLS ON TURKISH EFL STUDENTS' PERCEPTION AND WRITING PERFORMANCE

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

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Integrating Web 2.0 tools to promote second language (L2) writing skill have recently become popular in the field of education, and several studies have been conducted on the effects of technology in L2 writing development. On the other hand, teacher feedback is still an important part of the writing process, and how they can better improve their writing performance by using the feedback provided is still a topic that is discussed. The purpose of this study is to find out the effects of online teacher-student feedback exchanges and writing on Web 2.0 tools on learners' writing performance as well as word count, writing duration, and accuracy compared to the traditional paper-based feedback process. Moreover, the study also aims at finding out learners' perceptions on online feedback process and writing on Google Docs. The study was conducted with 40 participants at a state university in Turkey who were divided into the experimental group and the control group. The results of the study showed that both groups improved writing performance, but the experimental groups' score was higher. Online feedback exchanges led students to write accurately and more while traditional feedback did not have any effect on word count and accuracy. On the other hand, both groups increased their writing duration. Finally, students' responses in semi-structured interviews indicated that they found teacher-student feedback exchanges through Web 2.0 tools beneficial for their writing development.

Keywords: Web 2.0 Tools, Online Feedback, Feedback, Google Docs, Writing Skills

ÖZ

WEB 2.0 ARAÇLARI ÜZERİNDEN ÇEVRİMİÇİ GERİ BİLDİRİM ALIŞVERİŞİNİN YABANCI DİL OLARAK İNGİLİZCE ÖĞRENEN TÜRK ÖĞRENCİLERİNİN YAZMA TUTUMLARI VE YAZMA BECERİLERİNİN GELİŞİMİNE ETKİSİ

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Son zamanlarda ikinci dilde yazma becerisini geliştirmek için Web 2.0 araçlarının kullanımı popülerlik kazandı ve teknolojinin yazma becerisinin gelişimine etkisi üzerine çeşitli çalışmalar yapıldı. Öte yandan, öğretmen geri bildirimi hala yazma sürecinin önemli bir parçası olarak kabul edilmektedir ve öğrencilerin geri bildirimi kullanarak yazma başarılarını nasıl geliştirebilecekleri hala tartışılan bir konudur. Bu çalışmanın amacı, geleneksel geri bildirim sürecine kıyasla, çevrimiçi öğretmen-öğrenci geri bildirim alışverişinin ve Web 2.0 araçlarında yazmanın öğrencilerin yazma performansı, kelime sayısı, yazma süresi ve doğruluğu üzerindeki etkilerini bulmaktır. Ayrıca çalışma, öğrencilerin çevrimiçi geri bildirim sürecine ve Google Dokümanlar üzerinde yazmaya yönelik algılarını bulmayı da amaçlamaktadır. Çalışma, Türkiye'deki bir devlet üniversitesinde deney grubu ve kontrol grubuna ayrılan 40 katılımcı ile gerçekleştirilmiştir. Çalışmanın sonuçları her iki grubun da yazma performansını artırdığını, ancak deney grubunun puanının daha yüksek olduğunu göstermiştir. Çevrimiçi geri bildirim alışverişi, öğrencilerin doğru ve daha fazla yazmasını sağlarken, geleneksel kağıt-kalem ile geri bildirimin kelime sayısı ve yazma doğruluğu üzerinde herhangi bir etkisi olmamıştır. Diğer yandan her

iki grubun da yazma süresi artmıştır. Son olarak, deney grubu öğrencileriyle yapılan görüşmelerde öğrenciler Web 2.0 araçları üzerinden gerçekleşen öğretmen-öğrenci geri bildirim alışverişlerinin yazma gelişimleri için faydalı olduğunu belirtmiştir.

Anahtar Kelimeler: Web 2.0 Araçları, Çevrimiçi Geri bildirim, Geri Bildirim, Google Docs, Yazma Becerisi

To my beloved family

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LIST OF ABBREVIATIONS

EFL	English as a Foreign Language
ESL	English as a Second Language
CMC	Computer Mediated Communication
ELT	English Language Teaching
ESL	English as a Second Language
L2	Second Language
CALL	Computer Assisted Language Learning
SCMC	Synchronous Computer Mediated Communication
ACMC	Asynchronous Computer Mediated Communication
CF	Corrective Feedback
WCF	Written Corrective Feedback
SCF	Synchronous Corrective Feedback
ACF	Asynchronous Corrective Feedback
F2F	Face-to-Face

Chapter 1

Introduction

This chapter aims to provide an introduction to the present study and begins with an overview by giving information about feedback exchanges in an online environment and its possible importance in terms of improving the writing skills of the learners. Moreover, the connection of Web 2.0 tools and feedback is explained. In the following section, the purpose of the study, research questions, and the significance of the study will be discussed by addressing key terms related to this study.

1.1 Overview

Writing is accepted as one of the most complicated skills in all four skills. Students are expected to show their writing skills by using accurate grammar, punctuation, vocabulary, spelling, and cohesive ideas. Writing in English plays a critical and intercultural role in the business sector, offices, and political activities around the world (Parks, 2000). In view of this, it is very important to improve learners' writing skills to make sure that they can write properly. In addition, according to Brown (2004), writing skill should be learned and taught to English as a foreign language (EFL) learners. Besides, writing requires a really long period from the drafting to the publishing stage. Such details make it more challenging.

As stated by Sokolik (2003), one of the concepts of teaching writing skills is giving learners more chances to practice writing**.** In order to succeed in a second language (L2) writing, all participants, teachers and learners, must fulfill their responsibilities and fully engage in the learning and teaching process. Therefore, teachers need to provide their students with an ideal environment for learning by facilitating the writing process with manageable steps to encourage students to produce a great deal of written language. When students have succeeded in creating the written language, they need valuable feedback in order to write more precisely and clearly. There is an increasing body of studies on the effectiveness of written corrective feedback to help L2 student writers increase their writing performance (Feris & Helt, 2000; Ferris; 2002; Sheen, 2010). It has been reported that written

corrective feedback can support writers to increase their written accuracy if they are given opportunities to revise their texts (Ferris, 2006).

This study investigates the experiences of freshmen computer engineering EFL students at a state university in the northwest of Turkey about online feedback exchanges through Google Docs and their views on how Web 2.0 tools and online feedback exchanges have influenced their writing skills development. The study also included a control group that went through a pencil-and-paper feedback process in order to find out the differences between the online feedback process and traditional feedback.

Last but not least, the world is shifting from the traditional classroom setting to the online environment. It is a must for educators to adapt technology in teaching writing and feedback practices. This study is expected to be useful to see how using Web 2.0 tools in and out of the classroom be effective for improving foreign language learners' writing skills. The writing process is promoted by online student-teacher feedback exchanges that gives educators and researchers ideas about this field.

1.2 Statement of the Problem

Writing in English plays a significant role in many fields such as academia and the business sector (Thatcher, 2000). Expressing oneself in written English properly and fluently is a need rather than an option today. Researchers attempted to find answers to which strategies or methods were successful in enhancing students' performance in language learning throughout the research history (Enginarlar, 1993; Ferris, 1997; Mendonca & Johnson, 1994). Many studies have been conducted to have results on the most effective way possible for learners' writing and language development (Chandler, 2003; Sampson, 2012; Wigglesworth & Stoch, 2012).

Ferris and Hedgcock (1998) show that while teaching methods to writing have completely changed, one thing that is widely accepted is that both teachers and students believe that teacher feedback on the written work of students is essential and it is considered to be the most beneficial. As Muncie (2000) stated, teachers provide detailed feedback as it is vital for enhancing learner autonomy and improving their writing skills in the long run. Providing feedback is an important part of

teaching writing since students need to understand their errors and fix them to develop their written works.

Writing has been of major importance in L2 learning as technology has taken the place of conventional educational settings and instruments. When technology was introduced to the field of education, it began changing the teaching and learning process in writing. According to Scheffler (2017), the continuing impact of technology in the world has transformed the way students communicate in personal and educational context, and Web 2.0 tools such as wikis, blogs, and Google Docs have attracted scholars about its effect on writing skills in second language learning.

It is observed by the researcher that the institution where the current study is conducted uses traditional feedback practices in writing lessons. Students are given a limited time and submit their papers at the end of the lesson. Then, teachers provide direct or indirect corrective feedback by marking their papers and give them back to the students. If students have any questions about the provided feedback, they ask it to the teacher during the lesson, break time, or office hours. They are not expected to write the corrected version and submit their revised papers again. One of the key factors that prevents students from achieving the goal they set is the conventional writing and feedback activities where learners practice writing in the classroom and receive quick feedback right after the writing activity or detailed written feedback in the next lesson. Students have difficulty in taking advantage of such feedback because the process includes little interaction and most of the students forget what they write when they receive their papers back. They are not engaged in revising their work until the next lesson. In addition, even though they learn the structure of a paragraph and are able to write topic, supporting and concluding sentences, they still make grammar and spelling mistakes which prevent them from producing better texts.

Besides, it is not possible for teachers to be present all the time and give face-to-face (F2F) feedback. It is also not practical for them to collect multiple drafts and carry papers everywhere. However, Web 2.0 tools offer a range of options to teachers and students to exchange feedback and communicate throughout the writing process. As Kibler (2005) pointed out, in conventional, teacher-fronted English

writing classes, it was impossible that teachers would have enough time to provide students' needs and encourage them to participate completely in the writing process; but, with Web 2.0 tools and online feedback option, teachers could increase the opportunity for students to engage in writing.

In both theory and practice, it can be seen that Web 2.0 tools that are the critical instrument of this century are ignored and underrated in the education field (Izadpanah & Mehri, 2017). It can be effectively integrated into writing lessons, and it can be used to provide feedback to the learners in and out of the classroom. However, most online feedback studies investigated learners' perception or peer feedback. When the lack of diverse methods is taken into account in the field of second language learning, this has encouraged the researcher to examine the effect of teacher-student interaction on Web 2.0 tools throughout the revision process on students' writing developments. The findings of the study will contribute to the field by discussing the effect of online feedback exchanges using Google Docs on students' writing performance as well as word count, writing duration, and accuracy. Moreover, students' perception toward the process will give more information about EFL learners' views on integrating technology in a process-based feedback process that allows interaction with the teacher in and out of class.

1.3 Purpose of the Study

When it is considered in terms of the second languages, the best method to improve students' writing skills is still discussed in the field of education. At that point, to improve writing in English requires quality feedback and learner's engagement with the provided feedback (Dunworth & Sanchez, 2016). However, the traditional classroom writing practices including pencil-and-paper make the writing and feedback process unmanageable for both instructors and learners since it requires F2F interactions to answer students' questions and learners to write the corrected version using pencil-and-paper. As a result, most teachers give detailed feedback only to the first attempt of students and students might be unwilling to respond to the feedback. Improving writing skills gets more difficult because of the lack of feedback engagement out of the classroom.

Chong (2019) examined the learners' perception of the teacher's online feedback on Google Docs. The students revised their essays after receiving the instructor's feedback. According to students, online teacher feedback provided better and more detailed feedback than on paper. Students also expressed their satisfaction about using Web 2.0 tools for writing and feedback processes, and they stated that their writing skills improved in time. Therefore, providing learners with online feedback is seen as an effective and manageable way by the students. It is also suggested that feedback should be given at the right time so that students can still remember their statements or responses as well as the context or request (Mory, 2003).

By taking the lack of studies in investigating the effects of online teacher-student feedback exchanges using CMC tools in tertiary education in Turkey into consideration, this reality stimulated this research to explore the possible effects of the online teacher-student feedback exchanges compared to traditional feedback practices of the institution. Findings will provide evidence to see the effects of teacher-student feedback exchanges in an online environment on their writing development as well as word count, writing duration, and accuracy. Accordingly, students' perception towards the online feedback exchange process will be analyzed and discussed in detail for providing qualitative data on the current issue.

1.4 Research Questions

The present study aims at investigating the answers to the following research questions:

1. What are the effects of teacher-student feedback exchanges through Google Docs and traditional feedback on Turkish EFL students' writing performance?
2. Is there a statistically significant difference between the experimental and the control group in terms of word count, writing duration, and accuracy?
3. What are the perceptions of Turkish EFL students on teacher-student feedback exchanges and online writing through Google Docs?

1.5 Significance of the Study

In higher education, cloud computing has been commonly used for a number of functions such as presentation, e-mail, spreadsheet, word processing, and video conference services (Lin et al., 2014). It also promotes students to be active participants, enhances their enthusiasm in learning, and improves their learning experience (Parker & Chao, 2007). Research have shown the benefits of providing feedback to the learners (Bitchener & Ferris, 2012; Ellis, 2001; Storch, 2010). According to Fithriani (2019), writing feedback allows learners to develop writing skills and writing quality, promotes logical thinking, and supports autonomy for learners. In addition, social interaction during the feedback process has also been helpful in writing development. However, most of the studies that observed the effectiveness of error correction were performed in a F2F classroom setting or investigated peer feedback (Berggren, 2015).

Through exploring the possible effects of online feedback exchanges on university-level EFL students, the aim of the study is to contribute more information to the literature by showing how online feedback exchanges affect the writing performance of learners as well as their accuracy, writing period, and word count. There are a number of studies investigating online writing and teacher e-feedback (Alvarez et al., 2012; Chong, 2019; Hosseini, 2012; McCabe et al., 2011; Tuzi, 2004; Yoke et al., 2013). However, whether students spend more time writing following assignments and increase the number of words they write or not were not investigated as a process in detail. In this sense, when compared to pencil-and-paper writing and traditional written corrective feedback, online feedback exchanges and the use of Web 2.0 tools (Google Docs) for writing and feedback processes can be a helpful option for teachers and researchers to have students with improved writing skills. In addition, with the rise in online and distance education, writing practices have shifted from the classroom setting to the online environment. Therefore, teachers should be aware of the potential of adapting Web 2.0 tools into writing and feedback processes.

Besides, this study may assist the researchers and educators in terms of giving information about the students' perception towards online feedback exchanges outside the class and the use of Web 2.0 for writing practices and feedback processes

by showing whether they feel motivated or satisfied to use such methods. In this way, involving Web 2.0 tools and online feedback processes inside and outside the classroom practices might be beneficial for the academic field.

1.6 Definitions

The following terminologies are significant concepts that are mentioned throughout this study:

Online feedback exchanges: A process where students exchange feedback with their teacher through Web 2.0 tools.

Coded feedback: The strategy of indicating the exact place of the errors with codes that show the type of error to the learner (Bitchener et al., 2005).

Unfocused feedback: The correction of learners' all errors in the written work.

Web 2.0 tools: A series of tools that enable the user to go beyond just getting information and to communicate and create content with other people.

Google Docs: It is a free Web-based tool where the users can create, edit, store and share documents and spreadsheets online. The documents can be accessed from devices that connect to the Internet such as laptops, tablets, and smartphones.

Chapter 2

Literature Review

2.1 Introduction

This chapter offers some information about writing as a skill, teaching writing, and writing feedback and continues with the explanations about feedback strategies, teacher feedback in L2 writing, and quality of feedback. Then, the concepts of CALL, online feedback, and Google Docs will be explained. Besides, computer-facilitated teacher feedback and the effect of interaction in the feedback process on writing performance of second language (L2) learners will be presented.

2.2 Writing Skill

Language has been a communication method for decades. If people want to convey their ideas, they transform their ideas and feelings into either written or spoken form. In this regard, writing becomes an instrument for narrating what we think on a paper. Writing is described by many scholars. According to Byrne (1999), writing is generating a series of sentences arranged in a specific order and connected in certain ways. Celce-Murcia (2001) argues that writing is a communication activity which requires a process of interaction that occurs between the writer and the audience through text. Writing is therefore important to help students interact with people and convey ideas, emotions, knowledge and opinions.

Celce-Murcia (2001) claims that “The ability to express one’s ideas in writing in a second or foreign language and to do so with reasonable coherence and accuracy is a major achievement; many native speakers of English never truly master this skill” (p. 204). That is to say, L2 learners try to learn writing skill in another language even when many native speakers are unable to do so. Therefore, students find writing complicated as it is the hardest skill (Alwasilah, 2007, cited in Sundana, 2017).

According to Thornton (2011) writing is "a process based on theoretical principles, practice, reflection and expression" (p. 16). Zamel (1982) defines writing as "a process through which meaning is created" (p. 195). Through these definitions, we can say that writing is a procedure through which thoughts and ideas emerge and take shape. Defining writing as a process also means that L2 learners may need time and write many drafts to become proficient in writing skill.

2.2.1 Teaching writing skill. According to Harmer (1998), there are four reasons for teaching writing to ESL learners: motivation, language acquisition, learning style, and writing as a skill. Collins and Gentner (1980) assert that writing occurs when three sources are combined: "structure, content, and purpose" (as cited in Grinnel, 2003, p. 20). Raimes (1983) claims if students want to create a written work, they go through a process of gathering ideas, starting to write, writing, and revising numerous drafts. The points they must take are shown in detail in the diagram in Figure 1.

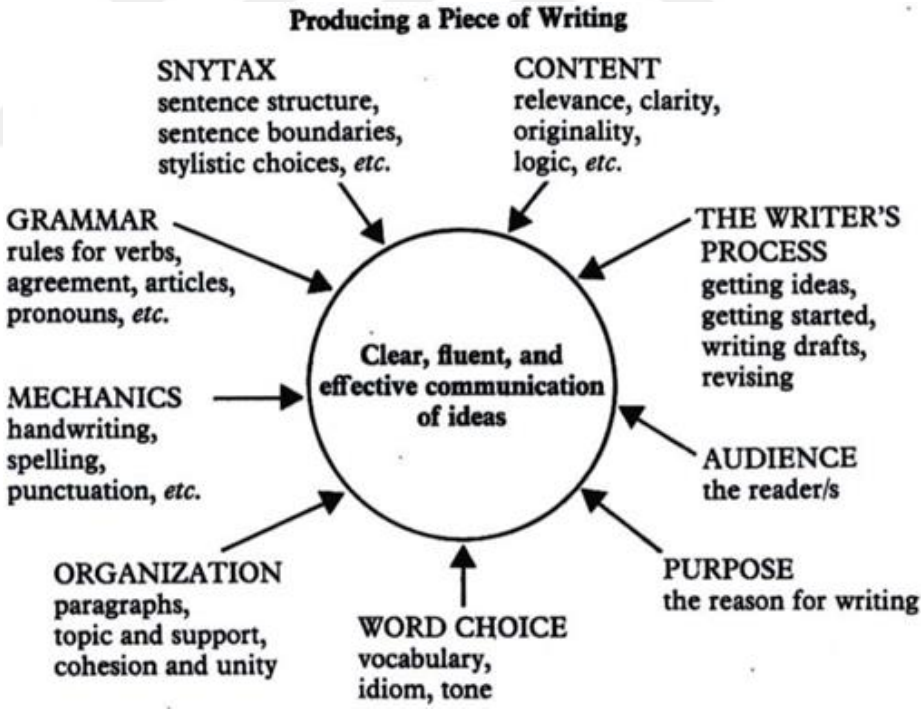

Figure 1. Producing a piece of writing. Taken from Raimes, A. (1983). Techniques in teaching writing. Oxford: Oxford University.

When the diagram of Raimes is examined, it is clear that all components are key factors for producing writing. It comes out that grammar, spelling, punctuation,

syntax and vocabulary choice are important determinants that students take into consideration. Also, they present their work to their audience after organizing paragraphs. This process leads them to brainstorm, gather ideas, write multiple drafts and revise their papers in order to create clear, fluent and effective essays.

2.2.1.1 Product approach in teaching writing. Until the 1970s, the product approach in teaching writing was more popular among language practitioners (Raimes, 1983), and some writing teachers still use this approach in writing lessons. These writing teachers first teach the rules for writing a specific text type, and display examples in the lessons. Then, they give students a specific topic as a writing task and grade their final papers. In this approach, the written product is seen as a means of information. With regard to product approach in writing, Badger and White (2000) stated that "product-based approaches see writing mainly concerned with knowledge about the structure of language and writing development as mainly the result of the imitation of input, in the form of texts provided by the teacher" (p. 154). That is to say, this approach is not concerned with the processes the writer experiences. As Nunan (1991) mentioned, the product approach promotes classroom practices in which the student is trying to imitate, copy and transform appropriate language patterns. That means this writing approach focuses on the accurate use of grammatical structures, and students' performances are assessed by looking at how much they imitate the teacher.

This approach has been criticized because it gives the impression that a written text must be correct in terms of grammar and structure in order to be defined as an acceptable text. According to Raimes (1983), the product approach defines writing as "a means of reinforcing and manipulating grammatical and rhetorical structures" (p. 130). In other words, writing is not a way of communicating with readers, and only linguistic structures and organizational patterns should be correct for good writing.

Contrary to this approach, writing takes a lot of time to develop, and learners should write some drafts. The concept of pre-writing and drafts allowed scholars to establish the theory that writing is not a product but a process in itself. The method for teaching writing began shifting from product approach to process approach in the 1980s.

2.2.1.2 Process approach in teaching writing. Hairston (1982) claims that evaluating the final writing is not enough to determine whether the students have learned. Teachers should observe and examine the process leading the students to the final version of their writings. Process-based writing approach allows students to reorganize and rediscover their ideas between the first and final drafts. According to Zhang (1995), in this approach, writing becomes a repeated process of "prewriting, drafting, evaluating, and revising" (p. 209). Throughout this process, students are involved in the real construction phases of writing (Raimes, 1985; Susser, 1994). The student writer may delete the irrelevant or misunderstood statements from the text in following drafts and make necessary changes to satisfy the expectation of the audience (Zamel, 1983).

However, the process-based writing approach also came under criticism. One of the criticisms is that the process-based writing approach limits writers to narrative writing, causing problems for students who want to develop writing reports, scientific articles, or argumentative essays. Students may not be prepared to think in a different language, too. Rodrigues (1985) criticised this approach by saying "[Students] need structure, they need models to practice, they need to improve even mechanical skills, and they still need time to think through their ideas, to revise them, and to write for real audiences and real purposes" (as cited in Nunan, 2015, p. 84).

Despite criticism, this method has been widely used in L1 and L2 writing contexts and especially feedback has taken a prominent role in process-oriented writing. While reorganizing their ideas between drafts, students require comments to develop their texts. According to Raimes (1983), the most critical support to the students is time and feedback during the writing process.

2.3 Writing Feedback

Hattie and Timperley (2007) defines feedback as "information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding" (p. 81). Students' writings can sometimes include errors, and this may result in underperformance. After noticing a problem or an error, the "agent" will give feedback. With the support of practical feedback and

recommendations, the agent wants the student to achieve a targeted performance (Boud & Molly, 2013; Glower & Gray, 2006).

Feedback was commonly used in L2 writing contexts and has attracted considerable interest (Ferris, 2003; K. Hyland & Hyland, 2006). L2 learners can recognize their mechanical, lexical, syntactical and grammatical errors by means of feedback. After receiving feedback, they can revise and reorganize their writings. For that reason, students improve not only the paper they write, but also their overall writing and self-evaluation skills (MacArthur, 2007, as cited in Cho, 2010, p. 328).

On the other hand, writing feedback was not supported by some scholars and became a part of an everlasting debate. Writing feedback had received significant interest in studies until 1996 when Truscott (1996) declared that correcting grammar errors does not have any role in writing classes, and it should not be included in the lessons. However, he did not carry out a study himself to confirm his statement, but based his assumption on previous research, such as the study by Semke (1984) who designed a 10-week research with students of a German course. She developed four modes of teacher treatment: 1) writing notes and questions; 2) highlighting all errors and providing the appropriate forms; 3) integrating constructive feedback and corrections; and 4) showing errors with codes and asking learners to find the right forms and then revise and rewrite the essay. She noted that even though learners had tracked development in their writing skills, none of the teacher treatment modes had any impact on students' accuracy in writing or language proficiency. She also claimed that the correcting errors on students' writings might have had a negative impact on their behavior especially when they received the fourth type of feedback and were told to address the codes and correct their errors. To Truscott (1996), instructors who keep correcting the mistakes of their students in order to enhance their accuracy are merely damaging the interlanguage period which is normally supposed to lead students to the point of accuracy themselves. Likewise, according to Larsen-Freeman (1981), (i) errors are a natural result of the communication development skills, (ii) correction prevents learners to pay attention to the communicative task, (iii) correction forces the student writer to focus on the form instead of the meaning, and (iv) correcting errors activates the affective filter of the learner, which block learning.

Truscott (1996) also claimed that mistakes are not as simple and clear as we might assume to recognise and to determine the appropriate type and use. Zamel (1985) observed that teachers misread students' writings, react inconsistently, make subjective corrections, give vague suggestions, respond to writings as set and final papers, and almost never provide content-related suggestions or revision strategies. Lee (2004) found out that teachers lack grammatical knowledge of the language they teach. In addition to his argument, Truscott (1996) also mentioned that correcting errors takes a long time for teachers.

Truscott (1996) also analyzed the correction process from students' viewpoint and claimed that learners might not really figure out comments due to their level of proficiency. Even though they comprehend it, they may not remember the feedback, or they may not use the information given in their next writing task due to lack of motivation. The most critical issue is that correcting errors will lead students to become stressed, demotivated and feel afraid of making mistakes. In his point of view, teachers should not do anything to enhance students' accuracy because he specifically underlines that the absence of error correction will lead students to gain accuracy.

The opposition to his report did not come from other scholars until 1999 when Ferris wrote an article directly as a response to Truscott. Ferris (1999) suggested that the issue with teachers' inconsistency can be solved through proper planning and practice. Teachers need to work on analyzing errors and helping their students with feedback and grammar knowledge. Against Truscott's argument that teachers spend too much time on error correction, Ferris offered prioritizing errors and selective error correction. Truscott was worried that students would not understand the feedback given; however, Ferris linked this problem to the feedback quality. She asserted that many learners could develop their writing skill with carefully planned feedback, and therefore, teachers should not only do away with correcting grammatical errors, but also provide feedback more effectively. Even though the two researchers could not agree on the efficacy of feedback, they both suggested that further comparative studies should be conducted. Their debate led scholars to discuss the effectiveness of feedback.

Ashwell (2000) revealed that in terms of accuracy in the edited version of writing assignment, there was a significant difference between the results of students who received feedback and students who received no feedback. Also, Ferris and Roberts (2001) carried out a study by dividing students into three groups. Two groups were provided feedback while one group did not receive feedback. Students in all groups wrote an essay and after teacher feedback was given, students in experimental groups revised their essays. The results indicated that experimental groups were significantly more successful than the control group. While these studies looked at feedback focusing on form, Fathman and Walley (1990) explored the effectiveness of content feedback along with form feedback. Students in the first experimental group were given feedback only in form. The second experimental group was provided with form and content feedback. The control group did not receive feedback. The findings revealed that both experimental groups outperformed the control group. These three studies have one thing in common: the participants were asked to write only one essay.

On the other hand, in order to see the influence of feedback on writing accuracy in a longitudinal study, Chandler (2003) designed five assignments over a school semester. She found that the students who edited their papers after receiving feedback made a noteworthy progress in their future writing tasks, while the control group that did nothing with the feedback did not improve accuracy.

Concerning writing feedback, a further topic that is widely being brought up is whether content-focused comments or form-focused comments should be provided. Ashwell (2000) researched whether there would be a difference when these two feedback patterns were changed. His study included a single assignment with three drafts. He selected three response patterns: content-then-form, form-then-content, and blended (form and content). Content feedback focused on coherence, relevance, organization and paragraph formatting while form feedback was offered by circling, underlining or markers. The results indicated no difference among these three response patterns.

Even though the issue of whether providing feedback is more useful than no feedback is unanswered and needs further research (Ferris, 2004), several studies

have also concentrated on observing the effects of different feedback forms on learners' writing performance.

2.3.1 Written corrective feedback. Written corrective feedback (WCF) is the treatment of L2 learners' grammar errors in writing (Bitchener & Ferris, 2012; Ferris et al., 2013). There are many issues that teachers may remark in students' writings, but mostly, errors related to linguistic forms draw teachers' attention (Beuningen, 2010; Furneaux et al., 2007; Montgomery & Baker, 2007).

Bitchener et al. (2005) studied the effect of WCF on three groups of linguistic errors (simple past tense, use of prepositions, and articles in English). The researchers found feedback successful in helping L2 writers boost their accuracy in articles and past simple tense, but not in the use of prepositions. Maleki and Eslami (2013) discovered that in comparison to those who did not receive WCF, L2 learners who were provided WCF made fewer tense errors. Thus, especially in EFL contexts, it is certain that teachers will try to correct students' mistakes to improve their writing skill. Sampson (2012) believed that only few teachers would think that correcting errors is not a component of classroom practice. In addition, according to Hyland and Hyland (2001), giving feedback in written form gives teachers a chance to pay closer attention to student errors, which is not possible in limited classroom time. Despite Truscott's (1996) assertion against error correction, there is general consensus among scholars upon the benefits of providing WCF to students (Bitchener & Ferris, 2012; Storch, 2010) but the primary issue is how to give it.

2.3.2 Approaches to treating written errors. Corrective feedback (CF), also known as negative evidence or negative feedback (Long 1996), is defined as showing the students that his or her usage of the target language is wrong (Lightbown & Spada, 1999). According to Nassaji and Kartchava (2017), CF can be given for a broad range of errors and can correct the error or lead to self-correction.

Both novice teachers and experienced L2 writing professionals are challenged with how best to react to learners' errors. Ferris (2011) dedicated 219 pages of her book to discussing common problems in error treatment in the writings of L2 students. CF may include (1) a clear indication that an error was made, (2) a correction of an inaccurate language, (3) a metalinguistic statement about the nature

of the error or (4) combinations of these methods (Ellis, 2009). In terms of systematic classification of corrective feedback, two main categorizations were defined by Ellis (2009) and Ferris (2011): focused or unfocused feedback, and direct or indirect feedback.

2.3.2.1 Focused-unfocused feedback. Since L2 teachers know that one writing of a student may contain so many errors, and it might not be feasible to correct all errors at once. It is vital for teachers to decide whether they will address some target structures or correct all mistakes of student's writing. In other words, teachers decide whether to give focused or unfocused feedback.

Focused WCF addresses specific types of error (e.g. inaccurate use of simple present tense third person -s), while unfocused WCF marks all of the linguistic errors (Ferris, 2011). When teachers give focused feedback, they focus on particular structures that their students have learned. If instructors offer unfocused feedback, they provide feedback on each and every mistake they might find in a piece of writing.

Recently, Sarre et al. (2019) examined and compared the effects of various WCF on the writing performance of the participating students in a digital context. The finding indicated that any WCF is better than offering no feedback and that unfocused indirect CF, when provided with metalinguistic comments on the errors and integrated with computer-mediated micro-tasks, lead the learners to write more accurately.

2.3.2.2 Direct-indirect feedback. Other strategies of providing WCF are classified as direct (explicit) and indirect (implicit) feedback. Direct CF is the provision of the correct linguistic structure or form by the instructor to the learner above the linguistic error while indirect CF shows that an error has been made in some way without explicit attention drawn (Ferris, 2003, cited in Bitchener & Knoch, 2009).

There are different ways to indicate writing errors. As mentioned by Ferris (2011), some prominent ways of pointing out inaccurate linguistic forms are highlighting errors with various coded colors (e.g. using a different color for each particular category of error) or merely pointing them out. In earlier research (Ferris,

2003), using codes to indicate the error category was also included within the indirect feedback category. Those promoting indirect feedback argue that this approach is better because it allows L2 writers to participate in guided learning and problem-solving and accordingly, facilitates a form of reflection on existing knowledge which can facilitate long-term progress and written accuracy (Ferris, 2011). Indirect feedback is usually less preferred for writers with lower proficiency in language learning courses because their linguistic repertoire is limited (Ferris, 2010).

The degree of directness may be dramatically different. While one teacher may simply point out specific words or phrases that are problematic, another teacher may underline sentences in which errors exist, and students must identify and correct errors. Some teachers may often write a brief note of what is incorrect and how to correct the mistakes. Other teachers may encourage students to work independently or to get more help from writing centers or peer groups to correct the inaccurate language forms. In addition, some teachers prefer using metalanguage (e.g., subject, verb, preposition etc.) when they give feedback, while others prefer using only the abbreviations of these terms such as *art* for article and *s-v* for subject and verb agreement.

Hendrickson (1980) stated that "Direct error correction treatments not only indicate the presence or location of errors in a sentence, but also provide clues or tips on how students can correct their own errors" (p. 218). He gave some suggestions to provide direct error correction on learner's errors such as marking a word or phrase and writing a suggestion, bracketing a missing word or phrase and showing its right place in the sentence, crossing out a redundant term and offering the right form of an erroneous word or expression. Indirect CF, however, may imply either the existence or the exact location of errors (Wigglesworth & Storch, 2012). Hendrickson (1980) also suggests a variety of ways of introducing indirect error correction such as marking erroneous morphological and grammatical forms, circling the wrong word, attaching an arrow icon (^) to show the missing word and adding a question mark alongside an unclear phrase or form.

Robb et al. (1986) carried out a longitudinal research using direct feedback, coded and highlighted feedback, marked but uncoded feedback, and feedback

showing the number of errors in each line without underlining. There was no significant difference between these four types of feedback in terms of accuracy, fluency and complexity of following revisions. Nonetheless, Lee's (1997) research found that showing the location of the error directly was more effective than indirect feedback, as students could fix more errors. Chandler (2003) provided each student with the same four types of feedback similar to the research of Robb et al. (1986) at different times. The direct error correction was the most successful feedback method that helped students make progress in accuracy on following writings. Chandler interpreted this as a typical result since this type of feedback was the easiest to follow and correct their errors. It was also the fastest way for teachers to give feedback in a multiple draft writing task. Underlining errors was the second most effective way of giving feedback. Chandler noticed that students believed that they were doing better when they made self-correction.

On the other hand, Lyster (2004) and Ferris (2007) have shown that L2 learning can be facilitated through indirect feedback which encourages learners to self-correct. If the teacher writes metalinguistic codes for particular types of errors to indicate the existing problems in the text, it means the teacher gives indirect WCF (Ferris, 2003). It has been discussed that providing students with error codes allows them to collaborate and scaffold more and as a result, it encourages learning more than direct error correction (Sampson, 2012). It has also been argued that the impacts of indirect feedback can last longer than direct correction, since finding the appropriate correction for errors is more cognitively demanding (Ferris & Hedgcock, 2005; Wigglesworth & Stoch, 2012). Once codes are given to learners, we can expect them to reflect on the error and seek to find the linguistically right version by asking their peers or applying to different sources of information such as publications or the Internet. So, as they focus on their errors to fix them, they will become more autonomous and take responsibility for their learning.

2.3.2.3 Indirect coded corrective feedback. Aliakbari and Toni (2009) introduced three forms of CF: direct CF, indirect uncoded corrective feedback (IUCF), and indirect coded corrective feedback (ICCF). The research results showed that the most successful approach to boost grammatical accuracy was ICCF since it included teachers marking the error and showing the error type with a code.

Tootkaboni and Khatib (2014) revealed that direct CF with the teacher guidance was more helpful for short-term retention of target linguistic forms. On the other hand, they found that ICCF was a more successful long-term proficiency strategy. Other research have also shown evidence for the effectiveness of ICCF, notably in increasing the number and length of language-related episodes (Storch, 2005), reducing spelling mistakes (Baleghizadeh & Dadashi, 2011), and decreasing the errors of verb tense use (Maleki & Eslami, 2013). On the other hand, Diab (2015) noted that ICCF was only more helpful than direct CF and metalinguistic feedback in managing redundancy errors but it was not effective in dealing with pronoun errors. Findings from Diab reveal ICCF's benefits are selective.

For another research (Greenslade & Felix-Brasdefer, 2006), students of a class were asked to submit two different assignments. For the first assignment, feedback was provided by underlining errors. For the second assignment, the researchers gave coded feedback along with underlining errors. The study revealed that coded-underlining feedback was more beneficial than only underlining errors when students self-corrected their writings. However, the result was probably expected since participants for both feedback types were the same and they first received the difficult type of feedback (underlining errors) and then the easy type of feedback (coded feedback with underlined errors). A longitudinal study providing these two feedback types with reversed order would probably have different outcomes.

Ferris and Roberts (2001) constructed a study that explored the differences between two indirect feedback types and questioned whether there was a difference in participants' development for more accurate writing. They did not find any significant differences between the student writers who were provided with coded feedback and the students who received uncoded underlined feedback. In the light of this result, the teachers were recommended not to waste more time labeling the errors, because this may not result in further progress than only underlining the errors. Nonetheless, the researchers also noted that the results could change if the research was longitudinal and each writing task was carried out in several drafts.

2.3.3 Source of feedback. Ferris and Hedgcock (1998) show that while teaching approaches to writing have radically changed, there is one aspect that

remains stable; both teachers and students think that teacher feedback on the written work of students is necessary, and it is found to be the most valuable feedback. On the other side, Vygotsky's Zone of Proximal Development promotes the practice of peer feedback, which claims that the cognitive development of learners is the result of social interaction, that allow individuals to learn from one another, particularly from the more experienced people.

Previous studies indicate that students benefit from feedback provided by both teachers and peers in terms of enhancing their writing ability, despite these two sources of feedback also bring along several limitations (Berg, 1999; Hansen & Liu, 2005). Teacher feedback is not considered realistic because it does not reach all students during class time, whereas peer feedback may not be accurate because peers may not check which one the result of the peer feedback is correct. Although teacher feedback is still the one that may provide students with beneficial responses (Jacobs et al., 1998; Miao, et al., 2006), peer feedback is also seen as a valuable writing practice as learners may benefit from each other's writings (Berggren, 2015; Cho & Cho, 2011; Lundstrom & Baker, 2009). However, peer feedback is not in the center of the current study.

2.3.3.1 Teacher feedback in L2 writing. In L2 writing framework, teachers are seen as the primary and most essential feedback source (Hyland, 2004; Lee, 2017). It is expected because low-level students who are trying to acquire the language see teachers as experts and sources of knowledge. Lee (2004) found that 60% of the teachers agreed with the notion that it is the teacher's job to find and fix errors. Through promoting and integrating disciplinary comprehension, academic progress, and advancement in writing, expert guidance provides learners with scaffolded help (Vygotsky, 1978).

Radecki and Swales (1988) analyzed ESL students' opinions about teacher feedback. Most of the students feel positive about teacher comments. Saito's (1994) report revealed that students were pleased to receive feedback on grammar errors from their instructors. In her multi-draft research, Ferris' (1995) explored students' perceptions towards teacher feedback. In their first drafts, students were found to depend much more on the feedback than their latter drafts. They stated that they favored grammar feedback. 94% of the students declared that teacher feedback

improved their writing skills with the help of feedback. In the light of these findings, Ferris (1995) advised teachers that it would be better to concentrate on the first drafts as students focused on them more.

Lee's (2003) study indicates that most teachers implemented comprehensive marking. Comprehensive marking is doable when the writings are not too long. Students select comprehensive marking instead of selective marking. If instructors do not identify all mistakes, the student writers do not realize what kinds of mistakes they made. 87% of the teachers used codes while marking students' writings. Teachers added that categorizing with codes can sometimes be complicated. If students do not get the marking codes, they want to ask and learn. Although the students understand the code, they may not be able to correct their errors. Marking codes can cause difficulties for both the students and the teachers. Therefore, teachers made some helpful suggestions about the use of codes, such as limiting the types of error, giving instructions to the students, and giving examples to show how the codes work. Few teachers include error logs or error charts or error reports in order to assist learners to become more informed of their patterns of error and take bigger responsibility for their writing progress. According to Ferris and Helt (2000), it is necessary to give error feedback in conjunction with grammar instruction and method training; thus, student writers learn to correct their work on their own.

Ismail et al. (2008) reported that even slight feedback provided to students was effective and given the students the chance to revise their work. Another research done by Muncie (2000) suggested that teachers offer detailed feedback because it was helpful to foster learner autonomy and help develop writing skill in the long term.

2.3.3.2 Peer feedback. Peer feedback is seen as an alternative option for teacher feedback to avoid the dominance and authority of the teacher (Mıstık, 1994). Peer feedback before teacher feedback helps teachers save time as many errors can be corrected before handing in to the teacher. It may not be possible to find teachers available all the time but learners can easily find their peers and address their questions. However, it is inevitable that students find teacher feedback more beneficial than peer feedback because of the comprehensive knowledge of the teacher.

A comparative study (Miao et al., 2006) exploring teacher and peer feedback has shown that students learned more from teacher feedback than peer feedback. Students considered the instructor to be more qualified, competent, and reliable than their peers. By all means, if peers are trained to provide feedback, the result of the peer feedback group could be higher. One research including one-hour peer training showed that the students who were provided peer feedback surpassed the students who received teacher feedback in terms of the use of language, organization, mechanics, and content but not on vocabulary (Mıstık, 1994). The study shows that peer feedback can also have a positive influence on students' edited drafts and writing quality if they receive extended training.

2.3.4 Quality of feedback. In studies of Ferguson (2011), Hounsell et al. (2008), and Yang and Carless (2013), when students expressed disappointment with the feedback of their instructors, they often expressed concern about feedback quality. Numerous studies described a variety of aspects that contribute to quality: clearness of the language used by teachers (Nicol, 2010), sufficiency of detail (Sopina & McNeill 2015), timeliness of feedback (Bailey & Garner 2010; Scott 2014), coherence among feedback providers (Carless, 2006), significance of responses (Nicol et al., 2014), and individuation of feedback (Holmes & Papageorgiou, 2009).

Good feedback should provide opportunities for learners to improve their self-assessment skills, support students with simple and accurate information, engage students in the feedback process, and give technological assistants when needed in order to improve learners' autonomy (Carless et al., 2011). Feedback is an efficient instrument if students respond to it and show improvement. Gibbs and Simpson (2004) claimed that feedback is effective if it is timely, adequate, regular, and appropriately detailed; can be related to the intent of the evaluation task and criteria; is clear, considering the level of the students; and focuses on learning (as stated in Glower & Brown, 2006).

One of the important dimensions of quality feedback is the timing of feedback. Feedback can be given in two ways: immediate and delayed. In his study, Kılıçkaya (2019) examined how technology can fit the preferences of pre-service teachers in terms of written feedback. Immediate feedback was reported as the most

effective way to promote learning. Besides that, from the social constructivism perspective, the researchers indicated that feedback should be given at the appropriate time, so that learners could still remember their responses or activities as well as the context or question (Mory, 2003). The previous research carried out by Lefevre and Cox (2017) shows that when the options are offered to the learners, they want to receive immediate rather than delayed feedback. The study by Lee (2013) also revealed that the students were clearly in agreement that their errors would be corrected explicitly and instantly.

While most believe that immediate feedback will best improve learning, a number of studies have shown that it is more effective when feedback is delayed. When students receive correct responses and explanations after they complete the task rather than immediately, they are more likely to gain from the feedback given as they remember the correct forms. Many researches continues to endorse the use of delayed feedback (Mullaney et al., 2014; Mullet et al., 2014; Sinha & Glass, 2015).

Moreover, the seven principles for effective feedback developed by Nicol and MacFarlane-Dick (2006) are frequently mentioned. Those principles include helping to clarify positive outcomes, promoting reflection, offering students high-quality information, facilitating interaction about learning, fostering self-esteem, and giving chances to reduce the difference between the present and expected performance. However, many of these concepts apply mainly to the staff members, thereby focusing on only one part of the feedback process.

On the other side, there is a significant proof of a difference between the feedback output's first step and the final change arising from that process. Some researchers also reported that little action is taken by learners (Bailey & Garner, 2010; Burke, 2009; Scott, 2014). Multiple reasons were given for the differences found in students' feedback engagement, such as academic and cultural backgrounds, emotional and mental capacities, learning styles, emotional condition, and variability in learning to grasp the meaning and purpose of feedback (Evans, 2013; Vickerman, 2009).

In a study, Dunworth and Sanchez (2016) focused on the findings of an interactive, multi-case study which explored the perspectives of students and

instructors on written staff-student feedback at a university in the UK. Participants argued that quality feedback should lead learners to fulfill the needs and reach the stage of the class, assist them to see their level compared to other learners, and create a sense of the expectations of their instructors. Participants also mentioned their worry that quality input should support learners regarding the orientation to writing assignments to make sure that they had grasped them, and they had chosen the best means of handling them. Another dimension was feedback's capacity to promote learning and progress. Both staff and students acknowledged that feedback should be given at a time when students can act upon before they submit the final draft of the task or at the end of the study; and that it should aim at the specific developmental demands of the student writers. In addition, students and staff have stated that learning has taken time and added that quality feedback was still a continuing activity rather than an event. Evidence demonstrates that all parties in the feedback process need to be involved and attentive if it is to be of high quality.

Enginarlar (1993) explored the perception of EFL students towards feedback methods. Instructors provided feedback by indicating linguistic errors with codes and writing short comments to allow students to develop their drafts. The survey study revealed that the students' definition of successful teacher feedback consists of three key features: responsiveness to linguistic errors, support on compositional abilities, and general remarks on writing quality and content. Providing codes and short comments instead of correcting the errors directly, as seen in this report, promotes a more positive view towards feedback and writing and makes revision a more satisfying problem-solving activity for students. Moreover, Lee (1997) claims that student conferences may be preferred to maximize the quality of coded feedback. Also, error logs can help learners become more informed of their prevalent patterns of error, and hence are helpful tools to allow students track and see their improvement (Ferris, 2002). The ultimate purpose is to enable students to recognize and fix errors and freely edit their own work.

Many studies focused on feedback were limited to specific delivery methods, investigating the efficacy of teachers' written feedback (Ferris, 1997), peer feedback (Mendonca & Johnson, 1994), or machine feedback (Warschauer & Ware, 2006). The fundamental premise of much of these studies is that feedback will enhance the

writing skills of L2 learners and integrate language learning if conveyed efficiently rather than if it is obtained carefully. The simple delivery of feedback does not lead immediately to progress in the writing skill of learners. Instead, what makes feedback beneficial is the effective interaction of students with the response provided.

After all, student interaction with feedback was not researched enough in L2 literature though it was found to play a crucial role in learning in tertiary education assessment research (Handley et al., 2011). It is worth noting that involvement is a multifaceted concept and student interaction with written feedback extends beyond reacting to the correction of errors.

Zhang and Hyland (2018) developed the student engagement model of Fredricks et al. (2004) and demonstrated its importance in evaluating L2 student's responses to their writing feedback. According to their model, engagement is being composed of three dimensions which interlock and overlap. Behavioral engagement involves learners' behavioral responses to the feedback, including revising and revision time. Affective engagement refers to the emotional reactions of learners and their attitudinal responses to feedback. Cognitive engagement is about how teachers perceive feedback that involves using revision and cognitive strategies. They collected data throughout 16 weeks to find out how students work with teacher feedback and automated feedback in L2 writing. The students who were highly engaged with the feedback surpassed the students who were moderately engaged. Assessment in the revision process has the potential to trigger interaction with learners since learners play an active role in this process. Thus, more highly engaged students appear to spend more time engaging with feedback, display more constructive approaches towards it, and use different strategies for revision to demonstrate that affective, behavioral, and cognitive interaction communicate dynamically with each other. As a result, the research suggested that the integration of these two kinds of feedback may be more efficient in writing class.

Any examination of quality feedback should look at the entire feedback process instead of a specific point, such as input from lecturers (Nicol, 2010; Wiliam, 2011). This perspective is associated with social constructivism which is derived from the Vygotskian theory. In other words, learning from feedback is not just a

process of transferring information from the teacher to the learner but is created through a social interaction process. Thus, feedback is dialogical (Sanchez & Dunworth, 2015; Tian & Lowe, 2013).

Another point is that quality teacher written feedback requires considering not just what the teacher provides but also how the learner interacts and reacts to it. There have been a variety of studies that show this connection. For instance, in Sopina and McNeill's (2015) research, the feedback output's details were used by student writers to “help them understand their mark” (p. 12). Research also showed that feedback can be given for affective reasons, Jonsson (2013) stating that student writers use feedback as a source of motivation. Other studies also highlighted the role of affect in learners' reactions to feedback (Evans 2013; Värlander, 2008). Moreover, if the expected educational objective of feedback is to support progress (Orsmond et al., 2013) or to encourage learning (Wiliam, 2011), what learners really do in the feedback process is really a significant factor when it comes to evaluating quality.

Bitchner (2012), reflecting on theories of information processing, defined four factors for successful CF. First of all, the learners must respond to the given feedback. Second, they should recognize the difference between their dysfunctional expressions and the feedback offered. Third, they must be able to get linguistic information out of their memory. Lastly, they must also be ready to learn how to use the target forms.

What learners think about the feedback is a serious, yet often neglected, component of the feedback process (Struyven et al., 2005). While many instructors think that they give clear and timely feedback, studies show that many students do not share this opinion (Macellan, 2001). Goldberg et al. (2003) assert that the role of the instructor as a facilitator in the computer-based writing lesson strengthened the motivation of the learners and improved their autonomous strategies for language learning. If feedback is to guide students to get better results, instructors should include the students in the process so that they can consider their needs and respond to them. This is particularly important in the online environment since the territorial dynamics are not the same as in a classroom setting.

2.3.5 Feedback in the online environment. Most of the studies that have investigated the usefulness of error correction have been done in a face-to-face (F2F) classroom environment. Rapid technological prominence has provided writing teachers new opportunities to provide electronic feedback such as feedback using online writing softwares (Google Docs, Microsoft Word) (Kim, 2010), audio software (Audacity) (Lunt and Curran 2010), and screen recording software (JING) (Stannard, 2017).

Compared to the traditional CF approach using pen and paper, students have been found to be open to getting feedback via email. Razagifard and Razzaghifard (2011) reported that learners who received computer-mediated CF surpassed those who received no feedback. However, CF was considered ineffective in a study investigating the use of CF in a computer-assisted mode of treatment (Adams, 2012).

Since CF studies have recently been expanding across computer-mediated settings, this has led researchers to compare F2F CF (Heift, 2004; Sauro, 2009; 2011) and CF in computer-mediated environments (Loewen & Erlam, 2006; Sagarra, 2007). One distinction between F2F and CMC is that CMC enables synchronous and asynchronous communication while F2F allows for only synchronous exchange. Online text editing programs such as Google Docs enable writing teachers to provide synchronous corrective feedback (SCF) and asynchronous corrective feedback (ACF) to the student. Online SCF occurs while the learners are writing their texts. In other words, students and teachers are simultaneously online, allowing the teacher to monitor the process of writing and provide immediate changes in students' linguistic errors. Conversely, ACF takes place after students have finished writing. The teacher gives feedback on students' written works that are submitted electronically. Consequently, the timing of ACF feedback resembles conventional WCF which is given for pen-and-paper writing activities.

The results of online feedback studies argue that students benefit from synchronous feedback as it provides necessary information about the target form in context (Long, 2007), which may lead students to pay attention to the feedback. Even though asynchronous online feedback is provided after the student writers complete their writing tasks, students prefer this feedback type instead of handwritten feedback

since the online feedback includes more details and is presented more promptly and legibly. Recently, Shang (2017) noticed that asynchronous online feedback is more beneficial than its equivalent in promoting the production of more complex sentences by undergraduate EFL students. Ene and Upton (2018) recognized that the success of asynchronous online feedback is related to constructive synchronous feedback reinforcements. In Denton's (2001) study, teachers used both Microsoft Excel and Word to provide feedback after the students submitted their writings online. Teachers can provide feedback by writing their own comments.

On the other hand, a limited number of studies investigated the synchronous feedback condition as a chance to provide input on L2 writing. Aubrey (2012) examined the perceptions of university-level EFL learners on synchronous and asynchronous feedback and noted that teacher feedback, either synchronous or asynchronous, was preferred to peer feedback. Shintani and Aubrey (2016) carried out a study comparing the influence of ACF and SCF on the correct usage of the hypothetical conditional structure. ACF, SCF, and the comparison group were asked to write two narrative tasks on Google Docs. The experimental groups were provided direct CF on the target form in synchronous and asynchronous ways, but the comparison group did not receive such feedback. SCF and ACF groups revised their texts after receiving feedback. Both experimental groups made considerable progress, but there was no improvement in the comparison group. However, on the delayed posttest, only the SCF group performed better than the comparison group.

The written feedback is usually provided electronically by using word processing software's features, mainly editing tools. The editing functions such as monitoring changes, highlighting, and commenting are viewed positively by college students and teachers due to the improved precision and quantity of comments, as well as the ease of reviewing and responding to feedback (McCabe et al., 2011). For example, Alvarez et al. (2012) found out that students responded more promptly to online feedback provided by the teacher because they not only address teacher concerns but also discuss their written work asynchronously using an electronic annotation tool.

Another research exploring the motivational levels of learning with or without the use of computers ended up finding that there was no significant

difference between the motivational levels of learners in terms of the use of computers since they were generally found to fear any type of corrective feedback (Ali, 2011). This stands in contrast with the study carried out by Hosseini (2012) which suggested that the use of computers and the internet had a strong effect on students' motivation. He discussed the effectiveness of explicit and implicit asynchronous computer-mediated CF on increasing the accurate use of prepositions. Students were asked to send an e-mail and a revised version of the same e-mail after providing CF. The explicit CF group surpassed the implicit CF and control group.

Yoke et al. (2013) explored whether online CF via email can be adapted to learning and teaching academic writing. ESL learners gave positive responses to online CF in contrast to the traditional mode of CF using pen and paper. Students' number of sentence structure errors, grammar errors, and vocabulary errors were reduced from the first draft to the last one when they received online WCF. The traditional feedback group also decreased sentence structure errors and vocabulary errors. Besides, the students also stated the reasons why they favored receiving online CF. Most of the participants said the online CF method made the process easier to submit and receive feedback. They also stated that it saved their time, and it was easy to use. They reported that they chose online CF because they did not have to write the entire paper again after correcting their errors.

Wihastyanang et al. (2020) aimed to explore the effectiveness of online teacher feedback with peer reviews on the writing success of the students. The results showed that the student writers who received online teacher and peer feedback from Edmodo did not write better essays than students who experienced traditional teacher feedback. This result indicates that using technology in EFL writing classes does not automatically improve the success of the students. This result is also similar to the findings of Wihastyanang's (2019) study reporting that the students who experienced online feedback did not overtake those who received traditional teacher feedback in writing class. Comparing the scores in writing aspects showed that the students who received online teacher and peer feedback surpassed the results of the students in the control group in terms of lexical resource and linguistic accuracy and range. Since the students were provided both teacher and peer feedback, the result also

undermines the assumption that if students receive more feedback, they will perform better in writing.

The instructor's input is the main way to promote a sense of connectedness and to help students continue to be involved and inspired to learn (Gilbert et al., 2007; Thurmond & Wambach, 2004). Learners want direct communication with their teachers and perform better when their feedback includes this affective dimension (Mullen & Tallent-Runnels, 2006; Vonderwell, 2003). Unlike conventional instructions, the online setting does not immediately allow for clarification through simple follow-up questions. Besides, there is no help from nonverbal signals such as nodding or looking curiously. Students often become stressed and lose interest when online feedback is not clear because they are frustrated about what and how well they are performing (Hara & Kling, 2001; Song et al., 2004; Thurmond & Wambach, 2004).

Due to the problem of being present physically, time constraints may also influence the feedback process. Students often have to wait for a comment in the virtual environment. The length of the delay may negatively affect the satisfaction and motivation of the students (Hara & Kling, 2001). In a study of McVey (2008), fifty-seven participants attended an online class which was given via WebCT for sixteen weeks. Students sent their essays through the drop-box. The lecturer made comments on the papers and used inking on a Tablet Computer to fill the feedback forms and then sent them to the students through the dropbox. Using the inking tool, you can write directly on the screen, just like you would write on a hard copy. (See Microsoft Corporation, 2008.) The students generally expressed positive opinions about the process. They usually viewed the feedback as quite personalized and assisting them to concentrate on the problematic spots of their writings. Furthermore, the majority of the participants stated using the feedback to enhance their writing performance in future tasks. 84% of students stated that they always or usually felt the inking function gave the feedback a more human dimension. Students have seen this feedback approach as offering direct contact with the teacher, and they expressed that interaction is extremely important in the online environment. This underlines the significant role of the relationship between students and teachers in a virtual environment (Mullen & Tallent-Runnels, 2006; Vonderwell, 2003). Moreover, most

of the students always or usually responded to the teacher's feedback. In general, this method tends to be well-received and beneficial for providing written feedback to students in an online environment.

Sarre et al. (2019) examined and compared the influence of the different forms of CF offered by online instructors on the progress of the writing accuracy of the students. The results showed that any kind of online CF provided by teachers is better than providing no CF. Learners also write more accurately when they are provided CF repeatedly. Metalinguistic feedback on the nature of errors together with additional computer-mediated micro-tasks appears to be the most effective form of CF.

With the rise of digital media, studies have been carried out to explore the use of digital audio in giving feedback to the learners. Audio feedback and webcam feedback provide alternatives to written feedback, and these techniques are widely accepted in the field of education. Dagen et al. (2008) reported that feedback was richer when it was in audio format, because more adjectives were used in audio than in written comments. Learners also believed that they received more feedback in audio format than in written feedback. Also, the educators perceived that in audio commentary they provide more detailed feedback than compared to written feedback. Studies indicate that learners find these kinds of recorded verbal remarks stimulating and beneficial but complain that the specific parts of the paper that the instructor is explaining can be challenging to find (Bond 2009; Borup, West & Thomas 2015; Henderson & Phillips 2015).

As it removes the visual barrier, recorded audio-visual feedback including screen-capture video has become a commonly used supplement or alternative to written feedback. Screen-capture software enables the instructor to monitor their on-screen activity as if there was a camera shooting the computer screen. Each on-screen activity is captured as a video while the teacher is scrolling through a student's essay, underlining the text and opening the websites. In a study by Wood et al. (2011), %70 of the participants reported that they understood the feedback of the teacher more efficiently with audio feedback than with written comments. It is seen as a supportive or alternative method for written corrective feedback.

2.4 The Concept of Web 2.0

Tu et al. (2008) explain Web 2.0 as "a web technology designed to promote innovation, knowledge sharing, and collaboration between users" (p. 336). Another important term CMC is generally described as communication mediated by computer technology (Levy & Stockwell, 2006). Although these technologies have not been developed in order to be used in educational contexts, second language researchers have shown the effect they may have on the transformation of language teaching and learning (Wang & Vasquez, 2012; Warschauer & Grimes, 2007).

Quan-Hasse et al. (2005) claimed that the adoption of computer technologies such as the Internet and e-mail into academic settings has allowed students to share knowledge, ideas, and feelings without the limitation of time and space. Zhao (2006, p. 14) stated that "The Internet is the first major medium of communication that allows people to establish new social contacts outside the F2F context as well as to maintain existing ties formed in corporeal copresence.".

Fidaoui et al. (2010) explored the effectiveness of applying CALL to help students to improve better writing abilities. They also examined the attitudes of ESL learners and teachers about the use of CALL in the writing class. The study revealed that the perception of students and teachers was similar. When teachers and students used computers, they were able to learn from each other by sharing and exchanging information. The majority of the participants had positive attitudes towards the quality of their writings which were written on the computer. The students thought they were able to edit their writings, arrange their ideas, fix their spelling errors, create neat essays, produce and publish unique written works by using computers. Burns et al. (2002) reported that student writers tended to reflect positive attitudes toward revising and rewriting their written work on the computer. Many respondents expressed positive perceptions toward attending computer laboratory sessions and the quantity of their writings which were written on the computer.

2.4.1 CMC. While working on computer conferencing as a form of communication on the Internet, Hiltz and Turoff (1978) created and introduced the term CMC. Barnes (2002) described CMC as a broad range of technologies that open the way for individual interaction and communication and information sharing

through networked computers including e-mail, online forums, and real-time chatting.

In language teaching and learning, CMC has been found more influential than the classroom setting. Fey (1998) said that “computer networks are allowing students to transcend boundaries of classroom walls and to learn in new ways” (p. 86). CMC or online communication, according to Warschauer (2001), is composed of synchronous CMC (SCMC) and asynchronous CMC (ACMC). In SCMC, people interact with all participants at their computers through chat or discussion apps simultaneously in real time. In ACMC, individuals interact in a delayed fashion by computer. E-mail is an example for ACMC.

CMC can be used effectively to work on improving the writing skill of EFL students since, according to Goodman and Graddol (1996), computer technologies are primarily dealing with written works in English, engaging in direct teacher-student communication concentrating on the learners' linguistic accuracy. ACMC offers regulated communications media that offer an opportunity for interlocutors to discuss, review, change, or even cut the communication flow before submitting the information to the receiver (Heisler & Crabill, 2006). Asynchronous communication can also engage learners profoundly in critical thinking processes (Lee, 2004) and problem-solving processes (Jonassen & Kwon, 2001), by requiring more concentrated and meaningful interaction.

2.4.2. Computer-based writing. Writing and editing drafts are considered to be time-consuming and tedious for students (Owston & Wideman, 1997); however, CALL tasks with teacher support and computer-friendly methods have been effective in assisting students enhance writing performance (Chen & Cheng, 2006; Loannou-Georgiou, 2006). Abrams (2003) found that students who participated in CMC developed their language more than their peers in the classroom. When it is considered in the writing classroom, many students viewed the computer lab as a laboratory for production since it allowed them to create high-quality written work (Ancker, 2002). Barker (1990) stated that the students who had the opportunity to write on the computer creatively produce long written works. Consequently, many studies compared paper-based writing and computer-based writing.

Students working on a computer or writing on paper do not really experience the same stages of the writing process. Pen-and-paper writing cycle begins with brainstorming, developing ideas, writing, rewriting, creating drafts, and proofreading before producing the final draft (Pennington, 1989). On the other hand, students writing with a computer start by writing ideas, implementing the process of creating, editing, revising, and changing ideas before the final draft is completed (Goldberg et al., 2003). The results suggest that, in comparison to those who rewrite their handwritten assignments, students make fewer new mistakes during the revision step (Goldberg et al., 2003; Lam & Pennington, 1995).

A number of studies investigated whether the writing process on computers has superiority over handwriting. These studies stated that computer-assisted writing could help learners develop their writings in areas such as grammar, spelling, layout, and organization (Cunningham, 2000; Davidson-Shivers et al., 2002; Stevens, 1999). In his "meta-analysis," Bangert-Drowns (1993) mentioned that two-thirds of thirty-two research on computer writing show increased performance for the texts written on the computer.

Wolfe et al. (1996) reported that computer-based essays were usually longer, neater, and more formal than paper-based essays that were written by the same student writers; however, the mode of writing did not influence the number of mechanical errors per writing noticeably. Russell and Haney (1997) discovered that student writers who created their assignments on the computer appeared to write nearly twice as much. Also, they were more inclined to arrange their responses into more paragraphs than students who wrote their assignments on paper. In addition, Chambers (2009) reported that texts written on the computer displayed a higher degree of lexical diversity but had fewer paragraphs and sentences than paper-based essays. The writings, however, did not vary significantly across modes of writing in terms of vocabulary use, length, punctuation and capitalization quality, and rate of lexical errors. According to Whithaus et al. (2008), writing quality and error types of test-takers differed between computer-based and paper-based writings in small but potentially important aspects. Essays written on paper, for example, seemed to be shorter, less formal, and less coherent in establishing a point of view than texts written on a computer. Finally, Jin and Yan (2017) stated that computer-based essays

were longer and contained longer sentences and fewer linguistic errors than paper-based writings that were submitted by the same students.

According to the study of Barkaoui and Knouzi (2018), mode of writing had a large influence on lexical complexity, linguistic variety, fluency, coherence, and content but it did not have the same effects on writing scores. Furthermore, though participants achieved similar results across modes of writing while writing on a computer, they appeared to produce substantially longer texts that involved a broader range of syntactic forms, more complex and sophisticated vocabulary, more global and local coherence, and a higher degree of commitment to the subject than they did while writing on paper. Typing skills had noticeable but generally minimal effects on fluency, local unity, and total score. Lastly, the mode of writing did not affect the participants' writing grades. The results indicated that students with high keyboarding ability perform better in terms of fluency and local cohesion.

Moreover, Dizon (2016) carried out a study to find out if there are significant differences in grammatical accuracy, writing fluency, or lexical richness between the students who wrote through Facebook and students who used pencil-and-paper for writing. Both groups were asked to complete two writing assignments in the class every week for twelve weeks. The experimental was also asked to comment on at least two other Facebook posts in English to facilitate purposeful interaction which is a critical element of L2 learning (Gass & Mackey, 2015). The control group only wrote assignments in personal journals. CF (only for articles, verbs, and noun endings) was given to all students in the same way. As a result, the experimental group outscored the control group in terms of writing fluency and made substantial progress on each evaluation, while the control group plateaued. Both groups made no significant progress in terms of grammatical accuracy. Finally, lexical richness dropped significantly on the posttest of both groups. Most interviewees reported good experiences: producing structured writings with fewer errors, typing faster, and saving their documents.

Fellner and Apple (2006) found that students who are less proficient and less motivated increased fluency and lexical complexity in their written work when they used blogs for writing. Mediation technology in ESL writing, compared to traditional essays written by hand, encourages students to pay close attention to thinking and

revising. It was argued that essays written on a computer had higher scores in argumentation (Lin, 2014).

2.4.3 Google Documents. Thanks to technological advancements, we are currently in the Cloud era and the leading program in this area is Google Drive. One of Google Drive's main components is Google Documents (Google Docs) which is similar to Microsoft Word. Like Microsoft Word, Google Docs has menus and a toolbar with icons for specific writing and formatting features. Besides that, Google Docs provides distinctive features such as Document Sharing, Realtime Collaboration, and Cloud Storage where users can view files anytime and anywhere. Students can easily ask their instructors to view their documents in realtime to edit, and simultaneously, the instructor can view the history of the revision to display what and how the student writers have revised their written work. It allows any user to exchange views on the same text to change or mix an existing document (Thompson, 2008). According to Broin and Raftery (2011), Google Docs can be conveniently shared with people who have an account in Google Docs. The research tool helps you to do research while writing. Also, users can use various Google functions such as quotations, dictionary, spell checker, images, and Google Scholar (Oxnevad, 2013).

The 'comment' function helps the user to highlight a particular part of the online document and give feedback by typing on the side of the highlighted area. When the user taps on the comment box which is next to the open document page, the 'reply' function is activated. By clicking on the 'comment' button located on the top of the page, the user can see the history of all comments Google Docs displays. Besides, Google Docs highlights the sentences pinned on the 'comment box' when users click on it. This feature is time-saving for students since it helps them determine the part which is related to the feedback given (Chong, 2019). 'Copy and paste' feature which takes less time and effort for learners to edit their writings is another factor that motivates student writers to respond to the provided feedback on Google Docs. This feature is very essential for students to concentrate on the revisions that they should make as well as saving their time. Communication is flexible. Teacher-student interactions can be performed anytime and anywhere on Google Docs, and this enables them to communicate after class. From the students'

point of view, due to the e-mail notification feature of Google Docs, students receive notification when the teacher comments on their document. It also allows learners to read teacher comments on time. Besides, the teacher can monitor students' screens as they create their essays or make changes on their work. While responding to questions related to the feedback, students and teachers can use the reply function if they have additional questions.

Suwantarathip & Wichadee (2014) compared the performance of students who wrote their assignment on Google Docs and students who completed the writing task in the F2F classroom. The results indicated that the experimental group outperformed the control group. Correspondingly, Edwards (2011) performed a case study to examine the efficiency of using Google Docs in enhancing the writing skills of university students. In terms of accessibility, fourteen out of fifteen participants had positive feelings while using Google Docs. They also found it easy to collaborate, and in terms of usability, it was easy to communicate with in a writing community, and for that reason preferred to use it. However, the result of the study of Brodahl (2011) showed no positive outcome that writing on Google Docs improved students' writing ability.

To conclude, computer-based learning tools can be used to provide learners with a setting to learn and use language and Google Docs is one of those comparatively modern settings. Technology needs to be integrated into education, as we need learners to have 21st Century skills such as communication, collaboration, critical thinking, problem solving and technology skills (Howlett & Zainee, 2019). Still, far less is known as to whether Google Docs environment will replace the conventional English writing class.

Online feedback provided on Google Docs is used as an example to generally describe e-feedback since Google Docs is a common writing platform with similar qualities to Microsoft Word. The implementation of this common model allows for a more transferable and appropriate discussion of findings for instructors who wish to use other online word-editing tools such as Microsoft OneNote and Turnitin Studio. According to Chong (2019), the 'comment,' 'reply' and 'e-mail notification' features have empowered student writers to feel more involved in communicating with teachers about their work in the digital world. Students used these functions

effectively to address their questions to the teacher, discuss the changes they have made, and write comments on the feedback given by the teacher when they express a different view. Because the style of communication was flexible, student writers were more likely to participate in this 'feedback dialogue' with the teacher. Some students have noted that they can interact with the teacher without the limitation of place and time, which is more practical than e-mail exchanges. Besides, learners were less intimidated by the Google Docs online feedback due to the color of the feedback. Immediate and dialogic feedback is essential to students' feedback uptake, the improvement of evaluative assessment (Tai et al., 2018), and feedback literacy (Carless & Boud, 2018) but it is hard to achieve through hand-written feedback, as student writers can only communicate with the teacher in lessons or through e-mail which means delayed response. The immediate reply and comment feature of Google Docs is seen as one of the strongest points compared to other online writing tools and e-mail exchanges. Students stated that they were more willing to respond to online feedback when it is compared to handwritten feedback.

Chong (2019) explored the students' perceptions of the teacher's online feedback through Google Docs. After delivering the teacher's feedback, the student writers revised their essays. According to students, teachers would provide clearer and detailed feedback on Google Docs than on paper. Such discrepancy in depth and accuracy of feedback, as observed by the student writers, is due to two reasons: (1) the teacher can type on the keyboard faster and more accurately, and (2) the teacher has no space limit to provide feedback. When it is compared to providing feedback on a Word document, Google Docs allows the teacher to provide feedback more promptly since it requires less work for the teacher. By using the 'reply' function, students communicated with the teacher by asking feedback-related questions, (2) explaining the changes they made and writing comments on the feedback of the teacher. Students indicated their preference for online feedback on Google Docs because feedback was easy to read, text-specific, and it allowed them to pin comments with specific parts of the document. The results showed that students prefer online feedback to feedback on paper, though the researcher mentioned that further studies on the comparative effectiveness of these two types of feedback are still necessary.

Wang (2017) discussed the introduction of Google Docs in order to investigate the factors affecting the learning experience of students in a higher education course. The study found that Google Docs has created an efficient learning atmosphere for the students and the teacher to remain connected in and out of class. Previous studies (Schneckenberg et al., 2011; Tsay & Brady, 2010) also supported that when facilitated with cloud-based applications, students perform better in learning. Overall, the results revealed that two learning aspects should be taken into consideration simultaneously in developing the cloud learning environment: the technological experience of the students and online interaction frequency. Students' increasing frequency of interaction or communication between their instructors and other students can lead to improved learning satisfaction.

Ambrose & Palpanathan (2017) examined the efficacy of computer-based writing in the computer laboratory and pen-and-paper writing in the classroom. More than 80% of the students had a quite positive perception towards using Google Docs in English writing classes and wanted their lecturers to use Google Docs more in lessons. There was also significant progress in computer-based writing when it is compared to in-class pencil-and-paper writing tasks. Another study by Seyyedrezaie et al. (2016) showed the effectiveness of using Google Docs since students' writing performance improved dramatically after receiving feedback in the Google Docs environment. Students stated that since they took advantage of teacher support which was available at any time, they did not have to wait for the lesson to talk about their problems with the teacher. "Lack of effort" was reported as one of the most important causes of poor performance in writing.

Google Docs was selected as the Web 2.0 tool in this study. It has a user-friendly design. Moreover, submitting writing assignments and making changes take little time and effort. Using *comment* and *reply* options embedded in the tool makes the interaction process easy for both students and teachers.

Chapter 3

Methodology

3.1 Overview

This chapter aims at investigating the methodological rationale of the present study by presenting a research paradigm and research design. It presents the details of the study with the intention of enabling readers to apprehend the study by describing the setting and the participants of the study. Then, it focuses on data collection and analysis procedures. In conclusion, the limitations of the study are discussed in the chapter.

3.2 Research Paradigm

The most essential element for a researcher is to comprehend the research paradigm. It is a system of ideas, described as a consensual set of views and practices (Mills, 2003). A paradigm is an essential belief system and theoretical framework with assumptions regarding epistemology, ontology, methodology, and methods (Rehman & Altharthi, 2016). Guba and Lincoln (1982) stated that ontology is the essence of reality. Epistemology refers to the nature and forms of knowledge, how it can be acquired, and how it interacts with humans (Cohen et al., 2007). Lastly, the methodology is related to the analysis of how a particular research item should be tackled (Grix, 2004). In other words, it is a plan of analysis since it assists the researcher to choose which type of data is essential for the analysis and which data collection tools are most useful for the purpose of the study. According to Rehman and Alharthi (2016), methods correspond to types of data collection and analysis, such as surveys and interviews. A research paradigm that corresponds to the researchers' beliefs about the nature of reality is essential to present an effective research design (Mills et al., 2006).

According to literature reviews about the research paradigm, there are three different types of paradigms: positivist, interpretive, and pragmatic. As Hutchinson (1988) states, that positivism views the world as being ready for research in a constant form. Briefly, positivism addresses a particular reality and claims that quantitative methods must be used to understand reality. On the other hand, interpretive paradigm opposes the notion that reality can only be understood by accepting stable and enduring facts (Guba & Lincoln, 1982). It deals with subjective definitions to define individual interpretations (Shah & Al-Bargi, 2013). Qualitative methods must be used to interpret and comment on these realities. As the last paradigm, pragmatism points out that the suitable approach is one that offers solutions for the challenges to comprehend reality.

The paradigms include data collection and analysis besides methodological approaches. There are three main research strategies for research: quantitative method, qualitative method, and mixed-method. In the education field, the appropriate design is chosen according to the basis of the study. Each design has different kinds of research strategies that can be used to gather and evaluate information. According to Creswell (2003), the quantitative method is described as a comprehensive analysis of items by collecting quantifiable information and working on observable, scientific systems. It gathers data from current samples of online surveys, scales, and questionnaires using test methods that can be presented numerically. According to Dörnyei (2007), the findings of this strategy are empirical, reliable, and logical. However, the qualitative method looks at the conception of the fundamentals of social sciences that are both personal and complex (Gaudet & Robert, 2018).

Johnson and Onwuegbuzie (2004) claimed that the mixed method is incorporating qualitative and quantitative designs, techniques, methods, and approaches to a specific study. Ponce and PaganMaldonado (2015) also stated that mixed-method design investigates on purpose by linking quantitative and qualitative designs as part of the study. These statements make it clear that mixed-method design leads to remarkable findings. In a similar way, for the current study, quantitative design was selected to contribute to an objective examination of the learners' performances. Cambridge English Writing Assessment Scale was adapted

to this study. It aims to evaluate the written work of students in terms of content, communicative achievement, organization, and language use. On the other hand, qualitative design was implemented in conjunction with the quantitative design. Qualitative research includes unstructured and semi-organized structures to collect information such as interviews, observations, and focus group discussions.

In the present study, in addition to quantitative design, the qualitative design was also used to explore the perceptions and observations of EFL learners. The aim was to expand the perspectives of the research by promoting the findings of the scale with semi-structured interviews. The mixed-method design was listed as the third option. Creswell (2003) describes the blend of qualitative and quantitative approaches as a valuable strategy for understanding the research problem. In parallel with this information, both quantitative and qualitative methods were used. The combination of a writing assessment scale and semi-structured interviews formed the mixed-method research design in order to answer the research questions of this study.

3.3 Research Design

The main purpose of the present study is to find out the possible effects of online feedback exchanges and traditional feedback on tertiary level Turkish EFL learners' writings. A mixed-method research design is used to enlighten the research questions of the study. In other words, both quantitative and qualitative research methods are used to collect data, and the results are then integrated to answer the research questions.

As Ivankova et al. (2006) have pointed out, gathering the quantitative data is the first step of the research. The participants' scores that were given on a numerical scale were analyzed and compared for the first research question. In terms of quantitative data, the Cambridge English B1 Writing Assessment Scale is used. The reason is that the participants studied in English preparatory school in the previous year and took Cambridge English: Preliminary for Schools (PET for Schools) as their final test that decides whether they pass the preparation class or not. Their papers were graded by two independent raters using the Cambridge English B1 Writing

Assessment Scale. Therefore, the same scale was used in the study. To gather this data, quantitative research design was necessary.

For the experimental group, their first writing that they wrote and submitted in the lesson is accepted as their first draft, and the following drafts were written outside the classroom as their tasks were assigned online, and they exchanged feedback with the teacher throughout the process. After the coded feedback was given to their first drafts, they were asked to correct their errors and submit their second draft through Google Docs. Students were able to ask questions to the teacher and were not limited in terms of interaction frequency and the number of drafts. On the other hand, the control group used pencil and paper and received coded feedback only for their first paragraphs. They were not asked to submit a second draft. The quantitative data analysis used a pre and posttest comparison to see whether there is any discrepancy between the writing scores of the experimental group that underwent online feedback exchanges and the control group that received conventional pencil-and-paper feedback or not.

To answer the second research question, the number of words written for each task, the duration of writing, and the total number of errors in both groups were noted and the changes were analyzed to investigate the differences in word count, writing duration, and accuracy.

For the third research question, qualitative analysis was carried out through semi-structured interviews with the experimental group. As mentioned above, in order to confirm the quantitative data, the responses obtained from the interviewees are used. The questions in the interview aimed at learning the expectations of the students as well as the contributions of online feedback exchanges to their writing development.

3.4 Setting and Participants

The present study was carried out in a state university in the northwest of Turkey. Both qualitative and quantitative data were collected during the first semester of the 2019-2020 academic year. The university is accepted as one of the most disciplined and strict institutions in Turkey. It has four major departments: aerospace engineering, industrial engineering, electrical and electronic engineering,

and computer engineering. English is of utmost importance for the university because students are expected to use English throughout their professional careers. 40 Turkish EFL students majoring in computer engineering at a state university in the northwest of Turkey participated in this study. 20 students were in the experimental group while the other 20 students were in the control group. The participants were selected among 210 students using a simple random sampling approach. All the participants were male and aged between 18 and 20. The participants studied in English preparatory school in the previous year, and all participants passed the preparation class and became freshmen students.

The proficiency level of the students participating in the study was B1 according to the Common European Framework of Reference for Languages (CEFR). During the fall semester, students were enrolled in an "Academic Reading & Writing" course that was 5 hours a week. The curriculum includes 2 hours for reading and 3 hours for writing. Students were not enrolled in any other English classes. The main goal of the course was to improve academic writing skills. The syllabus (Appendix A) that was designed by the institution included writing tasks for every lesson.

At the beginning of this study, both groups were informed about the study. Students began writing a paragraph for the first 6 weeks of the writing lessons. According to Heriyawati et al. (2018) content familiarity has a significant effect on the language learning processes of students. For this reason, writing topics were selected in parallel to in-class practices such as similar reading texts, videos, and discussion topics. The aim was to help students improve their writing skills and create better writings. All writing tasks were given as in-class activities. The experimental group wrote the following drafts for each task out of the class. The control group was not asked to write drafts. The participants of the experimental group brought their laptops to the classroom and wrote their paragraphs on Google Docs, while the participants of the control group completed all writing tasks using pencil and paper. To provide a comfortable writing process, there was no time and word count limit for in-class writing of both groups. In the experimental group, the skills and experiences of participants in using computers were not taken into consideration. Moreover, students were not graded with their writings.

3.5 Procedures

Data collection instruments, data collection procedures, data analysis procedure, reliability and validity, and limitations are explained in detail in this section.

3.5.1 Data collection instruments. In the present study, Cambridge English Writing Assessment Scale was used to determine the students' writing level since scales are widely used data collection instruments for quantitative data. The scale is internationally used and recognized for reliable data. In addition, a semi-structured interview was conducted to gain insight of students' perceptions about the online feedback exchanges as well as the online writing process.

3.5.1.1 Writing rubric for writings. One significant factor in assessing writing skills has been stated to be the use of a reliable and valid rating scale (Charney, 1984). According to McNamara (1996), a valid assessment scale should evaluate the performance of the learner. One of the data collection instruments used in the study was the Cambridge English Writing Assessment Scale (Appendix B) which was administered to evaluate the English writing skill performance of the participants in both classes. The writing performance of students is assessed in terms of content, communicative performance, organization, and the use of language.

To provide information to the raters, the subscales and descriptors are explained in detail by Cambridge English. While assessing the content, the rater evaluates whether the student writes about the given topic and their writing includes irrelevant content or not. The communicative performance of the student is graded by the use of the communicative task structures to keep the attention of the target reader and to express key ideas. Text is generally accepted as well organized and coherent if a number of cohesive devices and linking words are used by the student writer. Students are also expected to use a number of different everyday vocabulary correctly and some complicated grammatical structures with a good degree of control. The total score is 20, and the distribution of points for each part is equal.

3.5.1.2 Semi-structured interview. To find the answer to the third research question, a semi-structured interview was used in the research. In comparison to a structured interview, a semi-structured interview encourages interviewees to come up

with new ideas that can be valuable for the researchers to investigate unique themes (Heigham & Croker, 2009). For this purpose, semi-structured interview was selected by the researcher in order to identify new themes. The steps of the grounded theory approach were followed to analyze the qualitative data of this study. Corbin and Strauss (1990) described the grounded theory approach as:

> "A grounded theory is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship to one another." (p. 23)

There are 3 types of coding in a grounded theory method: open, axial and selective coding (Corbin & Strauss, 1990), and open coding has been used in this research. Similar views are categorized together in an open coding process in order to build categories (Huberman & Miles, 1984). Interviews are used in particular to find out more about the participants' perspectives. All interviewees were male, and they were notified about the interview confidentiality. The interview part helped the researcher to have more reliable data by the clarification opportunity.

3.5.2 Data collection procedures. Based on the quantitative and qualitative approaches, the data of this study data were collected between October and November during the period of seven weeks. Students in both groups followed the same curriculum, including both reading and writing lessons. Students were informed about the process and were given a consent form. Experimental group students who said "yes" to participate in the qualitative phase of the study were chosen for the interviews.

The topics were parallel to the reading and writing coursebook, so students were familiar with the topics of the writing tasks. The students were expected to write one paragraph during the data collection process for six weeks of the study. Each week, the students were given a topic and asked to write a paragraph about the topic in the classroom. Experimental group students used their laptops and submitted their writings via Google Docs, while the control group students used pencil and paper for each paragraph writing task. The teacher informed the experimental group

about the online writing and feedback procedure and asked them to create a unique work without getting help from translation services and automated corrections offered by Google Docs. The study took place in one of the most disciplined institutions in Turkey; therefore, the participants followed the given instructions strictly and carefully. Besides, in order to secure the process, the students were monitored simultaneously by the teacher throughout the study. After they submitted their work, the researcher gave coded written feedback to both groups.

Error codes (Appendix C) which was developed by Zemach and Rumisek (2005) was used to provide feedback. The codes included sp (spelling), wf (word form), wc (word choice), wo (word order), sing (singular noun), pl (plural noun), art, (article), inf (too informal), ? (meaning unclear), pron (pronoun), s/v (subject-verb agreement), v-tense (verb tense), v-form (verb form), v-pass (passive verb), cs (comma splice), ro (run-on sentence), frag (fragment), co (connecting word), inf/ger (infinitive-gerund), line through word (delete), prep (preposition), punct (punctuation), c (capitalization), ¶ (start a new paragraph), and ↑ (add a word).

The experimental group responded to the feedback and wrote their second drafts and sent it back to the teacher. Students were free to ask questions during the feedback exchanges; therefore, they were able to communicate with the teacher about their writings and feedback throughout the week using the comment section in Google Docs. Students did not have any limits for writing drafts. Participants' responses to the feedback were not limited by word count or time. The number of feedback exchanges depended on the student writers. They were asked to revise at least once. On the other hand, the control group students used pencil and paper to write their paragraphs. After receiving the coded feedback on paper, they could ask their questions related to the feedback to the teacher. They followed the traditional feedback process that is used in the institution; therefore, they were not asked to submit a second draft.

3.5.2.1 Data collection procedure for the experimental group. The experimental group included 20 B1 level students. For writing assignments, Web 2.0 based tool, Google Docs was used throughout the writing and feedback process. In the first week of the fall semester, students were asked to join Google Classroom using their notebooks in the class. All students were familiar with using Google

Classroom, but they have not used Google Docs for writing and feedback sessions. They were introduced to Google Docs and its basic features such as *comment* and *reply*.

In the first week, students were introduced to the codes used for writing feedback. Error codes and error code exercises in Zemach and Rumisek's (2005) "Academic writing: From paragraph to essay" book were copied and distributed to the students. This error code practice was chosen because the students were familiar with the error codes since they used the same codes in preparatory school. Students examined error codes with examples and completed the exercises to learn identifying the codes and how to correct them. Error codes were examined one by one, and students asked their questions in order to avoid misunderstandings. They kept the copies and were allowed to look at the error code paper throughout the study. After the error correction activities, students were asked to write a paragraph about *"online social networks"* in the classroom which was taken as the pretest. Two raters scored the writings. The instructions required them to note the writing duration and word count. This instruction was fixed in all writing tasks. During the study, students were not given a time or word limit for writing their paragraphs in the class.

In-class paragraph writing activity was accepted as the students' first drafts. Data of word count, writing duration, number of errors and scores were written on Excel spreadsheets. The teacher gave coded feedback by highlighting the errors and writing the codes indicating them on the students' paragraph. Students received feedback the next day. They corrected their mistakes, made changes in their paragraphs (second draft), and sent it back to the teacher. The same procedure for feedback exchanges continued as students wanted to fix their errors and write more drafts. Students were able to ask questions to the teacher throughout the feedback exchanges.

The comment option of Google Docs was used to communicate in feedback exchanges. There was no time or draft limit for students to submit their following drafts; therefore, students decided the pace of the feedback exchanges. It was optional for students to interact with the teacher through questions, and in order to create a comfortable environment, students were not limited in terms of asking questions.

In the second week, students practiced writing topic sentences, supporting sentences, and concluding sentences. After analyzing the structure of a paragraph, students were assigned the second task and asked to write a paragraph by answering the following question: *"What is necessary to have a healthy lifestyle?"*. The fixed instructions were given, and students were reminded of noting down the word count and writing duration. The feedback procedure was the same.

In the next 3 weeks, the same procedures were followed, and the participants wrote 3 more paragraphs on *"benefits of bilingualism, qualities of a successful student, and advantages of living in a big city"*. Eventually, experimental group students had written 5 paragraphs and received feedback through Google Docs. In the sixth week, students wrote a paragraph on *"Do advertisements using photoshopped models negatively influence young people's body image?"* and submitted their final writing task.

Then, Task 6 was assessed by two independent raters and the scores were taken as posttest results. Data for the first and second research questions were collected by completing these stages. In Figure 2, data collection procedures for the experimental group are presented.

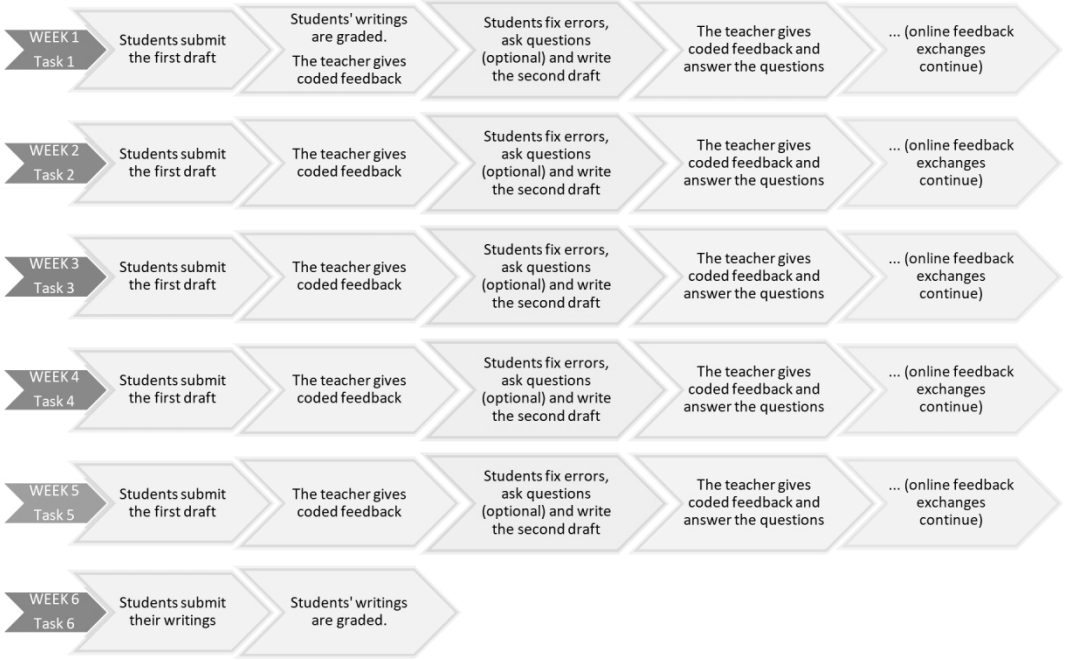

Figure 2. Data collection procedures for the experimental group.

In addition to students' writings, semi-structured interviews were conducted to analyze the perceptions of the participants. The interviews were done face-to-face (F2F). Interviews were recorded for the analysis. Besides, the researcher took notes during the interview in order not to miss any data.

3.5.2.2 Data collection procedure for the control group. The number of students in the control group was equal to the experimental group. 20 B1 level students participated in the study as the control group. As opposed to the students in the experimental group, they were given A4 papers for each task and used pencil for writing assignments.

In the first week, in the same way as the experimental group, students were introduced to the codes used for writing feedback. Error codes and error code exercises in Zemach and Rumisek's (2005) "Academic writing: From paragraph to essay" book were copied and given to the students. This rubric was chosen because the students were familiar with the error codes since they used this log chart in preparatory school. Students examined error codes with examples and completed the exercises to learn identifying the codes and how to correct them. Error codes were examined one by one, and students asked their questions in order to avoid misunderstandings. Students kept the copies and were allowed to look at the error code paper throughout the study. After the error correction activities, students were asked to write a paragraph about *"online social networks"* in the classroom which was taken as the pretest. Two independent raters assessed their paragraphs. Students were asked to note the writing duration and word count. This instruction was fixed in all writing tasks. Data of word count, writing duration, and scores were written to Excel spreadsheets by the researcher. During the study, there was no time or word limit for writing their paragraphs in the class.

After students had handed in their papers, the teacher gave coded feedback by underlining the errors and writing the codes indicating them on the students' papers. Every week, after giving feedback to the papers, the number of errors was recorded in Excel spreadsheets. The next day, students received their papers back with the provided feedback in the lesson. They checked their papers and could ask questions to the teacher in the lesson, during breaktime or in office hours. Students were not asked to write the corrected version.

In the second week, students practiced writing topic sentences, supporting sentences, and concluding sentences. After analyzing the structure of a paragraph, students were given the second task and asked to write a paragraph by answering the following question: *"What is necessary to have a healthy lifestyle?"*. Students were reminded of the fixed instructions that were about word count and writing duration. The feedback procedure was the same.

In the next 3 weeks, the writing and feedback procedures were the same. The participants wrote 3 more paragraphs on "benefits of bilingualism, qualities of a successful student, and advantages of living in a big city". Eventually, control group students had written 5 paragraphs using pencil and paper and followed the conventional feedback procedure by receiving coded feedback and communicating with the teacher F2F. In the sixth week, students wrote a paragraph on "Do advertisements with photoshopped models negatively influence a boy's body image?" on paper and submitted their final writing task. Two independent raters assessed Task 6 which was taken as the posttest results. By completing these stages, data for the first and second research questions were collected. Data collection procedures for the control group are presented in Figure 3.

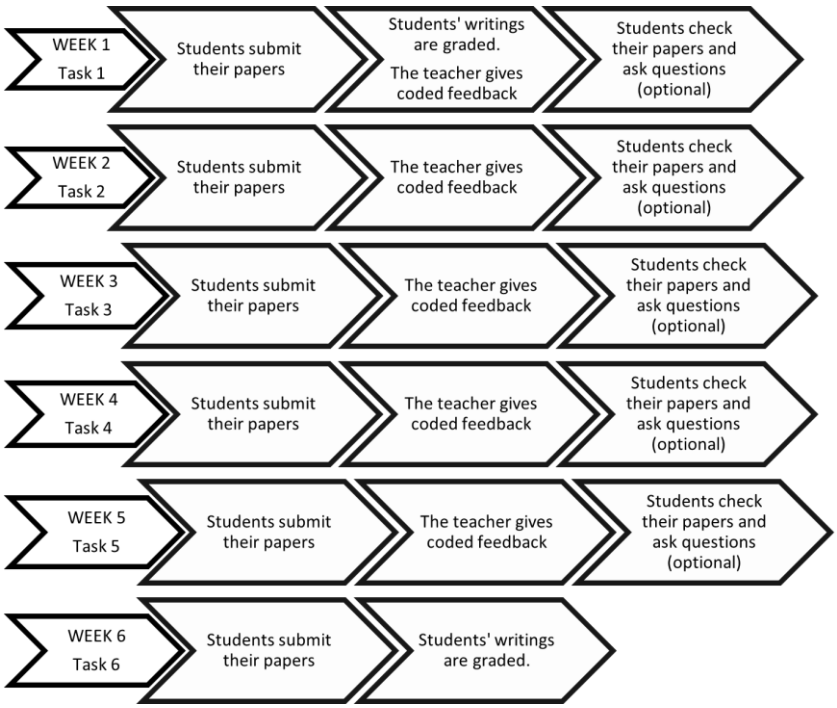

Figure 3. Data collection procedures for the control group.

3.5.3. Data Analysis Procedures. Statistical Package for Social Sciences (SPSS 25) was used to analyze and compare the quantitative data. In the analysis, Cambridge English Writing Assessment Scale was used to collect data about the students' writing scores. Before the analysis, the quantitative data including the word count, writing duration and the number of errors for each task were collected on a Microsoft Excel page. Word count indicates the number of words written by the students for each writing task. Writing duration shows how many minutes the student spent on writing each task. The total number of error codes that was given as the feedback for the first draft of the students' written work shows the number of errors made by students.

In experimental studies including experimental and control groups, the distribution of the students to the groups should be random. For this, there should be no difference between the control and experimental groups according to the research variable. Secondly, based on the variable considered, the variances of the students in the experimental and control groups should be homogeneous.

At the beginning of the study, after the students were distributed to the groups, it was examined whether there was a difference between their writing scores. The writing scores of the students were evaluated with a maximum of 20 points by two independent raters. First of all, whether there is a correlation between the scores of the raters evaluating the students' writings was examined with the Kendall Tau c coefficient. The correlation between Kendall Tau c coefficient and the scores, in other words, the association was examined with the Kendall Tau b coefficient.

At the beginning of the study, the correlation between the scores of the two raters evaluating the students' writing performance was calculated as Kendall Tau c = 0.851 and a perfect correlation was found between the raters' scores (P=0.0001). It was determined that there was an association of Kendall Tau b = 0.876 units in the same direction between the scores of the raters (P=0.0001). Therefore, there is correlation between the assessments of the raters. The random distribution of students was investigated by looking at their writing scores. The Shapiro-Wilk Normality Test was used to determine whether there is a statistically significant difference between the writing scores of the students. According to the normality test, students' writing scores show normal distribution. Therefore, parametric tests

were used for data analysis that shows the differences between the writing performances of the students according to the groups. The normality test results of the study are presented in Table 1.

Table 1

Normality Analysis

				Shapiro-Wilk		
	N	Mean	Std. Deviation	Statistic	df	Sig.*
Pretest	40	12,27	2,572	,980	40	,704
	40	11,83	2,561	,979	40	,666
Posttest	40	15,53	2,764	,964	40	,234
	40	15,32	2,664	,958	40	,149

* If P> 0.05, it fits the normal distribution.

Before providing feedback to the students, it was investigated whether there was a significant difference between their writing scores or not with the two-sample independent t-test. The analysis showed no significant difference between the writing scores of the students evaluated by the rater 1 (t=1.046 P=0.302) and rater 2 (t=0,799 P=0,429). Similarly, the homogeneity of variances of the students' writing scores according to the groups was measured with Levene's Test for Equality of Variances. The results showed that the variances of the writing skills scores of the students evaluated by rater 1 (F=1,828 P=0,302) and rater 2 were homogeneous (F=2,416 P=0,128). Accordingly, assignment of students to groups was found to be random and there was no advantageous group. The results are shown in Table 2.

Table 2

Levene's Test for Equality of Variances

	Group	N	Mean	Std. Deviation	F	P	t	P
Rater 1	Experimental Group	20	12,70	2,904	1,828	,184	1,046	,302
	Control Group	20	11,85	2,183				
Rater 2	Experimental Group	20	12,15	3,031	2,416	,128	,799	,429
	Control Group	20	11,50	2,013				

In addition to writing scores, word count and duration of writing each task were compared to find out whether students produce more words and spend more time writing their assignments after the feedback process. The differences between the experimental group and the control group were investigated. Also, the study

investigated accuracy of both groups by looking at the number of errors in the number of words produced. As an element of writing performance, accuracy primarily focuses on the absence of grammatical, morphological, punctuation and spelling components (Polio, 2001).

Besides collecting quantitative data, semi-structured interviews were utilized to analyze the participants' perceptions. Adams (2015) notes that semi-structured interviews are important for a number of useful tasks, especially when some of the open-ended questions require follow-up questions. The rationale for using a semi-structured interview is to fulfill the gaps with appropriate follow-up questions over the course of interviews.

The consent form which was filled out by all participants at the beginning of the study included a question about whether they voluntarily participate in the second step of the study or not. Participants chose yes if they wanted to take part in interviews. According to their answers, 6 volunteers were selected randomly and F2F interviews were done with them individually. The responses of the participants were recorded, and the recordings were transcribed after interview sessions in order not to lose any data. After transcription, the responses were translated into English by an expert translator. To provide useful data for the literature, before the translation process, the scripted data was analyzed by the researcher and two instructors in the field of English Language Teaching.

The qualitative data was obtained from the interviews and categorized by open coding. For online feedback exchanges, 4 themes emerged after the open coding process: ‘Providing flexibility in writing’, ‘Providing Motivation’, ‘Developing Sensitivity to Writing’, and ‘Decreasing Anxiety Level’. For the use of Web 2.0 tools in the writing process 2 themes were found: ‘Providing Practicality’ and ‘Encouraging to Write More’. The emerged themes were shown to the other instructors who were also giving Academic Writing lessons and her results were the same. The themes were explained in depth in the results chapter.

3.5.4. Trustworthiness. Creswell (2012) states that “the researcher determines the accuracy or credibility of the findings through strategies such as member checking or triangulation” (p. 259). Therefore, triangulation, member

checking, and external audit techniques that were presented in the Creswell's (2012) study were used in the current study. Creswell (2012) defines "triangulation" as a process of confirming evidence with the support of multiple individuals. For that reason, the researcher worked with two instructors in the field of English Language Teaching. In addition, the interview script which included the raw data for the qualitative part of the study was examined and reorganized in parallel with the findings of the researcher.

According to Cresswell (2012) "member checking is a process in which the researcher asks one or more participants in the study to check the accuracy of the account" (p. 259). In order to find out whether the themes were correct and exemplary, the researcher worked with two students who participated in the interviews.

Cresswell (2012) describes the third strategy as "external audit strategy". According to this strategy "the researcher hires or obtains the services of an individual outside the study to review different aspects of the research" (p. 260). To be able to use this strategy, the researcher got help from the foreign language coordinator of the institution who was an assistant professor with 15 years of teaching experience. Her guidance and recommendations helped the researcher in analyzing and revising the findings of this study.

3.6 Limitations

There are some limitations in the current study. The first limitation is the number of the participants. This study was conducted with 40 freshmen EFL learners enrolled in Academic Reading and Writing Course. The number of students in the experimental and control group was equal. To be able to get more clear data, the number of the participants could be higher. In addition, all participants were male; therefore, the effect of gender is not investigated. Besides, participants of this study were B1 level EFL learners at a state university who studied at preparatory class for one year. For further studies, participants with different proficiency levels and backgrounds could participate in the study.

One of the limitations is the length of the study. The research lasted seven weeks: six weeks for the writing and feedback stage, and one week for the

interviews. In order to collect more solid data, students could be given more tasks to write and the feedback process could be longer. Another constraint is the syllabus of the university. At the beginning of the semester, there were six weeks of paragraph writing in the syllabus. Writing task topics were parallel to the topics in the reading and writing books. Therefore, each week they were expected to write different kinds of paragraphs. For further research, the study can be carried out with similar types of paragraphs such as opinion paragraphs.

Another limitation was the possible difference between the experimental and the control group in terms of using dictionaries. The experimental group students carried out the writing tasks using their laptops; therefore, they could get help from dictionaries more than the control group students who completed the activities using pencil and paper. However, the feedback was not only given to vocabulary and spelling errors. The error codes included feedback for different types of errors. Besides, the experimental group was informed in order not to copy and paste words or sentences from different sources such as online translation services. Most importantly, the teacher monitored all students by viewing their documents on her screen throughout the study.

Finally, students were provided coded corrective feedback to enable them to identify and fix their errors. There are many different types of feedback. The study can be conducted by providing different types of feedback or instead of comprehensive marking, selective error correction can be provided to the learners in the further studies.

Chapter 4

Findings

4.1 Introduction

The purpose of this study is to explore the effects of teacher-student feedback exchanges using Web 2.0 tools on Turkish EFL learners' writing performance; if there is a positive effect on the students, then the main objective of the study is to investigate the effect of teacher-student feedback exchanges and Web 2.0 tools on writing skill development compared to traditional feedback. This chapter presents the analyzed data obtained from the written work of the participants, and the writing scores are drawn from the Cambridge English Writing Assessment Scale. Results are shown in the first part of the chapter. The mean and standard deviations of the writing scores obtained to gather the quantitative data of the research were tabled. In addition, statistical data are presented to see the effects of online feedback exchanges and Web 2.0 tools by applying a parametric t-test.

In order to shed light on new ideas about the effects of the online feedback process on Web 2.0 tools on students' writing skill development, two classes participated in this study as the experimental and control groups. The experimental group students completed writing assignments through Google Docs, responded to the provided feedback, asked questions and edited their papers multiple times throughout 5 weeks, while the control group used pencil and paper for writing task, received paper-based feedback once for every assignment, and asked their questions to the teacher face to face (F2F) in the classroom. Both the experimental and control groups consisted of 20 students. The objective of this chapter is to examine the results of the first research issue, which aims to find out the effects of teacher-student feedback exchanges through Google Docs and conventional feedback on Turkish EFL students' writing performance. Then it examines the

results of the second research question, which seeks to investigate whether online feedback exchanges have any effect on word count, writing duration, and accuracy compared to the conventional feedback. After that, semi-structured interviews are analyzed and presented to provide information on the third research question.

4.2 Analysis of Research Questions

Quantitative and qualitative data were presented in order to have a better understanding of the research questions of the study. There are three subsections as an analysis of the results of the research questions.

4.2.1 Research Question 1: What are the effects of teacher-student feedback exchanges through Google Docs and traditional feedback on Turkish EFL students' writing performance?

Students were asked to write one paragraph in the class every week. After they submitted their work, the teacher gave coded feedback to both groups. However, the experimental group used Google Docs throughout the writing and feedback process and responded to the feedback until the next assignment. They were able to communicate with the teacher and write multiple drafts by fixing their errors. The control group wrote with pencil and paper. They received feedback on paper and asked questions to the teacher in the classroom or office hours which is the typical feedback practice of the institution.

After providing feedback to the students for five weeks, students wrote their final paragraph in the sixth week which showed the posttest result. Writing performance of the students in both groups was scored by two independent raters, and pretest and posttest results were collected. Firstly, the correlation between the scores of the raters was investigated with the Kendall Tau c statistic, and the Kendall Tau c = 0.870 was calculated (*P*=,0001). The consistency between the assessments of the raters were high. The Kendall Tau b value for the correlation between the assessment of the raters was calculated as 0.897 which was found significant (*P*=,0001).

The Wilcoxon signed-ranks test was used for the comparison between the pretest and posttest results. According to the Wilcoxon signed-rank test, the

experimental group students' pretest scores and posttest scores showed significant differences. This means online feedback exchanges positively affected the writing scores (*Z*=5,415 *P*=0,0001). There was also a significant difference between the pretest and posttest scores of the control group. According to the difference determined, paper-based feedback increased the writing performance too (*Z*=5,466 *P*=0,0001). The findings can be seen on Table 3.

Table 3

Wilcoxon Signed Ranks Test

		N	Mean	Std. Deviation	Z	P
Experimental group	Pretest	40	12,28	2,572	5,415	,000
	Posttest	40	15,53	2,764		
Control Group	Pretest	40	11,83	2,561	5,466	,000
	Posttest	40	15,33	2,664		

The findings revealed that both the experimental group and the control group increased the writing scores at the end of the study. The independent two sample t test was used to find out the difference between the posttest results of the experimental and control groups. As a result, according to the evaluation of both rater 1 (*t*=3,959 *P*=,000) and rater 2 (*t*=4,175 *P*=,000), at the end of the study, the writing score of the experimental group students was higher than the writing score of the students in the control group. The results are shown in Table 4.

Table 4

Comparison of Writing Posttest Scores

		N	Mean	Std. Deviation	t	P
Rater 1	Experimental Group	20	17,00	2,317	3,959	,000
	Control Group	20	14,05	2,395		
Rater 2	Experimental Group	20	16,80	1,908	4,175	,000
	Control Group	20	13,85	2,519		

4.2.2 Research Question 2: Is there a statistically significant difference between the experimental and the control group in terms of the word count, writing duration, and accuracy?

4.2.2.1 Findings for the Word Count. The effect of online feedback exchanges on Google Docs applied to the experimental group and pencil-and-paper feedback provided to the control group for six weeks were investigated. In order to

see the change in students' written production, the number of words in the first submitted writing of the students was taken into consideration. Since the data for the variables are repeated measures, the effects were analyzed using The Friedman Two-way Analysis of Variance (ANOVA). Repeated measures were examined separately for both the experimental group and the control group. The analyses are based on the differences between the mean scores for research variables. The Friedman test was used to investigate whether there was a difference between the repeated measures of the mean score of the number of words written by the students each week. As seen from Table 5, difference was found only between the repeated measures of the experimental group. (Test statistic=48,171, *P*=0,0001). This means, the process of exchanging feedback on Google Docs for 5 weeks positively affected students to write more words in their paragraph writing tasks.

Pairwise comparisons were analyzed in order to determine the differences among the repeated measures. SPSS 25.0 software was utilized to analyze the data. SPSS 25.0 is based on the Bonferroni multiple comparison test. Bonferroni multiple comparison test indicated that while experimental group students wrote an average of 108 words in the first week, as a result of the online feedback process, it raised to an average of 159.2 in the fifth week (Std. test statistic=4,184 Adj. Sig.=0,0001) and 198,55 in the sixth week (Std. test statistic=5,747 Adj. Sig.=0,0001). In the third week, the mean word count of the experimental group was 118.15, but the number of words written showed an increase in the fifth (Std. test statistic=3,423 Adj. Sig.=0,009) and the sixth week (Std. test statistic=4,986 Adj. Sig.=0,0001) There was also significant difference between the second week (123.65) and the sixth week (198.55), indicating an increase (Std. test statistic=4,395 Adj. Sig.=0,0001). Lastly, students produced more words in the sixth week (198.55) than in the fourth week (159.2) (Std. test statistic = 3,592 Adj. Sig.=0,005). The findings are presented in Table 5.

Table 5

Weekly Group Statistics of Both Group's Mean Scores of The Word Count

		N	Mean	Std. Deviation	dFR	P
Experimental Group	Week 1	20	108,00	29,104	48,171	0,000
	Week 2	20	123,65	28,673		
	Week 3	20	118,15	39,932		
	Week 4	20	134,40	47,831		
	Week 5	20	159,20	59,013		

Control Group	Week 6	20	198,55	57,119		
	Week 1	20	108,25	34,052	13,087	0,061
	Week 2	20	118,60	35,302		
	Week 3	20	102,70	36,375		
	Week 4	20	112,20	33,093		
	Week 5	20	118,75	30,719		
	Week 6	20	125,55	30,864		

In addition to the differences between the repeated measures in the experimental group and the control group, the Mann-Whitney U test was used to investigate whether the word count differed according to the independent groups. According to the Mann-Whitney U test, there was not a statistically significant difference found between the number of words written by students in the first (*Z*=-,257 *P*=,797), the second (*Z*=-,595 *P*=,552), the third (*Z*=-1,110 *P*=,267), and the fourth week (*Z*=-1,123 *P*= ,261). On the other hand, Mann-Whitney U test indicated a significant difference in the fifth (*Z*=-2,705 *P*= ,007) and the sixth week (*Z*=-4,072 *P*=,0001). The analysis revealed that the number of words written by the experimental group students was higher than that of the control group students. The results can be seen in Table 6.

Table 6

Comparison of Both Group's Weekly Mean Scores of The Word Count

		N	Mean	Std. Deviation	Z	P
Week 1	Experimental Group	20	108,00	29,104	-,257	,797
	Control Group	20	108,25	34,052		
Week 2	Experimental Group	20	123,65	28,673	-,595	,552
	Control Group	20	118,60	35,302		
Week 3	Experimental Group	20	118,15	39,932	-1,110	,267
	Control Group	20	102,70	36,375		
Week 4	Experimental Group	20	134,40	47,831	-1,123	,261
	Control Group	20	112,20	33,093		
Week 5	Experimental Group	20	159,20	59,013	-2,705	,007
	Control Group	20	118,75	30,719		
Week 6	Experimental Group	20	198,55	57,119	-4,072	,000
	Control Group	20	125,55	30,864		

4.2.2.2 Findings for the Writing Duration. In order to find out whether students spend more time on writing tasks, students were asked to note down how many minutes they spent on writing their paragraphs and submit it with each task. The Friedman test was used to investigate whether there is a difference between the repeated measures of the students' weekly mean time for writing in minutes, and it was determined that there was a difference between the repeated measures by weeks

for each group. The Bonferroni multiple comparison test was used to determine which groups are different. The results revealed that there was a significant difference between the weeks both in the experimental group and the control group.

The findings indicated that the mean time for writing a paragraph of the experimental group increased from 19.7 minutes in the first week to 31.10 minutes in the fourth week (Std. test statistic=3,085 Adj. Sig.=0,031), 36.10 in the fifth week (Std. test statistic= 4,226 Adj. Sig.=0,0001), 36.75 minutes in the third week (Std. test statistic=5,367 Adj. Sig.=0,0001), and 48.9 minutes in the sixth week (Std. test statistic=7,057 Adj. Sig.=0,0001). In the second week, mean time that students spent on the writing task was 30.6, and the number raised to 48.9 minutes in the sixth week (Std. test statistic=4,226 Adj. Sig.=0,0001). In addition, a significant difference was also found between the fourth week (31.10) and the sixth week (48.9) (Std. test statistic=3,972 Adj. Sig.=0,001) indicating an increase.

On the other hand, the results showed that the control group spent 19.65 minutes writing their paragraphs in the first week. Then, this number increased to 32.45 minutes in the third week (Std. test statistic=3,55 Adj. Sig.=0,006), 34.35 in the fourth week (Std. test statistic=4,184 Adj. Sig.=0,0001) and 42.10 in the sixth week (Std. test statistic=6,761 Adj. Sig.=0,0001). In the second week, control group students spent mean 30.35 minutes for writing assignment, and the mean time for writing increased to 36.5 in the fifth week (Std. test statistic=3,00 Adj. Sig.=0,040) and 42.1 in the sixth week (Std. test statistic=4,86 Adj. Sig.=0,0001). Besides, there was a rise in the writing duration from the third week (32.45) to the sixth week (42.1) (Std. test statistic=4,86 Adj. Sig.=0,0001). The results are shown in Table 7.

Table 7

Weekly Group Statistics of Both Group's Mean Scores of Writing Duration

		N	Mean	Std. Deviation	dFR	P
Experimental Group	Week 1	20	19,70	6,027	59,094	,000
	Week 2	20	30,60	10,303		
	Week 3	20	36,75	12,174		
	Week 4	20	31,10	9,673		
	Week 5	20	36,10	14,853		
	Week 6	20	48,90	11,982		
Control Group	Week 1	20	19,65	4,146	56,693	,000
	Week 2	20	30,35	4,793		
	Week 3	20	32,45	8,121		
	Week 4	20	34,35	9,155		

Week 5	20	36,50	8,179	
Week 6	20	42,10	6,805	

After determining the differences between the repeated measures in the research groups, it was investigated by the Mann-Whitney U test whether there was a difference between the writing duration of writing tasks according to independent groups. According to the Mann-Whitney U test, the difference between the writing duration of the experimental and control group students for all weeks was statistically insignificant. The results of writing duration are presented in Table 8.

Table 8

Comparison of Both Group's Weekly Mean Scores of Writing Duration

		N	Mean	Std. Deviation	Z	P
Week 1	Experimental Group	20	19,70	6,027	,109	,913
	Control Group	20	19,65	4,146		
Week 2	Experimental Group	20	30,60	10,303	-,272	,785
	Control Group	20	30,35	4,793		
Week 3	Experimental Group	20	36,75	12,174	1,248	,212
	Control Group	20	32,45	8,121		
Week 4	Experimental Group	20	31,10	9,673	1,883	,060
	Control Group	20	34,35	9,155		
Week 5	Experimental Group	20	36,10	14,853	-,650	,516
	Control Group	20	36,50	8,179		
Week 6	Experimental Group	20	48,90	11,982	1,955	,051
	Control Group	20	42,10	6,805		

4.2.2.3 Findings for Accuracy. How accurate the text is measured by the number of linguistic errors. Fewer errors show that the level of accuracy is high. (e.g., Cumming et al., 2005; Polio, 1997). The number of errors and word count were taken into consideration to find out the accuracy of students. The Friedman test was used to investigate whether there is a statistically significant difference between the repeated measures of the students' writing accuracy according to weeks, and no significant difference was found between the repeated measures of the control group (dFR=5,714 *P*=0,335). However, the difference between the repeated measures of accuracy of the experimental group was statistically significant (dFR=41,857 *P*=0,000). Bonferroni multiple comparison test was used to determine the difference among the groups.

Bonferroni multiple comparison test indicated that the accuracy of the experimental group that was 84.59 in the first week increased to 90.58 in the fifth week (Std. test statistic = 3,888 Adj. Sig.=0,002) and to 93.73 in the sixth week (Std.

test statistic = 5,832 Adj. Sig.=0,0001). Another significant difference was found between the second week (86.27) and the sixth week (93.73) indicating an increase in terms of accuracy (Std. test statistic = 4,395 Adj. Sig.=0,0001). In addition, accuracy mean score in the fourth week (86.95) increased in the sixth week (93.73) (Std. test statistic = 4,057 Adj. Sig.=0,001) and writing accuracy raised from 88.54 in the third week to 93.73 in the sixth week (Std. test statistic = 3,043 Adj. Sig.=0,035). The findings for accuracy are presented in Table 9.

Table 9

Weekly Group Statistics of Both Group's Mean Scores of Accuracy

		N	Mean	Std. Deviation	dFR	P
Experimental Group	Week 1	20	84,59	5,656	41,857	0,0001
	Week 2	20	86,27	7,878		
	Week 3	20	88,54	6,081		
	Week 4	20	86,95	6,095		
	Week 5	20	90,58	4,533		
	Week 6	20	93,73	2,640		
Control Group	Week 1	20	84,25	4,742	5,714	0,335
	Week 2	20	85,57	6,085		
	Week 3	20	82,67	6,577		
	Week 4	20	86,21	4,813		
	Week 5	20	85,25	7,040		
	Week 6	20	85,59	5,502		

To find out whether there is a difference between the accuracy of both groups the Mann-Whitney U test was used. The Mann-Whitney U test indicated that there was no difference between the accuracy of the experimental and control groups in the first (Z =,379 *P*=,705), the second (Z=,730 *P*=,465), and the fourth week (Z=,568 *P*=,570). However, the accuracy of the experimental group was higher than the control group in the third (Z=2,746 *P*=0,006), the fifth (Z=2,407 *P*=0,0016), and the sixth week (Z=4,531 *P*=0,0001). The results are shown in Table 10.

Table 10

Comparison of Both Group's Weekly Mean Scores of Accuracy

		N	Mean	Std. Deviation	Z	P
Week 1	Experimental Group	20	84,59	5,656	,379	,705
	Control Group	20	84,25	4,742		
Week 2	Experimental Group	20	86,27	7,878	,730	,465
	Control Group	20	85,57	6,085		
Week 3	Experimental Group	20	88,54	6,081	2,746	,006
	Control Group	20	82,67	6,577		
Week 4	Experimental Group	20	86,95	6,095	,568	,570
	Control Group	20	86,21	4,813		
Week 5	Experimental Group	20	90,58	4,533	2,407	,016
	Control Group	20	85,25	7,040		

Week 6	Experimental Group	20	93,73	2,640	4,531	,000
	Control Group	20	85,59	5,502		

4.2.3 Research Question 3: What are the perceptions of Turkish EFL students on teacher-student feedback exchanges and online writing through Google Docs?

The qualitative part of the research consisted of the analysis of semi-structured interviews with the participants. When the students were given a consent form at the beginning of the study, they were asked whether they wanted to participate in the interviews or not. Six of them volunteered to take part in the second step of the study. The objective of the interviews was to gain insight into the perceptions of B1-level freshmen university students towards using Web 2.0 tools in writing and online feedback exchanges. Interviews were conducted in Turkish to prevent misunderstandings and miscommunication and to make students feel relaxed and comfortable during interviews. The scripted data was translated into English later on. As the data were being collected, the themes of the responses were analyzed and listed. The analysis revealed that the participants gathered around four themes; they can be ordered as providing flexibility in writing (Theme 1), providing motivation (Theme 2), developing sensitivity to writing (Theme 3), and reducing anxiety level (Theme 4) for online feedback exchanges; and two themes as providing practicality (Theme 1) and encouraging to write more (Theme 2) for using Web 2.0 in writing. The development of these six themes led to the overall positive effect on the improvement of the participants' writing skills. In this part, the interviews and themes will be examined in detail.

4.2.3.1 Theme 1 for online feedback exchanges: Providing flexibility in writing. According to the result of the analysis, it has been seen that the first theme about the participants' perception on online feedback process is flexibility. The participants compared the conventional writing environment and feedback processes with computer-mediated writing environment and online feedback sessions. They stated that when they receive feedback online, they did not have to limit their performance with time. Thus, they consider the use of online instruments for writing feedback as time-saving tools that give them the chance to express their ideas without the limit of time and space. Their responses were:

I could check my feedback in the morning or at night. It was totally up to me. I like that I was not limited by the traditional rules in the classroom. (Interviewee 4, November 26, 2019)

The best part was the quick feedback from the instructor. When feedback was given, I was notified immediately. This way, I could see my mistakes almost immediately and corrected my errors without losing time. Besides, I did not have to wait for the next lesson to ask my questions. Normally, you cannot communicate with your teacher at 10 p.m, but when you are in an online environment, you are free. (Interviewee 1, November 25, 2019)

The participants emphasized the idea that using computers that are part of their everyday lives gave them the opportunity to write, revise, organize their ideas and learn without any limitations. Another participant stated:

I carry my laptop with me everywhere I go. I checked my feedback and wrote the next draft when I felt ready to do it. When everything is online, I can work anywhere, anytime. (Interviewee 5, November 26, 2019)

On the other hand, one interviewee who mentioned that technical problems can interrupt the interaction that is why he favored F2F feedback stated that:

Google Docs works if you are online. Unfortunately, we had Internet connection problems at the dorm for two weeks. Therefore, I had to find a stable connection to check the feedback and correct my mistakes. Some weeks, I would prefer F2F feedback from my teacher in order not to lose time because of technical problems out of class. (Interviewee 3, November 25, 2019)

He talked about the technical problems which consumed his time. He said that if feedback is not timely and there is disconnection between sessions, students might lose their ambition or motivation.

4.2.3.2 Theme 2 for online feedback exchanges: Providing motivation. It was reported in the interviews that while receiving online feedback and communicating with the teacher throughout the process, the students felt more motivated. Students reported that they felt the need to correct their errors thanks to the online feedback exchanges that gave them the opportunity to improve their

awareness of their errors. It was also reported that students were eager to study further on their writings and errors with timely feedback and interaction.

Receiving online feedback was faster than receiving paper feedback. So I did not have to wait a lot of time to write my second draft. When we write and edit our papers in the classroom, we forget what we wrote when we receive the feedback. Online feedback helped me see my repetitive errors and motivated me to spend more time on my paper because I could ask everything to my teacher throughout the week. (Interviewee 2, November 25, 2019)

As it can be clearly seen, online feedback exchanges motivate learners by keeping them engaged with writing out-of-classroom. One student who claimed that face-to-face feedback sessions are time consuming that is why he found online feedback sessions beneficial for his motivation to writing practices stated that:

Feedback is important for me, but the revision process takes time when it is face-to-face. Besides, it is not possible to find my teacher available all the time. And if I do not receive feedback, I lose my interest. Online feedback sessions motivated me to write more detailed paragraphs, because I knew that even if we did not have any lessons, my teacher would give feedback in detail regularly and I had more chances to improve my paragraph. (Interviewee 6, November 26, 2019)

In addition, as learners have more opportunities to write and fix their errors, it enables them to become motivated and autonomous learners. Some learners saw the online feedback process as an important factor that has a positive effect on their motivation to fix specific grammar errors and use new vocabulary.

It is difficult to develop writing skills. I know that we must practice a lot, but sometimes, feedback on paper may be confusing and fixing all problems seems like a lot of work. This year, I am more interested in writing practices and feedback from my teacher out-of-class. Learning how to correct my own mistakes made me more confident to write and express my ideas with new words and conjunctions. Also, I do not make specific errors such as subject-verb agreement errors anymore. (Interviewee 5, November 26, 2019)

One interviewee who mentioned the importance of the contribution of discovering his weak sides of his learning stated that:

Online feedback sessions helped me to focus on my mistakes. I learned my weak sides and tried to be careful in the next assignment. My errors declined after each feedback session. Seeing the positive change was the main source of motivation for me. (Interviewee 4, November 26, 2019)

Based on these perceptions, it can be inferred that students feel more motivated when they could track their progress out-of-class and fix their errors regularly. Throughout online feedback exchanges, both their writing skill and perceptions about writing process changed positively.

4.2.3.3 Theme 3 for online feedback exchanges: Developing sensitivity to writing. As the third theme of the effect of online feedback exchanges was improving writing sensitivity. Many of the participants stated that online feedback exchanges and correcting their errors increased their writing sensitivity levels:

As a learner who is having difficulties in writing and understanding grammar rules, I believe that online feedback sessions expanded my awareness on what I should improve in my writing skill by forcing me to learn from my errors and avoid them in the following tasks. For example, I learned choosing the appropriate conjunction according to the context and the rules of that conjunction. In addition, I did not pay attention to punctuation, especially when I wrote on the computer. I am more careful now. I think if you want to write more professionally, you should pay attention to even small details because it makes a big difference. (Interviewee 1, November 25, 2019)

At the beginning of the semester, in the first writing task, I made lots of mistakes. Most of them were because of my lack of attention. The worst part was that I did not even know why I made those errors. Thanks to online feedback sessions, I am more aware of my errors now. (Interviewee 3, November 25, 2019)

One of the interviewees who began using strategies to revise his paragraph during online feedback exchanges expressed that:

Since I corrected my errors on my own, I developed some editing strategies. After I finished writing, I read my paragraph again and tried to edit my errors like punctuation or spelling because I frequently received feedback with 'punct' and 'sp' codes. (Interviewee 6, November 26, 2019)

Another interviewee who shared a similar perspective stated that:

Even though writing on Google Docs is easier when it is compared to writing on a paper, I spent more time on writing and wrote slowly because I wanted to write a good paragraph. Also, I began checking my paper like a reader before I submit. This is something I did not use to do. (Interviewee 2, November 25, 2019)

Under the light of these comments, it is clearly seen that learners became more sensitive in producing their work and analyzing the feedback provided. As it was stated by many participants, participants began writing slower as they started paying attention to their errors in order not to repeat them again and improve their writing skill.

4.2.3.4 Theme 4 for online feedback exchanges: Decreasing anxiety level. As the fourth theme for online feedback exchanges, the majority of participants pointed out that when the process was carried out online, their stress level decreased, so they see receiving online feedback as a positive factor which contributed them to decrease their anxiety levels.

In face-to-face feedback sessions, I cannot overcome stress. Sometimes, I do not understand the feedback and I feel shy to ask the same question to my teacher again and again. I know that I can ask my friends for help, but I am not sure if their correction is accurate because they are students just like me. I think online feedback is good for me because I do not feel any pressure when I ask something to my teacher or try to fix my errors. (Interviewee 5, November 26, 2019)

Two interviewees mentioned the importance of feeling relaxed during the writing and feedback processes. They stated that the out-of-class feedback sessions helped them minimize their stress levels:

Receiving feedback online and revising my writing out of the classroom don't make me feel like it is just a lesson that I have to pass. I felt more comfortable

because I could also show my performance out of the classroom. (Interviewee 2, November 25, 2019)

I feel like we are expected to write perfect papers in the lessons or exams, but we are students who are still in progress, and this objective is not possible without practicing. This pressure always made me feel stressed in writing lessons. I think if we are given enough chances to write and learn from our mistakes, making errors can be an advantage for us. I've seen that if I try hard to improve my writing skill, the number of errors really decreases. Following my improvement on the screen definitely provided a stress-free writing process for me. (Interviewee 4, November 26, 2019)

The participants shared their particular thoughts about online feedback exchanges through Google Docs. According to their responses, it can be concluded that students feel that when they can lower the level of anxiety, they learn better.

The participants' perceptions of the influence of using Web 2.0 tools (Google Docs) in writing assignments were gathered for the second interview question, and after analyzing their answers, two themes emerged as practicality (Theme 1) and encouraging to write more (Theme 2).

4.2.3.5 Theme 1 for Web 2.0 tools: Providing practicality. It was reported in the interviews that many learners found online writing and the feedback process practical. The interviewees reported that writing on Google Docs made their job easier and saved their time by helping them type and edit faster.

This term was very effective for my writing development because everything was designed to make our job easier. Since the writing activities and feedback sessions were online, it was easy to write and make changes. When the technology gives us the opportunity to do things the easier way, why would we still follow the old methods? (Interviewee 5, November 26, 2019)

I prefer writing online to writing with pencil and paper because I do not get tired when I write on the computer. When I want to rewrite, I do not have to write the whole sentence again. It is time-saving. (Interviewee 1, November 25, 2019)

When I learned all our tasks and feedback will be given online, I felt really happy. Especially when it comes to the editing stage, I think writing on paper is time consuming. If the feedback sessions were done with pencil and paper, I would skip the second or third drafts. (Interviewee 3, November 25, 2019)

In a similar vein, one of the interviewees mentioned that writing on Google Docs helped him focus on the content and enabled him to make changes easily:

Google Docs gives you a paper ready to write. The margins are set, and the paper looks neat when you write. It was more comfortable for me. When I write something wrong, it takes one click to delete and write again. It saved my time and gave me more time to think about what I wanted to write instead of focusing on organization and clear handwriting. (Interviewee 2, November 25, 2019)

Besides, one participant pointed out the advantages of online writing practices by comparing paper-based written feedback and online written feedback. The participant stated the advantages of online writing from a different perspective:

We used to write on paper and sometimes we couldn't understand the teacher's handwriting or the feedback given. It is hard to focus on my writing after the teacher writes lots of codes on my paper, but highlighted feedback on my text did not distract me while I was fixing my errors. The interface of Google Docs is similar to Microsoft Word and we can see the notes right next to the document. And I could easily undo, cut and paste. These features are not available in pen-and-paper activities. Google Docs was definitely useful in both writing and revision stages. (Interviewee 6, November 26, 2019)

It was also clear that traditional ways of writing decrease students' performance during revision stages and the quality of the feedback provided. As it was claimed by Interviewee 6, he found online writing and feedback useful since he was not confused with a paper with complicated handwriting. His response highlighted the importance of understanding the feedback without getting confused. As it can be seen that Google Docs had a positive effect on learners' written work and perception about writing.

4.2.3.6 Theme 2 for Web 2.0 tools: Encouraging to write more. As a result of the qualitative analysis, one of the common themes was online feedback processes being an encouraging factor for students to produce longer texts. Their responses were:

I tried to write as much as I could every week. First of all, writing on my Google Docs was not difficult as I was used to working on my computer since I was an elementary school student. Secondly, I was free to make mistakes. I could make changes and add something later on. (Interviewee 4, November 26, 2019)

The other interviewee who supported this point of view stated that:

I started writing longer paragraphs because I did not lose time on the computer. The only way to improve writing skill is to do lots of writing practices. We wrote only one paragraph every week. I wish we could write one more paragraph about a second topic and have more feedback. (Interviewee 1, November 25, 2019)

One interviewee mentioned that the convenience of writing online enabled him to be more engaged in writing and organizing his ideas:

I realized that I spent more time every week to write a better paragraph. When I write on paper, I prefer writing short sentences because I do not want to erase and work on it again. For example, if I want to add another supporting idea to my paragraph, I have to erase and rewrite everything. While doing this, I forget the following ideas that I want to add. This is annoying. On Google Docs, I can write what I think at that moment and organize them later. Also, I like changing the places of sentences, and I can do it easily in this way. (Interviewee 2, November 25, 2019)

As a conclusion, participants' perceptions about the use of Google Docs and online feedback exchanges and their contribution to the learners' writing skill development included a variety of perspectives. The discussion on the responses of the participants will be presented in the discussion chapter.

Chapter 5

Discussion and Conclusion

5.1 Overview

In this chapter, the results of the study which were presented in the Methodology and Findings chapters will be discussed in detail. It is an important part to make inferences from both the quantitative results and semi-structured interviews. The necessary conclusions are presented after examining qualitative and quantitative data carefully for the implications that can be critical for answering the research questions. In addition, there will be comments on the implications of this study as well as recommendations for future studies.

5.2 Discussion of the Findings for the First Research Question

The first research question tried to investigate the effects of teacher-student feedback exchanges through Google Docs and traditional feedback on Turkish EFL students' writing performance. In the literature, there are not many studies that were carried out to find out the effects of teacher-student feedback exchanges through Web 2.0 tools on students' writing performances while compared to traditional feedback. Most of the studies regarding online feedback investigated peer feedback and students' perception about the online feedback process. For that reason, it was felt necessary to carry out a study regarding this topic by the researcher.

According to the comparison of pretest and posttest results, after the 5-week feedback process, both the experimental group and control group improved their writing skills. Ismail et al. (2008) stated that even slight feedback given to learners is effective. Research investigating the success of corrective feedback has generally been favorable (Lyster & Ranta, 2013). The findings show that students benefit from both online feedback exchanges and traditional feedback. However, at the end of the study, the writing score of the students in the experimental group was higher than the students in the control group. As seen from Table 4, it can be clearly stated that online feedback exchanges have a significant effect on students' writing performance, which enhances the learning process. Similarly, Sherafati et al. (2020) stated that writing skill of learners improved dramatically over time after practicing computer-mediated teacher feedback. There can be several reasons for this result.

According to Carless et al. (2011), feedback should engage learners in the feedback process and provide technological assistance when it is needed. Dunworth & Sanchez (2016) stated that all parties need to be active in the feedback process and underlined the fact that feedback is still a continuous activity rather than an event.

In the current study, the experimental group students took an active role in the writing process by exchanging feedback through Google Docs for five weeks. In the sixth week, they wrote their final task. As it was done in this study, Alvarez et al. (2012) came to a result that students responded more promptly to online feedback provided by the teacher because they not only address teacher concerns but also discuss their written work asynchronously using an electronic annotation tool. Taking advantage of exchanging ideas, discussing the feedback and asking questions to the teacher can be one of the essentials of an effective writing and feedback process which leads to the development of students' writing skill. In a similar vein, the results of the study of Seyyedrezaie et al. (2016) showed that Google Docs played an important role in boosting the writing performance of the students.

5.3 Discussion of the Findings for the Second Research Question

In order to see the difference between the experimental group and the control group, it was necessary to conduct a quantitative data analysis. The discussion of the findings for the word count, writing duration, and accuracy will be presented in detail.

5.3.1 Discussion of the findings for word count. The second research question tried to investigate whether there is a statistically significant difference between the experimental and control groups in terms of the number of words written by students. In order to see the changes in the word count, the number of words in the first submitted writing of the participants for each week were taken into consideration. First, repeated measures were examined separately for both groups and the findings showed that only the experimental group increased the mean score of the number of words. After the process of exchanging feedback through Google Docs, students began writing more words in their paragraphs. This indicated that online feedback exchanges positively affected students to produce more in their written works.

Dizon (2016) carried out a study to compare the effect of online writing and feedback through Facebook and pen-and-paper writing and feedback. Throughout the study the teachers provided corrective feedback to both groups. Likewise, at the end of the study, the average word count of the experimental group increased while the traditional writing and feedback group plateaued. The students in the online writing group exchanged feedback with their peers as well. In the current study, the feedback was only provided by the teacher and students exchanged feedback throughout the process on Google Docs. Therefore, these results indicate that online writing and feedback exchanges promote learners to write more in their paragraphs.

In addition to the differences between repeated measures in both groups, word count of independent groups was investigated and the analysis revealed that at the end of the writing and feedback process, the word count of the experimental group was higher than that of the control group. As students completed the writing assignments and exchanged feedback through Google Docs, it can be said that the mode of writing also influenced the number of words produced by the students. Barkaoui and Knouzi (2018) stated that the mode of writing had an impact on the length of the essay. Jin and Yan (2017) found in their study that essays that were written on the computer were longer and included longer sentences than essays written on paper. Fellner and Apple (2006) used Blogger for a writing program stated that the students' average word count increased from 31.5 to 121.9. In a study of Ambrose and Palpanathan (2017), 78% of the students were able to write longer essays using Google Docs. Both mode of writing and feedback exchanges have an influence on the length of writings of the students.

5.3.2 Discussion of the findings for writing duration. As writing is as critical as other skills, such as speaking, reading, and listening and reading, greater special attention is required to improve it. Students have to get a long process to learn to write and they need constant feedback in order to write better (Zainuddin, 2004). White and Arndt (1991) claim that writing includes a thinking process in its own right and it certainly takes a lot of intellectual effort that usually takes place over a significant period of time. As students receive feedback, they are expected to become more aware of their errors and try to produce better writings in the following assignments. Receiving feedback and improving written work needs to be a

continuous process for learners, and they want to see that they show improvement with each draft.

Zheng et al. (2015) reported that students in a middle school in Colorado spent more time writing, editing, and revising their written work when they used Google Docs than they used to do with pencil and paper documents, leading researchers to believe that Google Docs encourages learners to be more engaged in the writing process. However, in the current study, repeated measures of the mean time showed that both groups increased the time they spent on writing tasks and no significant difference was found between the experimental and control groups on a weekly basis. The findings of this study revealed that both online feedback exchanges and traditional feedback processes lead students to spend more time on writing. This result may indicate that both feedback methods can make students more sensitive in the writing process.

5.3.3 Discussion of the findings for accuracy. According to Piri et al. (2012), accuracy is one of the most significant features since the development of it leads to a greater writing skill. The error count is one possible way to calculate writing accuracy and is believed to have a more fine-grained accuracy measure (Polio, 1997). While accuracy of the students' written work was being rated, the number of errors in the number of words produced was taken into consideration. The repeated measures of accuracy of the current study indicate that teacher-student feedback exchanges through Web 2.0 tools have a significant effect on the accuracy of students' writings. Online feedback process helped learners produce more accurate written works.

On the other hand, the analysis of the quantitative data showed that the traditional feedback process did not help learners write more accurately. Several studies asserted that the revision process can be a beneficial and essential stage towards the long-term acquisition of particular features (Ferris, 2004; Guénette, 2012; Sachs & Polio, 2007) and an important first step in the progress of writing accuracy (Liu & Brown, 2015) as students have more opportunity to reflect and make corrections and modify their writings (Ferris, 2010). In their study with 29 Iranian EFL learners who had enrolled in a Paragraph Writing course at a university, Saadi and Saadat (2015) found that accuracy of the students who received online

teacher feedback improved after the feedback process. Other studies investigating the effectiveness of peer feedback also showed that the asynchronous online feedback process between learners led to improvement in spelling, vocabulary, and grammar (Tolosa et al., 2013; Vinagre & Muñoz, 2011).

In the current study, when the experimental group and the control group were compared, it is seen that at the beginning of the study, there was no significant difference between the accuracy of both groups. According to the analysis of the quantitative data, a significant difference was found between the groups in the third, the fifth and the sixth weeks. The students took quizzes in the fourth week, which may affect their performance in writing. However, in the long run, the experimental group surpassed the control group in terms of accuracy. The study of Sarre et al. (2019) showed that online corrective feedback provided by the teachers improved learners' accuracy. Besides, when feedback was provided repeatedly, students began writing more accurately. In addition, the results of Wihastyanang et al.'s (2020) study showed that students who experienced online teacher and peer feedback outperformed the control group who received traditional teacher feedback in terms of linguistic accuracy. As a result, it can be stated that online feedback exchanges that allow learners to receive feedback repeatedly and revise multiple times have been a successful method to lead students to write more accurately.

5.4 Discussion of the Findings for the Third Research Question

The purpose of the third research question was to explore the students' perceptions towards online feedback exchanges and to analyze the contribution of Web 2.0 tools to the writing development of learners. The qualitative data analysis revealed important results about online feedback exchanges and the use of Web 2.0 tools in writing and feedback processes. Participating students mentioned some of the benefits of supporting the writing process with online teacher-student feedback exchanges and writing on Google Docs. These advantages showed that online feedback exchanges through Google Docs can help learners to engage more in writing practices.

The responses of the participants were classified under in total of six categories. Providing flexibility, providing motivation, developing sensitivity to writing and decreasing anxiety level are the themes emerged for online feedback

process whereas providing practicality and encouraging to write more emerged for the use of Web 2.0 tools in writing. This study demonstrated the general expectation of students in writing feedback. The participants stated that feedback and revision processes take their time in paper-based writing. Contrarily, online feedback process provide flexibility to learners to work anywhere anytime they want while traditional methods limit them to show their performance only in the classroom. Students had positive attitudes towards online feedback exchanges since it offers direct contact with the teacher without time and space limit. When computer technology is used, teachers and learners can exchange information, share ideas and learn from each other (Fidaoui et al., 2010). The interviewees underlined the importance of interaction in the online environment. This also underlines the significant role of the relationship between teachers and students in an online environment (Mullen & Tallent-Runnels, 2006).

Similarly, McVey's (2008) study used the inked feedback feature to explore the perception of learners towards this type of feedback and the results showed that the feedback provided by the instructor improved students' motivation and decreased their anxiety level. The students in the current study underlined the importance of the effect of stress-free environment and interaction that online feedback process provides. Giving more opportunities to write and edit decreased the stress level of the student writers. In his study with 20 L2 learners, Tuzi (2004) asserted that students were able to concentrate on their strong and weak sides on their writing tasks as a result of online feedback and writing processes. In the current study, students stated that they felt motivated as online feedback exchanges helped them to discover their strengths and weaknesses and track their writing process that let them raise awareness on their repeated errors.

Moreover, Nicol and MacFarlane-Dick's (2006) principles for effective feedback include promoting reflection, facilitating dialogue about learning, fostering self-esteem, and giving chances to reduce the errors. The findings of the interviews also show that students think that online feedback allows them to communicate with the teacher out of class and help them to pay more attention to fix their errors. This resulted in increased sensitivity to writing practices.

Similar to the findings of the study by Burns et al. (2002), the students reported that they have a positive attitude towards editing and revising their writings on the computer. The participants stated that Google Docs made writing easier, enabled them to make changes easily, and helped them to see feedback clearly. In a similar vein, the students in the study of Yoke et al. (2013) expressed that online corrective feedback was a time saver and they preferred this to traditional feedback because they did not have to write everything for corrections which provided practicality in writing and feedback stages. 63.3% of the learners expressed that this method was easier to use in both writing and feedback processes. This confirms previous studies (Hosseini, 2012; Razagigard & Razzaghifard, 2011) which found that the use of computers had a significant motivational impact on students in writing practices.

In the current study, it was found that online feedback provided motivation to write more detailed paragraphs, improve awareness on errors and encourage to write more. As a result, it can be clearly stated that attitudes of the students towards online feedback exchanges and the use of web 2.0 tools on their writings and feedback process are proved to be positive. Students are satisfied with the use of Google Docs and receiving feedback with their teacher in an interactive way in and out of the classroom for their writing skill development.

5.5 Implications

The findings of this research present some pedagogical implications in the field of improving EFL learners' writing skills considering writing performance, word count, writing duration, and accuracy with the help of online feedback exchanges through Web 2.0 tools. To begin with, the current study can be a sample study for EFL teachers who work to provide effective feedback using Web 2.0 tools in the writing process for the sake of writing skills of their students. Writing is a challenging skill both for students and teachers. Therefore, the present study contributes to writing skill development studies by enriching the writing and feedback process through online feedback exchanges and Web 2.0 tools and collecting perception of the students on the subject.

The findings of the study suggest that when students were engaged in writing process and were given chances to write multiple drafts, it increased their writing

performance, but it is difficult for both teachers and students to work with papers while exchanging feedback and revising; therefore, web 2.0 tools that allow both teachers and students to keep in touch and exchange feedback in and out of classroom writing activities should be adapted in writing courses. When given the opportunity to track their own process with the help of the teacher feedback, students become more motivated, and this improves their writing performance.

It can be clearly understood that students produce longer writings and perform better in a flexible online writing environment that encourages them to take part in the process without limit of time and space. Since students can develop sensitivity to writing, they began paying attention to their errors which increase their accuracy. However, as they want to submit a better written work, this may slow down their pace while writing.

Moreover, writing teachers should adapt online tools that allow learners to ask questions, exchange feedback and communicate with the source of feedback throughout the writing and revision process since these kinds of activities contributed to their self-correction to develop their writing skills.

With the introduction of technology in our lives, it was inevitable for the field of education to avoid the use of technology in promoting learning. Learners today use their smartphones, tablets and notebooks for both personal and educational purposes in everyday lives. It is inevitable for educators to adapt technology into the lessons. On the other hand, online technologies pave the way for fostering learning out of the classroom. Therefore, students should go beyond the traditional writing process. They should take an active role and engage in the writing practice out-of-the class. In addition, students' perception of writing and the feedback process should be taken into consideration because they are the people who give shape to their learning process.

5.6 Conclusions

This study aimed to find out the possible effects of online feedback exchanges through Web 2.0 tools on the development of writing skills of EFL learners at a state university in Turkey. There were no previous studies on online feedback exchanges using Web 2.0 and its effects on the writing performance, word

count, writing duration, and accuracy of Turkish university students in the literature. The present research therefore contributes to the literature by examining these concepts by means of taking the participants' perceptions about the subject.

The data was obtained from forty freshmen students at a state university in the northwest of Turkey. The experimental group exchanged feedback with the teacher in each writing assignment for five weeks through the comment option on Google Docs while the control group was provided paper-based feedback and asked their questions face to face. In the sixth week, the students wrote their final paragraph which showed their final score. To assess the writing performances of the participants, Cambridge English B1 Writing Assessment Scale was used. To collect data, participants submitted their writings for a total of six weeks. SPSS 25.0 software was utilized for the analysis of the data. The first and the last assignments were taken as their pretest and posttest results. In order to shed light to the process, repeated measures for word count, writing duration, and accuracy were taken into consideration.

In the quantitative part of the research, the analysis showed that both online feedback exchanges and the traditional feedback process improved their written works. It can be said that providing feedback enhances students' writing performance. However, when the posttest results of both groups are compared, online feedback exchanges have been more successful in helping students develop their writing skill. It has been proved that online feedback exchanges are an effective model contrary to the traditional paper-based feedback. Besides that, teacher-student feedback exchanges through Web 2.0 tools allowed learners to produce more words and increase accuracy in writings while traditional feedback groups' mean score for word count and accuracy did not show any significant difference.

Regarding the effect of the feedback process, both groups increased the duration while writing; therefore, online feedback exchanges did not provide an advantage for the students to submit their writings in a short time. The qualitative analysis helped the researcher to gain more insight in understanding the quantitative data and the perception of the learners towards exchanging feedback with the instructor through Google Docs. Students were positive about the process. They stated that online feedback exchanges motivated them, made them pay more

attention to their errors and decreased their anxiety level as well as saving their time throughout the process by providing a practical environment. Besides, they were pleased by the integration of Web 2.0 tools as it made the writing and revision process easier to follow and encouraged them to express their ideas by using more words.

To conclude, the research put forth the results of quantitative and qualitative data analysis. The data showed that online feedback exchanges enhanced writing performance, encouraged learners to write more and helped them to increase accuracy. The only different result was the increase in writing duration which could be explained by the students' increased level of sensitivity in writing and revision process that led them to write slowly in order to avoid errors. Additionally, the students stated that online feedback processes have been beneficial for their writing skill development.

Considering everything mentioned, the use of online feedback exchanges in and out of the classroom had positive effects on students' writing performance, whereas it increased the time they spent on writing their assignments. Therefore, educators and researchers can reshape the writing lessons and feedback process by using the results of this study.

5.7 Suggestion for Further Study

This study gives some suggestions for further studies. First, the study was conducted with 40 EFL learners; future studies can be carried out with an extended number of students. Second, the proficiency level of the participants of this study was B1. The study can be conducted with lower and upper level learners. One of the limitations is that the course was designed by the institution; therefore, the writing topics and lessons were organized by taking the limitations of the syllabus into consideration. Other lesson plans can be used in future research. Furthermore, the study could be designed only for six weeks because of the limitations of the course. Students were expected to begin writing essays in the seventh week of the course. In order to investigate students' paragraphs, the current study was conducted for a total of six weeks. The longer research period can be provided to have more concrete results. Because of the profile of the university, all participants were male; therefore, gender factor was not investigated in the current study.

Coded feedback was used to encourage learners to fix their errors. Other feedback methods can be applied to see the effect of online feedback exchanges on students' writing and editing process. In this study, students' total writing scores were analyzed. For further studies, students' writings can be analyzed regarding content, communicative achievement, organization, and language use to have an idea if online feedback exchanges have direct impact on these parts of the rubric. Writing rubric and semi-structured interviews were the instruments that were used to analyze the results of the study. This study can be an example for future studies which aim to investigate teacher-student feedback exchanges using Web 2.0 tools and online writing.

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APPENDICES